

# FINAL MITIGATED NEGATIVE DECLARATION

April 2016

**PROJECT NAME:** Waterman Industrial Center

**PROJECT NUMBERS:** Development Permit Type D – 15-11

**This Document is Considered Draft Until it is Adopted by the Appropriate City of San Bernardino Decision-Making Body.**

This Mitigated Negative Declaration is comprised of this form along with the Environmental Initial Study that includes the following:

- a. Initial Study Form
- b. Environmental Analysis Form and attached extended studies for Air Quality (as amended March 24, 2016) and Greenhouse Gas Emissions, Biological Resources, Cultural Resources (as amended February 16, 2016), Geotechnical Report, Noise, and Traffic and Transportation (as amended April 22, 2016).

1. California Environmental Quality Act Negative Declaration Findings:

Find, that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period; and that revisions in the project plans or proposals made by or agreed to by the project applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and, on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project as revised will have a significant effect on the environment.

2. Required Project Design Elements and Mitigation Measures:

The following project design elements and mitigation measures were either proposed in the project application or the result of compliance with specific environmental laws and regulations and were essential in reaching the conclusions within the attached Environmental Initial Study. Both the project design elements and the mitigation measures must be assured to avoid potentially significant environmental effects.

Refer to the attached Environmental Initial Study for the rationale for requiring the following mitigation measures:

## Biological Resources

- B-1a Trees and other suitable nesting habitat within the limits of work shall be surveyed by a qualified biologist prior to initiating construction-related activities. A pre-construction survey would be conducted no more than 72 hours prior to the start of work. If no nests are observed, construction activities should be initiated within 72 hours. If more than 72 hours pass and construction has not been initiated, another survey would be required.
- B-1b If, during the breeding season, an active nest is discovered in a tree or shrub to be removed, the tree or shrub shall be protected using orange construction fence or the equivalent. The protective fencing shall be placed around the tree or shrub at the following distance depending on species: 25 feet from the drip line of the tree or shrub for passerines and non-raptors; 300 feet from the drip line of the tree for raptors. No parking, storage of materials, or work would be allowed within this area until the end of the breeding season or until the young have fledged, as determined by a qualified biologist.
- B-2 Tree Removal Permit. Prior to the issuance of a grading permit, an arborist survey and report including a tree replacement program shall be prepared for review and approval by the City of San Bernardino Community Development Director. Subject to the approval of the report, the City shall issue a tree removal permit.

## Cultural Resources

- CR-1 Prior to beginning project construction, the Project applicant shall retain an archaeological monitor to monitor initial ground-disturbing activities in an effort to identify any unknown archaeological resources. Any newly discovered cultural resource deposits shall be subject to a cultural resources evaluation.

## Geology and Soils

- G-1 All grading and construction of the Project site shall comply with the geotechnical recommendations contained in the Geotechnical Engineering Investigation prepared by NorCal Engineering dated April 2015. All recommendations contained in the report shall be incorporated into all final and engineering and grading plans.

## Greenhouse Gas Emissions

- GHG-1 The project applicant shall provide sidewalks within the project boundary and along the off-site roadway improvements.
- GHG-2 The project applicant shall require that any future tenants institute a ride sharing program and employee vanpool/shuttle that is open to all employees.
- GHG-3 The project applicant shall require that all building structures meet or exceed 2013 Title 24 Standards and Green Building Code Standards.
- GHG-4 The project applicant shall require that all lighting installed in the proposed structures uses on average a minimum of 5 percent less energy than conventional metal halide warehouse lighting.
- GHG-5 The project applicant shall require that all faucets, toilets and showers installed in the proposed structures utilize low-flow fixtures that would reduce indoor water

demand by 20% per CalGreen Standards.

- GHG-6 The project applicant shall require that ENERGY STAR-compliant appliances are installed on site.
- GHG-7 The project applicant shall require all future tenants to institute recycling programs that reduces waste to landfills by a minimum of 50 percent (75 percent by 2020) and includes designated recycling bins at each proposed structure and requires all green waste to be processed at a recycling or composting facility.

## Noise

### Construction

- N-1 During all project site excavation and grading on site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
- N-2 The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- N-3 Equipment shall be shut off and not left to idle when not in use.
- N-4 The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
- N-5 The project applicant shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.
- N-6 The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.
- N-7 Limit the use of heavy equipment or vibratory rollers and soil compressors along the project boundaries to the greatest degree possible. It is acknowledged that some soil compression may be necessary along the project boundaries.
- N-8 Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.
- N-9 For the duration of construction activities, the construction manager shall serve as the contact person should noise levels become disruptive to local residents. A sign should be posted at the project site with the contact phone number.

### Operational

- N-10 The project shall construct an 8-foot noise barrier along the northern project boundary in accordance with the Kunzman Noise Study. The wall shall be positioned at the top of slope or pad, whichever is greater such that it provides optimum sound attenuation.

**Transportation/Traffic**

- TRAF-1 Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnection of the traffic signals to function in a coordinated system.
- TRAF-2 As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

**ADOPTION STATEMENT:** This Mitigated Negative Declaration was adopted and above California Environmental Quality Act findings made by the City of San Bernardino Council on:

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Travis Martin  
Planning Department

# WATERMAN INDUSTRIAL CENTER

## INITIAL STUDY

April 2016

Prepared For:

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- A. Air Quality, Global Climate Change, and Health Risk Assessment Impact Analysis
- B. Biological Constraints Analysis
- C. Cultural Resource Study Findings Memo
- D. Geotechnical Engineering Investigation
- E. Noise Impact Analysis
- F. Traffic Impact Analysis and Traffic Impact Analysis Addendum

## I. Introduction

### *Project History*

The proposed project site is located in the southcentral portion of the City of San Bernardino (City) as depicted in Figure 1, Regional Location. The project site encompasses 12 parcels on approximately 26 acres and is bound by East Dumas Avenue to the north and South Waterman Avenue to the east. Orange Show Road is located approximately 0.2 mile north of the project site; see Figure 2, Vicinity Map.

Newcastle Partners (applicant) and the applicant's representative met with City staff on April 28, 2015 to review project specifics and obtain the City's initial input regarding site constraints and the entitlement process. In May 2015, a pre-application package with project site plans and associated information was submitted to the City. The applicant and applicant's representative attended a pre-application review meeting with the City's Development/Economic Review Committee on June 25, 2015.

### *Current Application*

The applicant proposes to develop a 564,652-square-foot (SF) industrial center building on the southwest corner of the intersection of East Dumas Street and South Waterman Avenue (see *Project Description* below).

In accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Section 21000 et seq.) and its Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.), this Initial Study (IS) has been prepared to evaluate the potential environmental effects associated with the construction and operation of the proposed Waterman Industrial Center project.

As set forth in the State CEQA Guidelines Section 15070, an Initial Study leading to a Mitigated Negative Declaration (IS/MND) can be prepared when the Initial Study has identified potentially significant environmental impacts, but revisions have been made to the project, prior to public review of the Initial Study, that would avoid or mitigate the impacts to a level considered less than significant; and there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment. This document, together with other technical analysis documents referenced herein, serve as the environmental review of the proposed Waterman Industrial Center.

This version of the document reflects changes to the Final IS/MND as a result of public comments on the Draft IS/MND. Revisions to the Draft IS/MND text are indicated by bold text (**bold**) for text additions and strike out (~~strike out~~) for deleted text. The comments and responses do not result in any new significant information and do not change the findings or conclusions presented in the Draft IS/MND.

Pursuant to Section 15367 of the State CEQA Guidelines, the City is the Lead Agency charged with the responsibility of deciding whether to approve the proposed project.

With respect to the requirements for an Initial Study, the applicable sections of the State CEQA Guidelines Section 15063 include:

(A.1) All phases of project planning, implementation, and operation must be considered in the Initial Study of the project.

(A.3) An initial study may rely upon expert opinion supported by facts, technical studies or other substantial evidence to document its findings. However, an Initial Study is neither intended nor required to include the level of detail included in an EIR.

(B.2) The Lead Agency shall prepare a Negative Declaration if there is no substantial evidence that the project or any of its aspects may cause a significant effect on the environment.

The purposes of an Initial Study are to:

(C.1) Provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or a Negative Declaration.

(C.2) Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration.

(C.4) Facilitate environmental assessment early in the design of a project;

(C.5) Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;

(C.6) Eliminate unnecessary EIRs;

An Initial Study shall contain in brief form:

(D.1) A description of the project including the location of the project;

(D.2) An identification of the environmental setting;

(D.3) An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries. The brief explanation may be either through a narrative or a reference to another information source such as an attached map, photographs, or an earlier EIR or negative declaration. A reference to another document should include, where appropriate, a citation to the page or pages where the information is found.

(D.4) A discussion of the ways to mitigate the significant effects identified, if any;

(D.5) An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls;

(D.6) The name of the person or persons who prepared or participated in the Initial Study.

(E) If the project is to be carried out by a private person or private organization, the Lead Agency may require such person or organization to submit data and information which will enable the Lead Agency to prepare the Initial Study. Any person may submit any information in any form to assist a Lead Agency in preparing an Initial Study.

(G) As soon as a Lead Agency has determined that an Initial Study will be required for the project, the Lead Agency shall consult informally with all Responsible Agencies and all Trustee Agencies responsible for resources affected by the project to obtain the recommendations of those agencies as to whether an EIR or a Negative Declaration should be prepared. During or immediately after preparation of an Initial Study for a private project, the Lead Agency may consult with the applicant to determine if the applicant is willing to modify the project to reduce or avoid the significant effects identified in the Initial Study.

## II. Description of Proposed Project

The proposed Waterman Industrial Center (proposed project) is a 564,652-SF industrial building with office space, parking, a pump house, and landscaping on an approximately 26-acre property located on the southwest corner of the intersection of East Dumas Street and South Waterman Avenue in the City of San Bernardino.

The industrial building would be one floor with a maximum height of 47 feet. The building would be a cross dock warehouse facility with 10,000 SF of dedicated office/mezzanine space. The site will also include a 427-SF pump house. The building would have 49 dock doors on its northern frontage and 49 on its southern frontage. Total on-site parking would be 452 stalls, with 286 dedicated to warehouse parking (including office) and 166 trailer parking spaces. Landscaping in the amount of 103,585 SF is anticipated for the site and the southwest corner of the site would be used as a storm water/water quality control basin. Roadway frontage improvements would be provided on South Waterman Avenue and East Dumas Street.

There are two site access alternatives evaluated in this Initial Study for the proposed project. Alternative A proposes site access would be provided from one signalized full movement driveway and right-in/right-out driveway on South Waterman Avenue and two full movement driveways on East Dumas Street. Alternative B would eliminate the right-in/right-out driveway on South Waterman Avenue; all other access points to and from the proposed project would remain the same as Alternative A.

Additionally, there are 8 Southern California Edison (SCE) power poles that contain 6 wires of high voltage 66kv Edison transmission lines, a 3 wire 12kv system and a 3 wire 4kv system. Seven of the poles are made of wood, while the most easterly pole near the intersection of Dumas Street and Waterman Avenue is made of tubular steel. Due to the size of the electrical transmission lines, undergrounding these lines is not feasible. With implementation of the project, 5 of the 8 power poles would be relocated outside the ultimate roadway improvements on the south side of Dumas Street.

The industrial building is currently planned as a “spec building.” Thus, the future tenant of the building is not currently known. Furthermore, without knowing the future tenant, an exact number of future employees or hours of operation cannot be determined. Therefore, this Initial Study and associated technical reports use approximate potential on-site employees, hours of operation, and trip counts to and from the site based on the project’s proposed square footage and use as an industrial center building.

As further described below, the proposed project requires a General Plan Amendment (GPA) and Zoning Map Amendment (ZMA). Construction of the proposed project is expected to commence in June 2016 and be completed in March 2017. The project would be operational in 2017.

### ***Existing Project Site***

The project site is currently comprised of the following 12 parcels: 014-143-101, 014-143-102, 014-143-103, 014-143-104, 014-143-108, 014-143-109, 014-143-110, 014-143-111, 0104-143-112, 014-143-116, 014-143-120, and 014-143-121. Upon approval of the project, the 12 existing parcels would be consolidated into 1 parcel. Current uses on the 12 parcels include 5 vacant parcels, 4 parcels with single-family residential homes, 1 parcel with a church, and 1 parcel used as a golf course driving range. There is existing utility access (water, sewer, electricity, gas) to the project site.

Various species of trees are located on the site, primarily on the periphery of the parcel used as a golf course driving range. It is estimated that most or all of these trees would be required to be removed with construction of the proposed project. The golf course supports no native vegetation and generally consists of mowed non-native grass. There are no native habitats on site. The

remainder of the lots are largely absent of vegetation, with some interspersed trees. The site is not located in a defined area by the City for potential habitat for sensitive wildlife or in a biological resource area. The site is not located in an area of archaeological or historical sensitivity as identified by the City.

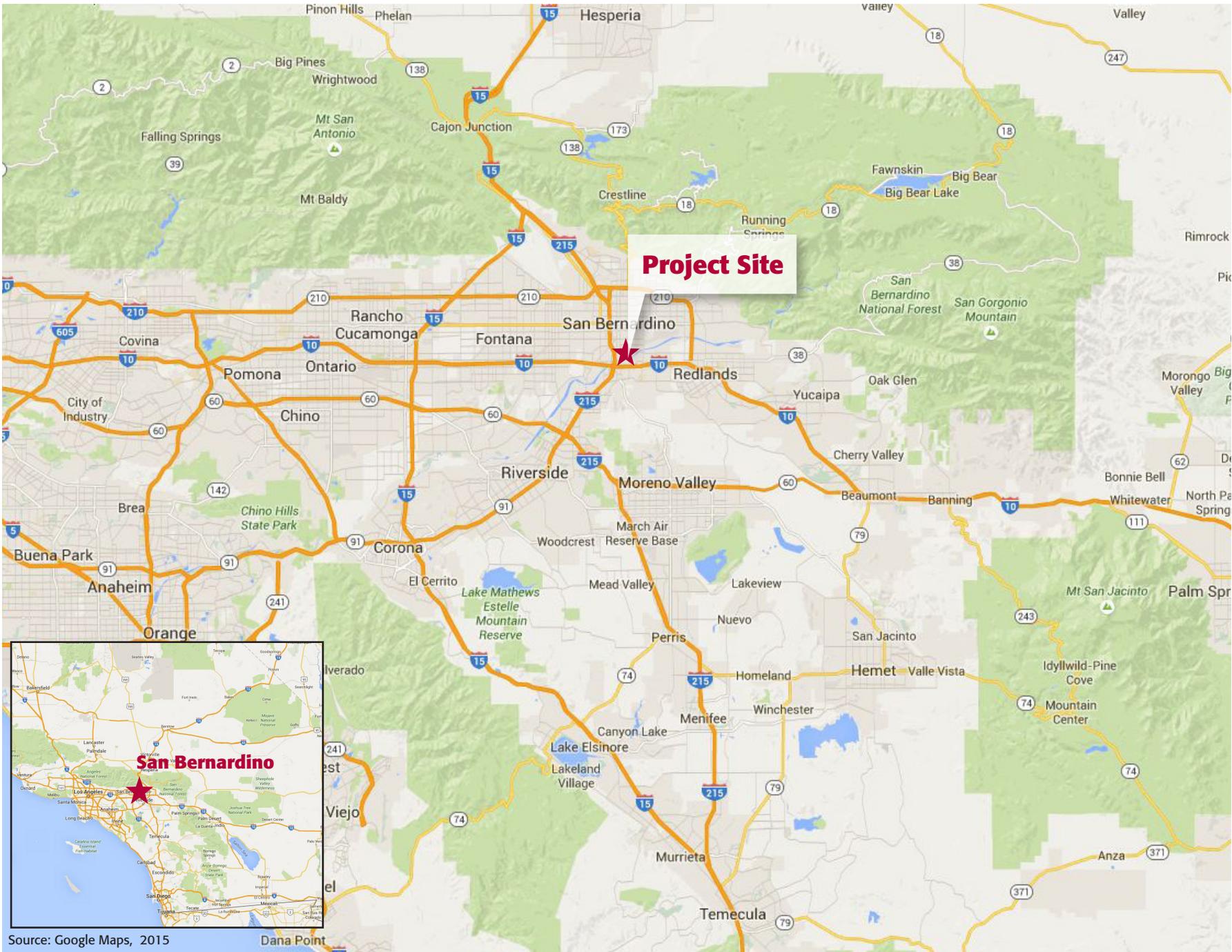
### ***Project Site Vicinity***

Single-family residences, vacant lots, and light industrial uses are located north of the site. Professional office uses, a vacant lot, and light industrial uses are located east of the site. A public golf course is located south of the site. The public golf course's parking lot, as well as vacant lots and single-family residences are located west of the site. Numerous cross dock facility warehouses, similar to the proposed industrial building for the project site, are located within the City approximately 0.5 mile northeast of the site.

### ***General Plan/Zoning & Project Approvals***

The City's General Plan land use designations for the site are Industrial and Open Space. The City's zoning designation for the site are approximately 7.5 acres of Industrial Light (IL), approximately 4 acres of Office Industrial Park (OIP), and approximately 14.4 acres of Public Commercial Recreation (PCR).

The proposed project is not consistent with the land use designations in the General Plan or the City's Zoning Map for the project site. Therefore, a General Plan Amendment (GPA) and Zoning Map Amendment (ZMA) will be required for the project's approval and implementation and are considered as a component of the proposed project. The GPA would re-designate the entire project site as Industrial and the ZMA would re-designate the entire site as Industrial Light (IL). Additional required project approvals include a Tentative Parcel Map and a Development Permit.

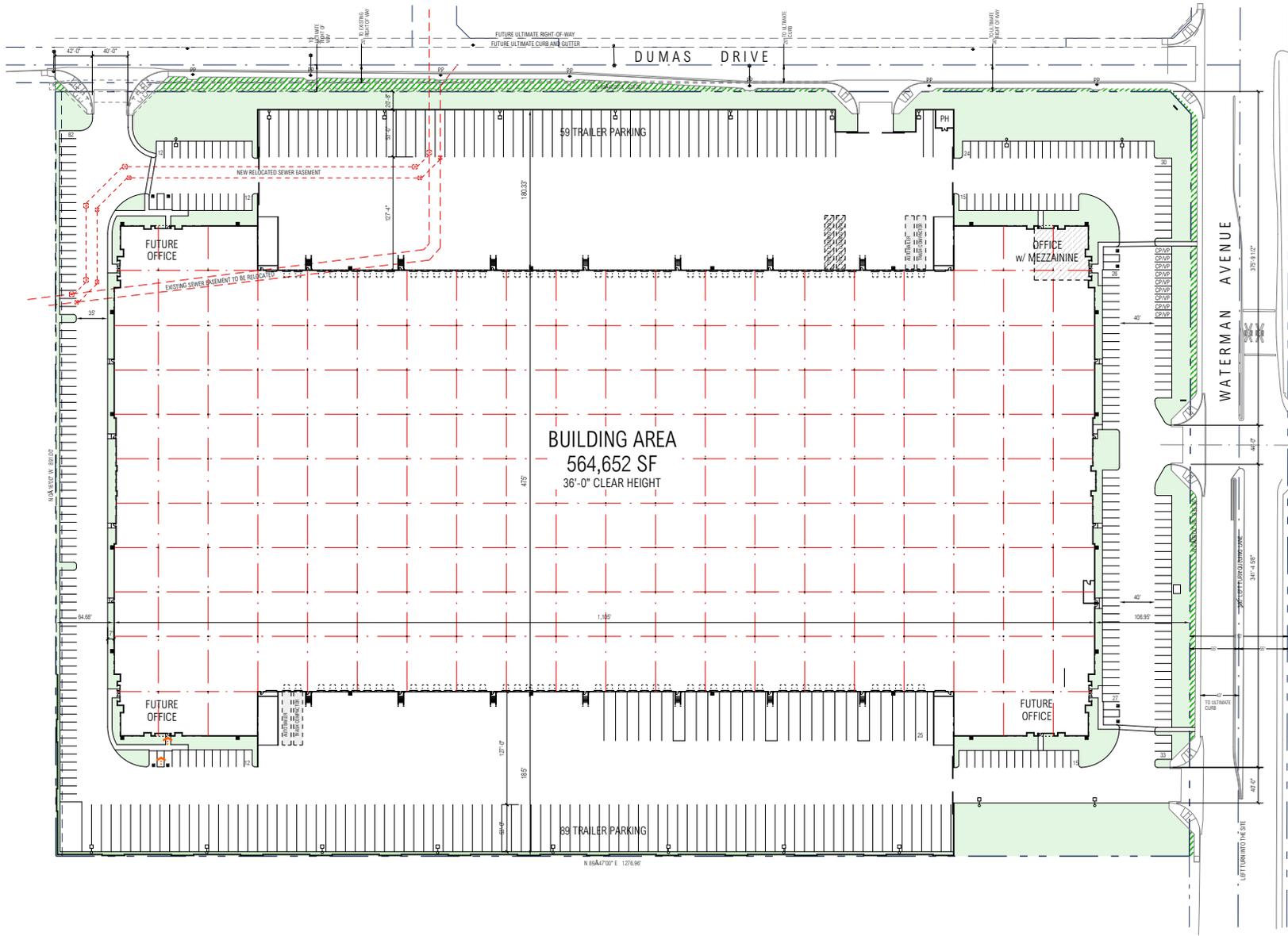


**FIGURE 1:** Regional Location Map  
 Waterman Industrial Center Initial Study  
 City of San Bernardino



Source: Google Earth, 2015

**FIGURE 2:** Project Vicinity Map  
Waterman Industrial Center Initial Study  
City of San Bernardino



**PROJECT DATA**

|  |                         |
|--|-------------------------|
| GROSS SITE AREA:   | 1,100,249 SF / 25.25 AC |
| BUILDING AREA:   |                         |
| FOOTPRINT  | 554,652 SF              |
| MEZZANINE  | 10,000 SF               |
| PUMP HOUSE   | 427 SF                  |
| TOTAL  | 565,079 SF              |
| COVERAGE:  | 51.35 %                 |
| PARKING REQUIRED: WAREHOUSE / < 10% OFFICE INCIDENTAL USE:   |                         |
| 0 - 3000 SF @ 1/300 SF                                       | 0 STALLS                |
| 3000 - 5000 SF @ 1/500 SF                                    | 0 STALLS                |
| 5000 - 10000 SF @ 1/750 SF                                   | 0 STALLS                |
| 10000 - 50000 SF @ 1/1000 SF                                 | 0 STALLS                |
| 565,079 @ 1/1250 SF  | 452 STALLS              |
| TOTAL REQUIRED   | 452 STALLS              |
| PARKING PROVIDED:  |                         |
| WAREHOUSE / OFFICE PARKING STALLS:                           | 244 STALLS              |
| TRAILER PARKING  | 173 STALLS              |
| HANDICAP STALLS:   | 8 STALLS                |
| CARPPOOL / VAN POOL (CALGREN 10% OF TOTAL MOTORIZED VEHICLE) | 27 STALLS               |
|  | 452 STALLS              |
| TOTAL STALLS PROVIDE AT THIS TIME:                           |                         |
| FUTURE STALLS  | 00 STALLS               |
| TOTAL STALLS   | 452 STALLS              |
| BICYCLE PARKING:   |                         |
| BICYCLE STALLS (SHORT TERM) 5% OF TOTAL MOTORIZED VEHICLES   | 12 STALLS               |
| BICYCLE STALLS (LONG TERM) 5% OF TOTAL MOTORIZED VEHICLES    | 12 STALLS               |
| LOADING DOCKS  | 98 DOCKS                |
| TRALER STALLS 12' X 55'                                      | 148 STALLS              |
| LANDSCAPE RECD: 15% AUTO PARKING AREA                        |                         |
| AUTO PARKING AREA  | 113,944 SF              |
| LANDSCAPE AREA REQUIRED                                      | 17,916 SF               |
| LANDSCAPE PROVIDED   | 41,432 SF / 36.36 %     |

**FIGURE 3 - Site Plan**  
 Waterman Industrial Center Initial Study  
 City of San Bernardino

### **III. Waterman Industrial Center Project Environmental Impact Analysis and Project Approval**

The City of San Bernardino is the Lead Agency under CEQA and is responsible for reviewing and approving this Initial Study. As part of the proposed project's implementation, the City will also consider the following approvals:

- General Plan Amendment (GPA);
- Zoning Map Amendment (ZMA);
- Tentative Parcel Map (TPM); and
- Development Permit.

Additional permits may be required upon review of construction documents. Other permits required for the project may include, the issuance of encroachment permits for new driveways, sidewalks, and utilities, walls, fences, security and parking area lighting; building permits; and permits for new utility connections. These additional permits are considered ministerial in nature, and thus issuance of these permits would not trigger the need to further comply with CEQA. Development of the project will not require the issuance of any discretionary permits from any other federal, State, or local agency.

### ***Environmental Factors Potentially Affected***

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Aesthetics               | <input type="checkbox"/> Agricultural and Forestry Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources     | <input type="checkbox"/> Cultural Resources                  | <input type="checkbox"/> Geology/Soils                      |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials     | <input type="checkbox"/> Hydrology/Water Quality            |
| <input type="checkbox"/> Land Use/Planning        | <input type="checkbox"/> Mineral Resources                   | <input type="checkbox"/> Noise                              |
| <input type="checkbox"/> Population/Housing       | <input type="checkbox"/> Public Services                     | <input type="checkbox"/> Recreation                         |
| <input type="checkbox"/> Transportation/Traffic   | <input type="checkbox"/> Utilities/Service Systems           | <input type="checkbox"/> Mandatory Findings of Significance |

### **IV. Determination**

On the basis of this evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, (b) none of the conditions described in Guidelines Section 15162 for a Subsequent EIR or Section 15163 for a Supplemental EIR have occurred and (c) only minor technical changes or additions to the previous environmental documents are necessary.

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Signature  
Travis Martin, Assistant Planner

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Date  
For: City of San Bernardino

## Environmental Evaluation

This section evaluates the potential environmental effects of the proposed project using the environmental checklist from the State CEQA Guidelines as amended. The definitions of the response column headings include:

- A. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant after the implementation of feasible mitigation measures.
- B. “Less than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measure has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.”
- C. “Less Than Significant Impact” applies where the project creates no significant impacts, only Less than Significant Impacts.
- D. “No Impact” applies where the project does not create an impact in that category.

### 1. Aesthetics

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:   |                                |  |                                     |                                     |
| a. Have a substantial adverse effect on a scenic vista?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State-designated scenic highway? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c. Substantially degrade the existing visual character or quality of the site and its surroundings?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

### Discussion

a) *Have a substantial adverse effect on a scenic vista? **Less Than Significant Impact.***

The proposed project would not have a substantial adverse effect on a scenic vista. The dominant scenic views from the project site and the surrounding area include the San Gabriel Mountains and the San Bernardino Mountains located approximately six miles to the north. There are existing and planned industrial uses to the north and east of the project site. The proposed project is at a similar elevation as the surrounding area and would be consistent with planned development for the area. Numerous cross dock facility warehouses, similar to the proposed industrial building for the project site, are located within the City approximately 0.5 mile northeast of the site.

In addition, development of the site would convert residential homes, a church, a golf course driving range, and vacant land to light industrial development. However, this change would not substantially affect the aesthetic nature of the project area because much of the project area is vacant or developed land within no distinguishing visual resources.

Therefore, the change in views of the project site from the surrounding area would not cause a significant impact on a scenic vista. Impacts are less than significant.

- b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? **No Impact.***

The project site and the surrounding area is predominately developed or planned for development with no natural landforms or features remaining. The project site is located within an urban area with similar industrial uses as the proposed facility within the vicinity. In addition, there are no designated State or County designated scenic highways in the vicinity of the project site.<sup>1</sup> There are also no historically significant buildings on the site that could be affected by the proposed development as discussed under Cultural Resources. Thus, implementation of the proposed project would not block views of any scenic resources off site. For these reasons, no impact would occur in regards to adversely affecting scenic resources.

- c) *Substantially degrade the existing visual character or quality of the site and its surroundings? **Less than Significant Impact.***

The proposed project would be located in a predominately industrial and commercial area and would be consistent with the existing surrounding development. Implementation of the proposed project would alter the visual character of the project site; however, would not negatively impact or substantially degrade the visual quality of the site or its surroundings.

Short-term construction related aesthetic impacts would occur during the presence of construction equipment on the project site. No valuable aesthetic resources would be destroyed as a result of construction related-activities. These impacts are temporary in nature and would cease upon construction completion.

For these reasons, the proposed project would have a less than significant impact on the visual character of the site and its surroundings.

- d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? **Less Than Significant Impact.***

Existing outdoor lighting on the project site is associated with the developed parcels (single-family residences and a church) and the golf course driving range on the project site. Existing commercial and industrial uses in the vicinity of the project site also have outdoor lighting associated with buildings. The proposed project would include outdoor lighting on the site in the parking and entrance areas of the project site which would result in an increase in the existing level of illumination in the area.

The project's outdoor lighting would be compatible in brightness to the ambient lighting in the surrounding area and would utilize more stringent Backlight, Uplight, and Glare (BUG) rated fixtures whenever possible in order to minimize light pollution and trespass. Fixtures with a low BUG rating emit very little light where not needed, thus significantly reducing light pollution.

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<sup>1</sup> California Department of Transportation. Official Designated Scenic Highways. Available at: [http://www.dot.ca.gov/hq/LandArch/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm). Accessed December 2, 2015.

Therefore, while the proposed project would increase outdoor lighting on the site and in the area, the increased outdoor lighting would be less than significant.

### **Cumulative Impacts**

The potential aesthetic impacts related to views, aesthetics, and light and glare are site specific. As discussed above, project-related impacts would be less than significant. While the proposed project plus cumulative development would change the appearance of the site and surrounding area, all development projects would be expected to be conditioned to follow applicable local planning and design guidelines. Therefore, aesthetic impacts are not expected to be cumulatively considerable and no adverse impacts would occur.

## 2. Agricultural and Forestry Resources

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                           |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| <p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p> |                                |  |                              |                                     |
| <p>a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| <p>b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| <p>c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?</p>  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| <p>d. Result in the loss of forest land or conversion of forest land to non-forest use?</p>  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| <p>e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</p>  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

### Discussion

- a) *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? **No Impact.***

The project site and surrounding areas are not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on the State of California Important Farmland Map, and therefore would not result in a conversion of documented agricultural lands to non-agricultural use. Therefore, no impact would occur as a result of the proposed project.

- b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract?* **No Impact.**

The project site is not currently zoned for agricultural use and is not under a Williamson Act contract. Therefore, no impact would occur as a result of the proposed project.

- c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?* **No Impact.**

The project site is not currently zoned for forest land, timberland, or timberland zoned for production. Therefore, improvements planned as part of the proposed project would not conflict with existing zoning or cause rezoning of any such land. Therefore, no impact would result.

- d) *Result in the loss of forest land or conversion of forest land to non-forest use?* **No Impact.**

The project site does not contain forest land. Therefore, no impact would occur in regard to changing forest land to a non-forest use.

- e) *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?* **No Impact.**

No designated agricultural or forest land is located within the project site. Thus, no impact would occur in this regard.

### **Cumulative Impacts**

The proposed project would have no impact on agricultural and forestry resources. Therefore, the proposed project would not contribute to a cumulatively considerable impact.

### 3. Air Quality

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:   |                                |  |                                     |                                     |
| a. Conflict with or obstruct implementation of the applicable air quality plan?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d. Expose sensitive receptors to substantial pollutant concentrations?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e. Create objectionable odors affecting a substantial number of people?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

#### Discussion

An Air Quality Technical Report was prepared by Kunzman Associates, Inc. (January 2016) to evaluate air quality impacts associated with the proposed project. The report is provided in Appendix A; the results and conclusions of the report are summarized herein.

a) *Conflict with or obstruct implementation of the applicable air quality plan? **Less Than Significant Impact.***

The project is consistent with the 2012 Air Quality Management Plan (AQMP). Therefore, the project would not conflict with or obstruct the implementation of the applicable air quality plan.

The project site is located within the western portion of San Bernardino County which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of San Bernardino, Los Angeles, and Riverside Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bound by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The project site is located toward the northeast portion of the Air Basin near the foot of the San Bernardino Mountains which define the eastern boundary of the Air Basin. The South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB) monitor air quality within the Air Basin.

The Air Basin has been designated by CARB as a nonattainment area for ozone (O3), and suspended particulates (PM10 and PM2.5). Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO2), nitrogen dioxide (NO2), and sulfates and is unclassified for visibility reducing particles and hydrogen sulfide.

The CARB, which is a part of the California Environmental Protection Agency (Cal EPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California SIP includes air quality district Air Quality Management Plans (AQMPs). The SIP must integrate federal, State, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. As part of its enforcement responsibilities, the United States Environmental Protection Agency (U.S. EPA) requires each state with federal nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the national standards.

AQMPs describe air pollution control strategies and measures to be implemented by a city, county, region, and/or air district. The primary purpose of an AQMP is to bring an area that does not attain federal and State air quality standards into compliance with the requirements of the federal Clean Air Act and California Clean Air Act. In addition, air quality plans are development to ensure that an area maintains a healthful level of air quality based on the National Ambient Air Quality Standards (NAAQS) and the CAAQS. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG).

In 2007, the CARB approved the *South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards*. The plan projected attainment for the 8-hour ozone standard by 2024 and the PM2.5 standard in 2015. On December 7, 2012, the SCAQMD's governing board approved the 2012 AQMP, which outlines its strategies for meeting the NAAQS for PM2.5 and ozone. The AQMP was forwarded to the CARB for inclusion in the California SIP in January 2013. The 1-hour ozone attainment demonstration and vehicle miles traveled emissions offset demonstration was submitted through CARB to the U.S. EPA. The 2012 AQMP demonstrates attainment with the 24-hour PM2.5 standard by 2014.

The SCAQMD's CEQA Handbook identifies two key indicators of consistency with the AQMP:

- 1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- 2) Whether the project will exceed the assumptions in the AQMP based on the year of project buildout and phase.

The Project would be consistent with the AQMP two key indicators as follows:

- 1) Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in the Air Quality Technical Report, short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. Additionally, long-

term operations impacts will not result in significant impacts based on the SCAQMD local, regional, and toxic air contaminant thresholds of significance. Therefore, the proposed project is not anticipated to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

2) Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and State requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of San Bernardino General Plan defines the assumptions that are represented in the AQMP.

The City's General Plan land use designations for the project site are Industrial and Open Space. The City's zoning designation for the site includes: Industrial Light, Office Industrial Park, and Public Commercial Recreation. Therefore, the proposed project is not currently consistent with the land use or zoning designations. However, buildout of the project site was anticipated in the City's General Plan and General Plan EIR, and thus, the Project is consistent with the assumptions of the AQMP. Approval of the proposed project includes a General Plan Amendment (GPA) and a Zoning Map Amendment (ZMA) to change the General Plan land use designation to Industrial and the zoning designation to Industrial Light. With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site.

With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site. Therefore, once the proposed project is approved, the project would not result in an inconsistency with the land use designation. Therefore, the proposed would not be anticipated to exceed the AQMP assumptions for the project site and would be consistent with the AQMP for the second criterion.

Based on the above, the proposed project would not conflict with implementation of the AQMP, impacts are considered to be less than significant.

- b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation? **Less Than Significant Impact.***

Construction Phase

Emissions from the construction phase of the proposed project were estimated based on information from the project developer for construction equipment requirements and schedule. It was assumed that construction of the proposed project would commence in June 2016 and be completed in March 2017. The project would be operational in 2017.

Construction emissions were evaluated using the CalEEMod Model Version 2013.2.2, which is a statewide land use emissions computer model published by the SCAQMD for estimating air pollutant emissions.

Table 1 provides a summary of the emission estimates for construction for the proposed project, assuming standard fugitive dust control measures would be implemented. As shown in Table 1, emissions of all criteria pollutants would be below the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

**Table 1: Construction-Related Regional Pollutant Emissions<sup>1</sup>**

| Activity   | Pollutant Emissions (pounds/day) |              |              |                 |              |             |
|--|----------------------------------|--------------|--------------|-----------------|--------------|-------------|
|  | VOC                              | NOx          | CO           | SO <sub>2</sub> | PM10         | PM2.5       |
| <b>Demolition</b>  |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>   | 4.29                             | 45.66        | 35.03        | 0.04            | 2.50         | 2.17        |
| Off-Site <sup>3</sup>  | 0.11                             | 0.79         | 1.52         | 0.00            | 0.22         | 0.07        |
| <b>Subtotal</b>  | <b>4.39</b>                      | <b>46.45</b> | <b>36.55</b> | <b>0.04</b>     | <b>2.72</b>  | <b>2.24</b> |
| <b>Grading</b>   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>   | 6.48                             | 74.81        | 49.14        | 0.06            | 6.16         | 4.61        |
| Off-Site <sup>3</sup>  | 0.09                             | 0.11         | 1.38         | 0.00            | 0.23         | 0.06        |
| <b>Subtotal</b>  | <b>6.57</b>                      | <b>74.93</b> | <b>50.52</b> | <b>0.06</b>     | <b>6.39</b>  | <b>4.67</b> |
| <b>Building Construction</b>   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>   | 3.41                             | 28.51        | 18.51        | 0.03            | 1.97         | 1.85        |
| Off-Site <sup>3</sup>  | 3.53                             | 18.82        | 49.85        | 0.10            | 6.62         | 1.98        |
| <b>Subtotal</b>  | <b>6.93</b>                      | <b>47.33</b> | <b>68.36</b> | <b>0.13</b>     | <b>8.58</b>  | <b>3.82</b> |
| <b>Paving</b>  |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>   | 2.95                             | 20.30        | 14.73        | 0.02            | 1.14         | 1.05        |
| Off-Site <sup>3</sup>  | 0.06                             | 0.07         | 0.93         | 0.00            | 0.17         | 0.05        |
| <b>Subtotal</b>  | <b>3.00</b>                      | <b>20.37</b> | <b>15.66</b> | <b>0.02</b>     | <b>1.31</b>  | <b>1.09</b> |
| <b>Architectural Coating</b>   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>   | 58.96                            | 2.19         | 1.87         | 0.00            | 0.17         | 0.17        |
| Off-Site <sup>3</sup>  | 0.36                             | 0.47         | 5.75         | 0.01            | 1.05         | 0.28        |
| <b>Subtotal</b>  | <b>59.31</b>                     | <b>2.65</b>  | <b>7.62</b>  | <b>0.02</b>     | <b>1.22</b>  | <b>0.46</b> |
| <b>Total of Overlapping Phases<sup>4</sup></b>   | <b>69.25</b>                     | <b>70.34</b> | <b>91.64</b> | <b>0.17</b>     | <b>11.11</b> | <b>5.37</b> |
| <b>SCAQMD Thresholds</b>   | <b>75</b>                        | <b>100</b>   | <b>550</b>   | <b>150</b>      | <b>150</b>   | <b>55</b>   |
| <b>Exceeds Thresholds</b>  | No                               | No           | No           | No              | No           | No          |
| Source: Kunzman Associates, January 15, 2016.  |                                  |              |              |                 |              |             |
| <sup>1</sup> Source: CalEEMod Version 2013.2.2   |                                  |              |              |                 |              |             |
| <sup>2</sup> On-site emissions from equipment operated on-site that is not operated on public roads. |                                  |              |              |                 |              |             |
| <sup>3</sup> Off-site emissions from equipment operated on public roads.                             |                                  |              |              |                 |              |             |
| <sup>4</sup> Construction, architectural coating, and paving phases may overlap.                     |                                  |              |              |                 |              |             |

Construction-related air emissions may have the potential to exceed the State and federal air quality standards in the project vicinity even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from construction-related fugitive dust and diesel emissions; and from toxic air contaminants.

As shown in Table 2, the maximum number of acres disturbed in a day would be five acres during grading activities.

**Table 2: Maximum Number of Acres Disturbed Per Day<sup>1</sup>**

| Activity                                      | Equipment                 | Number | Acres/8hr-day | Total Acres |
|---|---------------------------|--------|---------------|-------------|
| Demolition                                    | Rubber Tired Dozers       | 2      | 0.5           | 1           |
|   | Excavators                | 3      | 0.5           | 1.5         |
| Total Per Phase                               |                           |        |               | <b>2.5</b>  |
| Site Grading                                  | Graders                   | 1      | 0.5           | 0.5         |
|   | Rubber Tired Dozers       | 1      | 0.5           | 0.5         |
|   | Excavators                | 2      | 0.5           | 1           |
|   | Tractors/Loaders/Backhoes | 2      | 0.5           | 1           |
|   | Scrapers                  | 2      | 1             | 2           |
| Total Per Phase                               |                           |        |               | <b>5</b>    |
| Source: Kunzman Associates, January 15, 2016. |                           |        |               |             |

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold (LST) Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from a project could result in a significant impact to the local air quality. The nearest sensitive receptors to the project site are the single-family detached residential dwelling units on the north side of Dumas Street (approximately 65 feet from the project's northern property line), the single-family detached residential dwelling unit to the west of the project site (approximately 170 feet from the western property line). The San Bernardino Public Golf Course is located adjacent to the southern and southwestern property line.

The emission thresholds were calculated based on the Central San Bernardino Valley source receptor area (SRA 34), which covers an area from approximately west of Fontana to east of Highland, and a disturbance area of 5 acres per day at a distance of 25 meters (82 feet). Per SCAQMD LST Methodology, when the distance to the nearest sensitive receptors is less than 25 meters from the project boundary, the LST for 25 meters should be used. Table 3 identifies the on-site emissions for the different construction phases and shows that none of the analyzed criteria pollutants would exceed local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

**Table 3: Local Construction Emissions at the Nearest Receptor**

| Phase   | On-Site Pollutant Emissions<br>(pounds/day) |              |           |          |
|---|---|--------------|-----------|----------|
|   | NOx   | CO           | PM10      | PM2.5    |
| Demolition                                      | 45.66                                       | 35.03        | 2.50      | 2.17     |
| Grading   | 74.81                                       | 49.14        | 6.16      | 4.61     |
| Building Construction                           | 28.51                                       | 18.51        | 1.97      | 1.85     |
| Paving  | 20.30                                       | 14.73        | 1.14      | 1.05     |
| Architectural Coating                           | 2.19  | 1.87         | 0.17      | 0.17     |
| <b>SCAQMD Threshold for 25 meters (82 feet)</b> | <b>270</b>                                  | <b>1,746</b> | <b>14</b> | <b>8</b> |
| Exceeds Threshold?                              | no  | No           | no        | no       |

Source: Kunzman Associates, January 15, 2016.

The greatest potential for toxic air contaminant emissions would be diesel particulate emissions associated with heavy equipment operations during construction. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

Operational Phase

The ongoing operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from ongoing uses. Operations-related air quality impacts were analyzed using CalEEMod. Mobile sources include emissions from vehicles; vehicle trips were based on the Waterman Industrial Center Traffic Impact Analysis (TIA) (Kunzman, 2015). Due to the proposed project’s location and proposed unrefrigerated warehouse land uses, the average customer based trip length was increased to 40 miles, while all other trip lengths were based on the urban default values.

Area sources include emissions from consumer products, landscape equipment, and architectural coatings. Energy usage includes emissions from the generation of electricity and natural gas used on site. It should be noted that 2013 Title 24 commercial standards are 30 percent more efficient than 2008 Title 24 Standards (used as the baseline for emissions calculations in CalEEMod). However, no reduction credit was taken.

Table 4 identifies the proposed project’s long-term operations. None of the criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

**Table 4: Regional Operational Pollutant Emissions Without Mitigation**

| Activity   | Pollutant Emissions (pounds/day) |              |              |             |             |             |
|--|----------------------------------|--------------|--------------|-------------|-------------|-------------|
|  | VOC                              | NOx          | CO           | SO2         | PM10        | PM2.5       |
| Area Sources <sup>2</sup>  | 24.84                            | 0.00         | 0.12         | 0.00        | 0.00        | 0.00        |
| Energy Usage <sup>3</sup>  | 0.04                             | 0.32         | 0.27         | 0.00        | 0.02        | 0.02        |
| Mobile Sources <sup>4</sup>  | 4.75                             | 29.31        | 63.84        | 0.17        | 9.91        | 2.95        |
| <b>Total Emissions</b>   | <b>29.63</b>                     | <b>29.63</b> | <b>64.23</b> | <b>0.17</b> | <b>9.93</b> | <b>2.97</b> |
| SCAQMD Thresholds  | <b>55</b>                        | <b>55</b>    | <b>550</b>   | <b>150</b>  | <b>150</b>  | <b>55</b>   |
| Exceeds Threshold?   | No                               | No           | No           | No          | No          | No          |
| Source: Kunzman Associates, January 15, 2016.<br>1 Source: CalEEMod Version 2013.2.2<br>2 Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.<br>3 Energy usage consists of emissions from generation of electricity and on-site natural gas usage.<br>4 Mobile sources consist of emissions from vehicles and road dust. |                                  |              |              |             |             |             |

Project-related air emissions may have the potential to have local CO emission impacts from the project vehicular trips and from on-site operations. To determine if the proposed project could cause emission levels in excess of the CO standards, a sensitivity analysis is typically conducted to determine the potential for CO “hot spots” at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, “hot spots” typically occur at high traffic volume intersections with a Level of Service E or worse. The TIA showed that the project would generate 1,282 Passenger Car Equivalent (PCE) daily trips. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the intersection with the highest traffic volume falls far short of 100,000 vehicles, no CO “hot spot” modeling was performed and no significant long-term local air quality impact would occur with the ongoing use of the proposed project.

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, and natural gas appliances have the potential to exceed the State and federal air quality standards. The nearest sensitive receptors are the residential dwelling units to the north and west of the boundaries of the project site. The local air quality emissions from on-site operations were analyzed according to the SCAQMD’s Localized Significance Threshold Methodology. Table 5 shows the on-site emissions from the CalEEMod model that includes natural gas usage, landscape maintenance equipment, and vehicles operating on site. The data provided in table shows that the ongoing operations would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

**Table 5: Local Operational Emissions at the Nearest Receptor<sup>1</sup>**

| On-Site Emission Source  | On-Site Pollutant Emissions (pounds/day) |              |             |             |
|--|--|--------------|-------------|-------------|
|  | NOx                                      | CO           | PM10        | PM2.5       |
| Area Sources <sup>2</sup>  | 0.00                                     | 0.12         | 0.00        | 0.00        |
| Energy Usage <sup>3</sup>  | 0.32                                     | 0.27         | 0.02        | 0.02        |
| On-Site Vehicle Emissions <sup>4</sup>   | 2.93                                     | 6.38         | 0.99        | 0.29        |
| <b>Total Emissions</b>   | <b>3.26</b>                              | <b>6.77</b>  | <b>1.02</b> | <b>0.32</b> |
| <b>SCAQMD Threshold for 25 meters (80 feet)<sup>5</sup></b>  | <b>270</b>                               | <b>1,746</b> | <b>14</b>   | <b>8</b>    |
| Exceeds Threshold?   | no                                       | no           | no          | no          |
| Source: Kunzman Associates, January 15, 2016.<br>1 Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in Central San Bernardino Valley.<br>2 Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.<br>3 Energy usage consists of emissions from generation of electricity and on-site natural gas usage.<br>4 On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.<br>5 The estimated distance from the proposed project to the nearest sensitive receptor (residences to the north of the project site) is less than 25 meters or 82 feet. |  |              |             |             |

- c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? **Less Than Significant Impact.***

Cumulative projects include local development as well as general growth within the project area. As with most development, the greatest source of emissions is from mobile sources which disperse over a large area. The project area is in nonattainment for ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the Air Basin. The greatest cumulative impact on the quality of regional air quality will be the incremental addition of pollutants from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. Cumulative short-term construction-related emissions and long-term operational emissions from the project will not contribute considerably to any potential cumulative air quality impacts because the project's emissions will not exceed SCAQMD daily thresholds.

- d) *Expose sensitive receptors to substantial pollutant concentrations? **Less Than Significant Impact.***

The CEQA Guidelines indicate that a potentially significant impact could occur if the proposed project would expose sensitive receptors to substantial pollutant concentrations. As discussed in question 3 b) above, and shown in Tables 3 and 5, the project's emissions will not exceed SCAQMD Localized Significance Thresholds at the closest receptor locations during construction or operation and impacts are less than significant.

Ongoing project operations would generate toxic air contaminant emissions from diesel truck emissions. According to SCAQMD methodology, health effects from carcinogenic air

toxics are usually described in terms of individual cancer risk. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The diesel particulate matter (DPM) emission factors for the various vehicle types were derived from the CARB EMFAC2011 mobile source emission model. The 70-year average factors were derived for San Bernardino County for 2017, the project buildout year. Emissions factors were estimated to establish the emissions generated while the vehicles travel off site, along travel links from the entrance to the loading docks, and while idling at the loading dock during loading or unloading materials. Health risks from diesel particulate matter are twofold. First, diesel particulate matter is a carcinogen according to the State of California. Second, long-term chronic exposure to diesel particulate matter can cause health effects to the respiratory system.

There are no schools in the project vicinity. The nearest sensitive receptors that may be impacted by the proposed project are the residential dwelling units to the north and west of the boundaries of the project site. The project-specific health risk assessment (HRA) performed by Kunzman Associates, as part of the air quality analyses, examined the potential for cancer- and non-cancer-related health risks associated with project operations to nearby sensitive receptors (located near the site's northern boundary [approximately 65 feet from the site] and to the west of the project (approximately 170 feet from the project's western boundary). Impacts to commercial receptors located just north of the site and at the San Bernardino Public Golf Course to the south of the project site (adjacent to the project's southern boundary) respectively, were also examined. The highest residential cancer risks at any receptor location does not exceed a cancer risk increase of 3.39 per million people. The highest risk to off-site workers does not exceed a cancer risk increase of 0.33 per million people. All off-site diesel emissions concentrations would be below the 10.0 in a million cancer risk threshold. Therefore, no significant long-term health impacts would occur to adjacent receptors from the operation of diesel trucks on the project site.

With respect to non-carcinogenic hazards to residential and worker receptors, the criterion for significance is a Hazard Index increase of 1.0 or greater. Using the maximum DPM concentration, the resulting Hazard Index is 0.0029. Therefore, the ongoing operations of the proposed project would result in a less than significant impact due to the non-cancer risk from diesel emissions created by the project.

e) *Create objectionable odors affecting a substantial number of people? **No Impact.***

Potential sources from the proposed project that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are short term and are expected cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

Potential odor sources from ongoing operations would include odor emissions from diesel truck emissions and trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402, no significant impact related to odors would occur during the ongoing operations of the proposed project.

## **Cumulative Impacts**

A project that has a significant impact on air quality with regard to emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub> and/or ROG<sub>s</sub> as determined above would have a significant cumulative effect. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed, or reasonably foreseeable future projects are in excess of screening levels identified above, and the project's contribution accounts for more than an insignificant proportion of the cumulative total emissions. With regard to past and present projects, the background ambient air quality, as measured at the monitoring stations maintained and operated by the SCAQMD, measures the concentrations of pollutants from existing sources. Past and present project impacts are therefore included in the background ambient air quality data. As discussed above, the proposed project emissions would be below the significance thresholds during both construction and operations. The impact would therefore not be cumulatively considerable.

#### 4. Biological Resources

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                           |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| Would the project:   |                                |  |                              |                                     |
| a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            |
| e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            |
| f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

#### Discussion

- a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the USFWS? No Impact.*

A Biological Constraints Analysis was prepared by Rocks Biological Consulting Inc. (RBC) in December 2015. The Biological Constraints Report evaluated the suitability of the proposed project site to support sensitive biological resources. The results of this study provide current information on biological resources present on the proposed project site. The results of the biological constraints analysis performed by RBC is summarized herein and included as Appendix B to this Addendum.

The project site supports the following vegetation types or land uses:

- Developed – areas support no native vegetation and typically include human-made structures such as buildings or roads. Within the study area, developed areas occur primarily at the north end of the site and consist of single-family homes, a church, and roads. Included in the developed land use is a public golf course that supports no native vegetation and generally consists of mowed non-native grass. The golf course is located at the south end of the study site.
- Disturbed – areas typically include land that has been previously disturbed by vegetation clearing, development, or agricultural activities. Areas mapped as disturbed include lands generally cleared of vegetation such that little or no natural habitat remains and lands disturbed such that, where vegetated, at least 50 percent of plant cover is non-native species. The disturbed lands on the site are dominated by puncture vine (*Tribulus terrestris*), London rocket (*Sisymbrium irio*), and Russian thistle (*Salsola australis*). Other plants that occur include castor bean (*Ricinus communis*), ripgut brome (*Bromus diandrus*), short-pod mustard (*Hirschfeldia incana*), alkali mallow (*Malvella leprosa*), and filaree species (*Erodium spp.*).
- Ornamental – areas typically consist of non-native landscape and/or garden plantings that have been planted in association with development. San Bernardino County supports many ornamental trees, shrubs, and herbs that decorate urban areas. Ornamental species occur on the site in association with adjacent residential development, notably rows of planted and irrigated pine trees (*Pinus sp.*) and a patch of Chinese elm (*Ulmus parvifolia*).

Table 6 summarizes the vegetation types and land uses on the site.

**Table 6: Vegetation Communities/Land Uses**

| Vegetation/Land Use           | Acres in Project boundary | Acres in study area |
|-------------------------------|---------------------------|---------------------|
| Developed (incl. golf course) | 22.42                     | 26.71               |
| Disturbed Land                | 2.81                      | 8.95                |
| Ornamental                    | 0.16                      | 0.33                |
| Total                         | 25.39                     | 35.99               |

No threatened, endangered, or sensitive animal or plant species were observed on-site during the general biological survey. CNDDDB records were used to help determine if sensitive species occur within the vicinity of the project site. As identified in Table 7, based on the developed and disturbed condition of the site and lack of native habitats, the site does not have potential to support sensitive species.

**Table 7: CNDDDB Species Recorded within Vicinity of the Site**

| Species   | Potential to Occur/Comments  |
|---|--|
| marsh sandwort ( <i>Aemaria paludicola</i> )                                  | None. Species occurs in marsh habitats, which are not present on site.   |
| bristly sedge ( <i>Carex comosa</i> )   | None. Species occurs in wetland and riparian habitats, which are not present in the parcel. Species is most often associated with lake margins and edges, which are not present on site.   |
| Busck's gallmoth ( <i>Carolella busckana</i> )                                | None. Species occurs in coastal scrub dunes that are not present on site.  |
| smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )             | None. Species occurs in habitats such as chenopod scrub, meadows and seeps, playas, riparian woodlands, and valley and foothill grasslands. No suitable habitat types are present on site. |
| salt marsh bird's beak ( <i>Chloropyron maritimum</i> ssp. <i>maritimum</i> ) | None. Species occurs on salt marshes and salt flats, which are not present on site.  |
| Parry's spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> )          | None. Species occurs on chaparral and coastal sage scrub habitats, which are not present on site.  |
| western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )      | None. Species occurs in riparian habitats, which are not present on site.  |
| Peruvian dodder ( <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> )         | None. Species occurs in freshwater marshes and swamps that are not present on site.  |
| San Bernardino kangaroo rat ( <i>Dipodomys merriami parvus</i> )              | None. Species occurs in alluvial fan sage scrub habitats, which are not present in the parcel. These habitat types are confined to rivers and floodplains, which are not present on site.  |
| slender-horned spineflower ( <i>Dodecahema leptoceras</i> )                   | None. Species occurs in alluvial scrub habitats, which are not present on site.  |
| Los Angeles sunflower ( <i>Helianthus nuttallii</i> ssp. <i>parishii</i> )    | None. Species occurs in freshwater or salt marsh habitats, which are not present on site.  |
| Gambel's water cress ( <i>Nasturtium gambelii</i> )                           | None. Species is aquatic or semi-aquatic. It is found in lakesides and marshes, which are not present on site.   |
| pocketed free-tailed bat ( <i>Nyctinomops femorosaccus</i> )                  | None. Species is associated with cliffs and rocky outcrops, which are not present on site.   |
| Delhi Sands flower-loving fly ( <i>Rhaphiomidas terminates abdominalis</i> )  | None. Species occurs in Delhi sand habitats, which are not present on site.  |
| Parish's gooseberry ( <i>Ribes divaricatum</i> var. <i>parishii</i> )         | None. Species occurs in wetland habitats and occasionally in coastal sage scrub habitats, which are not present on site.   |
| prairie wedge-grass ( <i>Sphenopholis obtusata</i> )                          | None. Species occurs in mesic prairies, thinly wooded bluffs, open rocky woodlands, and pasture habitats, which are not present on site.   |
| least Bell's vireo ( <i>Vireo bellii pusillus</i> )                           | None. Species occurs in riparian and willow scrub habitats, which are not present on site.   |

Source: Rocks Biological Consulting, December 2015.

As described above, the proposed project would not have an effect, either directly or through habitat modifications, on any species identified as a candidate as sensitive, or as a special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS). The project site is graded and does not contain suitable habitat for any protected species. Therefore, there would be no impact to sensitive species.

- b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game (DFG) or U.S. Fish and Wildlife Service? **No Impact.***

The project site is relatively flat and has previously been disturbed by human activities. There are no native habitats on site. Additionally, no drainages, riparian habitat, or aquatic features were observed during the site visit. The project proposes to consolidate the 12 existing parcels into 1 parcel and demolish all internal structures in order to facilitate the development of the distribution center. No impacts to riparian habitat or other sensitive natural community would occur as a result of the proposed project.

- c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? **No Impact.***

As discussed above in threshold 4.b, there were no potentially jurisdictional features, including federally protected wetlands and other features that carry water identified on the project site. Therefore, no impacts would occur.

- d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? **Less Than Significant Impact with Mitigation Incorporated.***

*Wildlife Corridors:* The project site is not located within a known migratory wildlife corridor or wildlife nursery site. Construction of the proposed project would not impact a wildlife corridor. Therefore, there would be no impact to migratory wildlife or corridors.

*Nesting Birds:* Nesting birds and their nests are protected under the provisions of the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Wildlife (CDFW) codes. Suitable habitat for birds protected by the MBTA occurs on the project site. The intentional loss of any active bird nests during project construction would be considered a significant impact. Implementation of Mitigation Measures B-1a and B-1b would reduce potential impacts to nesting birds to a less than significant level.

### **Mitigation Measures**

B-1a ~~If removal of trees and shrubs is to be done during the nesting season (February 1 to September 15), all trees and other suitable nesting habitat within the limits of work shall be surveyed by a qualified biologist prior to initiating construction-related activities. A pre-construction survey would be conducted no more than **72 hours 14 days** prior to the start of work. If no nests are observed, construction activities should be initiated within **72 hours 14 days**. If more than **72 hours 14 days** pass and construction has not been initiated, another survey would be required.~~

B-1b If, during the breeding season, an active nest is discovered in a tree or shrub to be removed, the tree or shrub shall be protected using orange construction fence or the equivalent. The protective fencing shall be placed around the tree or shrub at the following distance depending on species: 25 feet from the drip line of the tree or shrub for passerines and non-raptors; 300 feet from the drip line of the tree for raptors. No parking, storage of materials, or work would be allowed within this area until the end of the breeding season or until the young have fledged, as determined by a qualified biologist.

- e) *Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy/ordinance? **Less Than Significant Impact with Mitigation Incorporated.***

The City of San Bernardino Municipal Code Section 19.28.100 requires a tree removal permit from the City where more than 5 trees will be cut down, uprooted, destroyed, or removed within a 36-month period. Section 19.28.100 mandates the replacement of removed trees on a 1:1 basis. An arborist survey and report may be required to evaluate existing trees prior to the issuance of a tree removal permit. The preparation of the arborist's survey and report, and the replacement of trees as set forth in the permit would mitigate impacts to a less than significant level.

#### **Mitigation Measures**

B-2 Tree Removal Permit. Prior to the issuance of a grading permit, an arborist survey and report including a tree replacement program shall be prepared for review and approval by the City of San Bernardino Community Development Director. Subject to the approval of the report, the City shall issue a tree removal permit.

- f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan? **No Impact.***

The project site is located in an urban environment and is not included in an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. No impact relative to adopted habitat conservation or other approved local, regional or State plans would occur.

#### **Cumulative Impacts**

The proposed project would not cause a significant impact to biological resources. Therefore, the proposed project would not contribute to a cumulatively considerable impact.

## 5. Cultural Resources

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                           |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| Would the project:   |                                |  |                              |                                     |
| a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?    | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            |
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            |
| c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?        | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d. Disturb any human remains, including those interred outside of formal cemeteries?                           | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

### Discussion

- a) *Cause a substantial adverse change in the significance of a historical resource? **Less Than Significant Impact with Mitigation Incorporated.***

A Cultural Resource Study Findings Memo was prepared by ASM Affiliates in November 2015 for the proposed project. The study included a records search at the South Central Coastal Information Center (SCCIC), a search of the Sacred Lands Files of the California Native American Heritage Commission (NAHC), and a pedestrian survey of accessible portions of the Project area. The memo is included as Appendix C and the findings are summarized below.

One previously unrecorded cultural resource, Waterman-1, a historic artifact scatter, was documented on the project site; no evidence was found regarding the presence of or potential for any prehistoric resources. Waterman-1 consists of a scatter of highly fragmented historic artifacts, likely dating to the earliest occupation of the parcel. Artifacts found include dozens of glass fragments ceramic and porcelain fragments; etc. Modern refuse was mixed with the historic materials to the same depths, further evidencing the significant disturbance that the parcel has undergone over the decades.

The only item with a bracketable date range was the amethyst glass. Amethyst glass dates circa 1880-1920, which corresponds to the single structure depicted in the early maps and photos. It does not appear that this early structure is the same house that is currently on the site at 285 East Dumas Street; these structures appear in somewhat different locations. At least some of the deposit was likely related to the now removed earliest structure while some of the fragments in the scatter appear to be circa 1950s-1960s. As such, this is a mixed deposit likely from various episodes of refuse disposal into what may have long served as a sort of communal backyard area for the houses lining the edges of this parcel.

No evidence of intact subsurface deposits was identified at Waterman-1. Because the site contains only highly fragmentary and disturbed remains, unassociated with intact archaeological deposits or features, Waterman-1 is recommended not eligible for listing in the California Register of Historic Resources.

The project site is located within a highly disturbed urbanized area and does not contain significant historic or archaeological resources. However, there is a possibility of currently undetectable historic subsurface deposits being present within the project site due to the area's early residential development. Implementation of Mitigation Measure CR-1 would reduce potential impacts to a less than significant level.

#### **Mitigation Measure**

CR-1 Prior to beginning project construction, the Project applicant shall retain an archaeological monitor to monitor initial ground-disturbing activities in an effort to identify any unknown archaeological resources. Any newly discovered cultural resource deposits shall be subject to a cultural resources evaluation.

- b) *Cause a substantial adverse change in the significance of an archaeological resource? Less Than Significant Impact with Mitigation Incorporated.*

As discussed above, implementation of Mitigation Measure CR-1 would reduce potential impacts to archaeological resources from the proposed project to a less than significant level.

- c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? No Impact.*

The project site is not located within an area defined by the City for paleontological sensitivity and there are no known paleontological resources located on the project site. The City's General Plan contains goals and policies that specifically address sensitive paleontological resources and their protection if they are encountered during any development activity. In the event that unknown paleontological resources are unearthed during construction activities on the project site, standard City conditions requiring the stoppage of work and identification of potential resources would apply. Therefore, the proposed project would not cause a substantial adverse change in the significance of a paleontological resource.

- d) *Disturb any human remains, including those interred outside of formal cemeteries? No Impact.*

No known human remains are located within the area of the project site. In the event that unknown human remains are unearthed during construction activities on the project site, standard City conditions requiring the stoppage of work and identification of human remains would apply. Therefore, the proposed project would not disturb human remains.

#### **Cumulative Impacts**

The proposed project would result in no impacts to historical, known archaeological or paleontological resources, or known human remains. The chances of cumulative impacts occurring as a result of project implementation plus implementation of other projects in the region is not likely since all proposed projects would be subject to individual project level environmental review. Since there would be no project-related impacts and due to existing laws and regulations in place to protect cultural resources and prevent significant impact to paleontological resources, the potential incremental effects of the proposed project would not be cumulatively considerable.

## 6. Geology and Soils

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:   |                                |  |                                     |                                     |
| a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:   |                                |  |                                     |                                     |
| i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| ii. Strong seismic ground shaking?   |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| iii. Seismic-related ground failure, including liquefaction?   |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| iv. Landslides?  |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b. Result in substantial soil erosion or the loss of topsoil?  |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?   |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?   |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?   |                                |  |                                     |                                     |
|  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Discussion

a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

- 1) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. **Less Than Significant Impact.***

A Geotechnical Engineering Investigation was prepared for the project site in April 2015 by NorCal Engineering. The report is provided in Appendix D and is summarized in this Initial Study section. The Alquist-Priolo Earthquake Fault Zoning Act (Act) was passed in

1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act requires the State Geologist to establish regulatory zones, known as "Alquist-Priolo (AP) Earthquake Fault Zones," around the surface traces of active faults and to issue appropriate maps. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (typically 50 feet). According to the Geotechnical Engineering Investigation, the project site is not located within an AP Earthquake Fault Zone. According to the report, there are no known active or potentially active faults trending towards or through the site and the potential for damage due to direct fault rupture is considered very remote. The possibility of significant fault rupture on the project site is considered to be less than significant.

2) *Strong seismic ground shaking? **Less Than Significant Impact.***

The site is located in an area of high regional seismicity and the San Jacinto (San Bernardino) fault is located less than 1.24 miles from the site. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults. The proposed project would be required to be in conformance with the 2013 California Building Code (CBC), City regulations, and other applicable standards. Conformance with standard engineering practices and design criteria would reduce the effects of seismic groundshaking to a less than significant level.

3) *Seismic-related ground failure, including liquefaction? **Less than Significant Impact.***

Liquefaction generally occurs as a "quicksand" type of ground failure caused by strong groundshaking. The primary factors influencing liquefaction potential include groundwater, soil type, relative density of the sandy soils, confining pressure, and the intensity and duration of groundshaking. According to the Geotechnical Engineering Investigation, the project site is situated in an area of high generalized liquefaction susceptibility. Groundwater records from the Chino Basin Water Master (Fall 2006) found groundwater to be about 50 feet in depth. Review of groundwater maps of the Upper Santa Ana River Basin shows historical groundwater depths to be about 30 feet. The liquefaction evaluation conducted for the proposed project indicates a low liquefaction potential. Any associated seismic-induced settlement would be less than one inch and should occur rather uniformly across the site. Differential settlements should be less than 0.5 inch over a 50-foot (horizontal) distance in the building area. Conformance with standard engineering practices and design criteria would reduce the effects of seismic-related ground failure to less than significant levels.

4) *Landslides? **No Impact.***

Landslides are mass movements of the ground that include rock falls, relatively shallow slumping and sliding of soil, and deeper rotational or transitional movement of soil or rock. The project site is relatively flat and is not located within an area susceptible to landslides. Therefore, there would be no impact from landslides on the proposed project.

- b) *Result in substantial soil erosion or the loss of topsoil? **Less Than Significant Impact.***

Trenching during the construction phase of the project would displace soils and temporarily increase the potential for soils to be subject to wind and water erosion. However, erosion and loss of topsoil can be controlled using standard construction practices. With adherence to the applicable practices and regulations, impacts would be considered less than significant.

- c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? **Less Than Significant Impact with Mitigation Incorporated.***

As discussed above in threshold 6.a.3, the project site is in an area with low liquefaction potential. The project site is also not in an area subject to landslides. According to the Geotechnical Engineering Investigation, the site consists of fill and natural soil. Fill was encountered in some areas to a depth of six feet. The report includes recommendations to ensure that soils are appropriate for development. Implementation of Mitigation Measure G-1 would reduce potential impacts to a less than significant level.

#### **Mitigation Measure**

G-1 All grading and construction of the Project site shall comply with the geotechnical recommendations contained in the Geotechnical Engineering Investigation prepared by NorCal Engineering dated April 2015. All recommendations contained in the report shall be incorporated into all final and engineering and grading plans.

- d) *Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2013), creating substantial risks to life or property? **Less Than Significant Impact.***

The proposed project would be required to be in conformance with the 2013 California Building Code (CBC), City regulations, and other applicable standards. Conformance with standard engineering practices, design criteria and Mitigation Measure G-1 would reduce impacts related to expansive soil potential to a less than significant level.

- e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? **No Impact.***

The proposed project would not include the implementation of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

#### **Cumulative Impacts**

The potential cumulative impact related to earth and geology is typically site specific. The analysis herein determined that the proposed project would not result in any significant impacts related to landform modification, grading, or the destruction of a geologically significant landform or feature with implementation of mitigation. Moreover, existing State and local laws and regulations are in place to protect people and property from substantial adverse geological and soils effects, including fault rupture, strong seismic groundshaking, seismic-induced ground failure (including liquefaction), and landslides. Existing laws and regulations also protect people and property from adverse effects related to soil erosion, expansive soils, loss of topsoil, development on an unstable geologic unit or soil type that could result in on- or off-site

landslides, lateral spreading, subsidence, liquefaction, or collapse. These existing laws and regulations, along with mitigation assigned to the proposed project, would render potentially adverse geological and soil effects of the proposed project to a level of less than significant. Moreover, these existing laws and regulations also ensure that past, present, and reasonably foreseeable future projects in the San Bernardino region do not result in substantial adverse geological and soils effects. As a result, the existing legal and regulatory framework would ensure that the incremental geological and soils effects of the proposed project would not result in greater adverse cumulative effects when considered together with the effects of other past, present, and reasonably foreseeable future projects in the San Bernardino region. The impacts of the proposed project-related to geology and soils would be less than cumulatively considerable.

## 7. Greenhouse Gas Emissions

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                |
|--|--------------------------------|--|------------------------------|--------------------------|
| Would the project:   |                                |  |                              |                          |
| a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?      | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/> |
| b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/> |

### Discussion

- a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **Less than Significant Impact with Mitigation Incorporated.***
- 1) An Air Quality Technical Report which also addresses greenhouse gas (GHG) emissions was prepared by Kunzman Associates, Inc. (January 2016). The results and conclusions of the report are summarized herein (Appendix A).
  - 2) The CalEEMod Version 2013.2.2 was used to calculate GHG emissions from the proposed project. The City of San Bernardino does not currently have their own Climate Action Plan; however, the City of San Bernardino is a participating member of the San Bernardino Association of Governments (SANBAG) San Bernardino County Greenhouse Gas Emissions Reduction Plan (GHG Plan). The GHG Plan was adopted on December 6, 2011 and became effective on January 6, 2012; the GHG Plan was made final on March 2014. The GHG Plan targets reducing GHG emissions to 1990 levels by 2020 by cutting approximately 30 percent from business-as-usual (BAU) emissions levels, or approximately 15 percent from year 2008 levels, which is the baseline year for the GHG Plan. The plan is consistent with AB 32 and sets the City on a path to achieve more substantial long-term reductions in the post-2020 period. Achieving this level of emissions will ensure that the contribution to greenhouse gas emissions from activities covered by the GHG Plan will not be cumulatively considerable. Per the GHG Plan, the City of San Bernardino has identified that if a project exceeds the SCAQMD screening threshold of 3,000 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per year for all land use types, then a project's year 2020 emissions will be compared to the project's baseline (BAU) GHG emissions.
  - 3) The project's year 2017 (opening year) emissions were calculated and compared to the SCAQMD 3,000 MTCO<sub>2e</sub> per year GHG Plan and SCAQMD screening threshold and the SCAQMD industrial threshold of 10,000 MTCO<sub>2e</sub> per year. GHG emissions without mitigation are shown in Table 8. Without mitigation, the proposed project would generate 3,918.41 MTCO<sub>2e</sub> per year which exceeds the 3,000 MTCO<sub>2e</sub> per year screening threshold; however, the project's unmitigated emissions do not exceed the SCAQMD's 10,000 MTCO<sub>2e</sub> per year threshold for industrial uses.

- 4) As shown in Table 9, with mitigation, the project would generate 2,913.97 MTCO<sub>2</sub>e per year; less than the 3,000 metric tons of CO<sub>2</sub>e per year SCAQMD and GHG Plan screening threshold. Therefore, with incorporation of Mitigation Measures GHG-1 through 7, the operation of the proposed project would not create a significant cumulative impact to global climate change.

**Table 8: Project Greenhouse Gas Emissions Without Mitigation<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO <sub>2</sub>                         | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>  | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>  | 0.00  | 598.00                 | 598.00          | 0.03            | 0.01             | 600.48            |
| Mobile Sources <sup>4</sup>  | 0.00  | 2,402.10               | 2,402.10        | 0.07            | 0.00             | 2,403.52          |
| Waste <sup>5</sup>   | 107.74                                      | 0.00                   | 107.74          | 6.37            | 0.00             | 241.46            |
| Water <sup>6</sup>   | 41.43                                       | 486.55                 | 527.97          | 4.28            | 0.11             | 650.37            |
| Construction <sup>7</sup>  | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>   | <b>149.17</b>                               | <b>3,509.16</b>        | <b>3,658.33</b> | <b>10.74</b>    | <b>0.11</b>      | <b>3,918.41</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b>   |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?   |   |                        |                 |                 |                  | <b>Yes</b>        |
| <b>SCAQMD Industrial Threshold</b>   |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?   |   |                        |                 |                 |                  | <b>No</b>         |
| <p>1 Source: CalEEMod Version 2013.2.2</p> <p>2 Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.</p> <p>3 Energy usage consist of GHG emissions from electricity and natural gas usage.</p> <p>4 Mobile sources consist of GHG emissions from vehicles.</p> <p>5 Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.</p> <p>6 Water includes GHG emissions from electricity used for transport of water and processing of wastewater.</p> <p>7 Construction GHG emissions based on a 30 year amortization rate.</p> |   |                        |                 |                 |                  |                   |

**Table 9: Project Greenhouse Gas Emissions With Mitigation<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>  | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>  | 0.00  | 540.70                 | 540.70          | 0.02            | 0.01             | 542.91            |
| Mobile Sources <sup>4</sup>  | 0.00  | 1,719.97               | 1,719.97        | 0.05            | 0.00             | 1,721.01          |
| Waste <sup>5</sup>   | 53.87                                       | 0.00                   | 53.87           | 3.18            | 0.00             | 120.73            |
| Water <sup>6</sup>   | 33.14                                       | 375.73                 | 408.87          | 3.42            | 0.08             | 506.73            |
| Construction <sup>7</sup>  | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>   | 87.01                                       | 2,658.91               | 2,745.92        | 6.68            | 0.09             | <b>2,913.97</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b>   |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?   |   |                        |                 |                 |                  | <b>No</b>         |
| <b>SCAQMD Industrial Threshold</b>   |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?   |   |                        |                 |                 |                  | <b>No</b>         |
| <p>1 Source: CalEEMod Version 2013.2.2<br/>                 2 Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.<br/>                 3 Energy usage consist of GHG emissions from electricity and natural gas usage.<br/>                 4 Mobile sources consist of GHG emissions from vehicles.<br/>                 5 Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.<br/>                 6 Water includes GHG emissions from electricity used for transport of water and processing of wastewater.<br/>                 7 Construction GHG emissions based on a 30 year amortization rate.</p> |   |                        |                 |                 |                  |                   |

**Mitigation Measures**

- GHG-1 The project applicant shall provide sidewalks within the project boundary and along the off-site roadway improvements.
- GHG-2 The project applicant shall require that any future tenants institute a ride sharing program and employee vanpool/shuttle that is open to all employees.
- GHG-3 The project applicant shall require that all building structures meet or exceed 2013 Title 24 Standards and Green Building Code Standards.
- GHG-4 The project applicant shall require that all lighting installed in the proposed structures uses on average a minimum of 5 percent less energy than conventional metal halide warehouse lighting.
- GHG-5 The project applicant shall require that all faucets, toilets and showers installed in the proposed structures utilize low-flow fixtures that would reduce indoor water demand by 20% per CalGreen Standards.
- GHG-6 The project applicant shall require that ENERGY STAR-compliant appliances are installed on site.
- GHG-7 The project applicant shall require all future tenants to institute recycling programs that reduces waste to landfills by a minimum of 50 percent (75 percent by 2020) and includes designated recycling bins at each proposed structure and requires all green waste to be processed at a recycling or composting facility.

b) *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? **Less than Significant Impact with Mitigation Incorporated.***

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. As previously addressed, the City of San Bernardino is one of the 21 partnership cities that are participating in the San Bernardino Associated Governments (SANBAG) San Bernardino County Regional GHG Reduction Plan (GHG Plan). Therefore, the applicable plan for the proposed project is the SANBAG San Bernardino County GHG Plan. The GHG Plan was prepared to assist the City in conforming to the GHG emissions reductions as mandated under Assembly Bill (AB) 32.

The GHG Plan employs the San Bernardino County screening threshold of 3,000 MTCO<sub>2</sub>e per year. If the project's emissions exceed that screening threshold, then the City of San Bernardino selected a goal to reduce its community GHG emissions to a level that is 15 percent below its 2008 GHG emissions level by 2020. The City will meet and exceed this goal subject to reduction measures that are technologically feasible and cost-effective per AB 32 through a combination of State (~86%) and local (~14%) efforts. The City actually exceeds the goal with only State/county level actions (104% of goal), but has committed to several additional local measures.

The City of San Bernardino's Sustainability Master Plan Task Force, appointed by the City Council, is recommending various draft strategies for the Mayor and City Council to consider adopting. This framework of strategies is located within the Land Use and Transportation section of the Draft Sustainable Master Plan (SMP). If adopted, the Draft SMP will support the goals of SB 375 and the Sustainable Communities Strategy through a wide range of actions. The Draft SMP will include GHG reduction measures similar to but different from the measures listed in the GHG Plan. The Draft SMP measures will generally be more specific to the City of San Bernardino, but they will also support the goals of AB 32. The SMP follows the organization of the SANBAG San Bernardino County GHG Reduction Plan, with the SMP measures following the SANBAG San Bernardino County GHG Reduction Plan measures.

SCAQMD's screening thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Therefore, if the project's emissions meet the threshold for compliance (the 3,000 MTCO<sub>2</sub>e per year screening threshold) with Executive Order S-3-05, then the project's emissions would also comply with the goals of AB 32; which is also the goal of the GHG Plan and the SMP.

At a level of 2,913.97 MTCO<sub>2</sub>e per year with mitigation, the project's GHG emissions level falls below the SCAQMD and GHG Plan screening threshold of 3,000 metric tons per year of CO<sub>2</sub>e for all land uses, and well below the SCAQMD's GHG emissions threshold of 10,000 metric tons per

year of CO<sub>2</sub>e for industrial projects. Therefore, as the projects mitigated emissions do not exceed the GHG Plan's screening threshold of 3,000 metric tons per year, the project is consistent with the applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Furthermore, the project will comply with applicable Green Building Standards and City of San Bernardino's policies regarding sustainability (as dictated by the City's General Plan and the SMP); therefore, with incorporation of mitigation measures GHG-1 through GHG-7 as detailed above in 7 a), impacts are less than significant.

### **Cumulative Impacts**

With mitigation, the project's emissions would be below the SCAQMD's threshold for GHG emissions of 3,000 metric tons per year of CO<sub>2</sub>e and an industrial project's threshold of 10,000 metric tons per year of CO<sub>2</sub>e. As discussed above, the project would not result in a cumulatively considerable impact due to GHGs.

## 8. Hazards and Hazardous Materials

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:   |                                |  |                                     |                                     |
| a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?                                   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Discussion

- a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? **Less Than Significant Impact.***

Prior uses on the site are not known to have involved hazardous materials. Once the project is constructed, hazardous materials would be limited to those associated with a warehouse/industrial facility. These include cleaners, paints, solvents; and fertilizers and pesticides for site landscaping. Because these materials are used in very limited quantities, they are not considered a hazard to the public. Adherence to federal, State, and local health

and safety requirements regarding these substances would reduce the potential impacts to less than significant.

- b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? **Less Than Significant Impact.***

The proposed project is not anticipated to result in a release of hazardous materials into the environment. The proposed warehouse/industrial facility would be expected to use limited hazardous materials and substances which would be limited to cleaners, paints, solvents; and fertilizers and pesticides for site landscaping. All materials and substances would be subject to applicable health and safety requirements. A less than significant impact would occur.

- c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? **No Impact.***

No schools are presently located within one-quarter mile of the project site. The closest school site is Loma Linda Academy which is located approximately 1.4 miles southeast of the project site. Any future school developed within the surrounding area will be subject to the oversight of the California Department of Toxic Substances Control, as required by State law.

- d) *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? **No Impact.***

The project site is not included on a hazardous sites list compiled pursuant to California Government Code Section 65962.5.<sup>2</sup> In addition, a Phase I Environmental Site Assessment was prepared for the project site by Arcadis in April 2015. According to that report, there were no Recognized Environmental Conditions (REC) (as defined by ASTM Practice E 1527-13) identified in association with the site. No significant adverse impacts relative to hazardous materials sites would result with project implementation.

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? **No Impact.***

San Bernardino International Airport is located approximately two miles northeast of the project site. However, the proposed project would be consistent with the surrounding area and would not create a safety hazard for people residing or working in the project area. Furthermore, the San Bernardino International Airport Authority has approved an aviation easement for the proposed project. Thus, no impact would occur.

*For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? **No Impact.***

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<sup>2</sup> California, State of, Department of Toxic Substances Control, DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List). Available at: [http://www.dtsc.ca.gov/SiteCleanup/Cortese\\_List.cfm](http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm). Accessed: August 21, 2015.

The proposed project site is not located within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the project area.

- f) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? **Less Than Significant Impact.***

The proposed project would have no impacts on emergency response plans or emergency evacuation plans. The City of San Bernardino has adopted an Emergency Management Plan to identify evacuation routes, emergency facilities, and City personnel and equipment available to effectively deal with emergency situations. No revisions to the adopted Emergency Management Plan would be required as a result of the proposed project. Primary access to all major roads would be maintained during construction of the proposed project. Therefore, impacts would be less than significant.

- g) *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? **No Impact.***

- h) The proposed project would not expose people or structures to a risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. The project site is in a developed urban area and it is not adjacent to any wildland areas. Therefore, no impact would occur in regard to wildland fires. **No Impact.**

#### **Cumulative Impacts**

The incremental effects of the proposed project related to hazards and hazardous materials, if any, are anticipated to be minimal, and any effects would be site-specific. Therefore, the proposed project would not result in incremental effects to hazards or hazardous materials that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. The proposed project would not result in cumulatively considerable impacts to or from hazards or hazardous materials.

## 9. Hydrology and Water Quality

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Violate any water quality standards or waste discharge requirements?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f. Otherwise substantially degrade water quality?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| j. Inundation by seiche, tsunami, or mudflow?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

## Discussion

Project specific Preliminary Drainage Report and a Water Quality Management Plan Stormwater Management Plan were prepared by Kimley-Horn and Associates in September 2015, to evaluate hydrology and water quality impacts associated with the proposed project. The results and conclusions of the plan are summarized herein.

- a) *Violate any water quality standards or waste discharge requirements? **Less Than Significant Impact.***

The project site is located in moderately sloped terrain that generally slopes from the northeast towards the south and southwest. Existing drainage flows are primarily shallow sheet flow, which discharges onto the golf course property to the west and southwest. Runoff within the public street sections remains in the curb and gutter along South Waterman Avenue and within the curb and gutter, asphalt concrete dike or shoulder of East Dumas Street. The proposed onsite tributary area is approximately 25.25 acres. With implementation of the proposed project, surface runoff would be directed to two onsite underground infiltration basins through a network of proposed catch basins and storm drains. The proposed onsite underground infiltration basins have been sized to capture and retain the 100-year storm event. The project site will not discharge surface waters, but will infiltrate 100% of the runoff produced within project and tributary to the onsite infiltration basins. These basins would capture and treat all storm water generated on the site; therefore, impacts to water quality would be less than significant.

To minimize water quality impacts during construction of the proposed project, construction activities would be required to comply with a Stormwater Pollution Prevention Plan (SWPPP) consistent with the General Permit for Stormwater Discharge Associated with Construction Activity (Construction Activity General Permit). The SWPPP would incorporate BMPs such as gravel bags, silt fence, and fiber rolls. Preparation and implementation of a SWPPP would reduce potential impacts to water quality during construction to less than significant.

- b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? **No Impact.***

The project does not propose to use groundwater. Although the project would result in additional impervious surfaces on-site, the project would construct two underground infiltration basins which would capture all storm water runoff from the site. Therefore, the proposed project would not significantly impact local groundwater recharge. No impacts would occur in this regard.

- c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? **No Impact.***

The project site overland flows from the northeast/east to west/southwest. There are no existing drainage facilities on the project site. Existing runoff from the project site within South Waterman Avenue is conveyed via curb and gutter south towards the Santa Ana River. Runoff within East Dumas Street is conveyed to the west towards Twin Creek channel

through a variety of roadside improvements such as curb and gutter, asphalt concrete dike and earthen shoulders. South Waterman Avenue has an existing 36-inch storm drain main conveying flows to the south towards the Santa Ana River. There are no additional drainage systems in the area or on site. The project does not propose to discharge offsite, but rather, construct two underground infiltration basins to capture all site drainage. In addition, the site does not include any streams or rivers which could be altered by the proposed project. Therefore, no impact would occur in this regard.

- d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? **Less Than Significant Impact.***

Refer to response V.9(c) above. The proposed project would not substantially alter existing drainage patterns of the site or project vicinity. The project site does not include any streams or rivers, which could be altered by the proposed project. On-site surface runoff would be directed to the on-site underground infiltration basins. The proposed underground infiltration basins would also minimize the potential for flooding to occur on- or off-site. Impacts would be less than significant in this regard.

- e) *Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? **Less Than Significant Impact.***

The infiltration basins were designed in accordance to the procedures and methodologies outlined in the *San Bernardino County Flood Control District Standard Plans and Detention Basin Design Criteria for San Bernardino County (1987)*. The proposed onsite underground infiltration basins have been sized to capture and retain the 100-year storm event. No impacts to the capacity of existing or planned storm water drainage system would occur as a result of the project.

The proposed project would be required to prepare a SWPPP under the NPDES General Construction Permit to implement BMPs to minimize storm water runoff during construction. Adherence with the recommendations of the Stormwater Management Plan prepared for the proposed, and preparation of a SWPPP would reduce possible impacts related to the storm water drainage system to less than significant.

- f) *Otherwise substantially degrade water quality? **Less Than Significant Impact.***

Water quality impacts other than those described in Response V.9(a) above are not anticipated with implementation of the proposed project. Impacts resulting from the project would be less than significant.

- g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? **No Impact.***

The proposed project does not propose housing. Therefore, no flood related impacts would occur in this regard.

- h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows? **No Impact.***

The project site is covered by Map Numbers 06071C8683H and 06071C8684H of the FEMA Flood Insurance Rate Map (FIRM) for San Bernardino County, California and Incorporated Areas. A majority of the project site is located within Flood Zone A, while a smaller portion in the southeast corner is located in Flood Zone X. Flood Zone A has a 1% annual change of flood hazard and Flood Zone X has a 0.2% annual chance of flood hazard. The County of San Bernardino Flood Control indicates that a building within Flood Zone A shall have a finished floor elevation or exterior waterproofing elevation of two-feet higher than the highest adjacent finished grade. The highest adjacent finished grades is near the corner of South Waterman Avenue and East Dumas Street and is approximately 1014.7. The proposed building finished floor elevation is approximately 1015.0 on the east side and slopes towards the west at 0.5% slope to an approximate elevation of 1009.4. Exterior waterproofing will be implemented to an elevation of at least 1016.7 feet. Given the project has been designed in accordance with the County's requirements, the project would not subject structures to flood hazards.

- i) *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? **Less Than Significant Impact.***

According to the City of San Bernardino's General Plan Safety Element, the project site is located within the Seven Oaks Dam Inundation area<sup>3</sup>. The Seven Oaks Dam is located in unincorporated San Bernardino County approximately 11 miles to the northeast of the project site. Figure S-2 in the General Plan notes that the inundation shown represents events of an extremely remote nature. Flooded area shown are based on dam failure at full pool elevation of 2,580 NGVD<sup>4</sup>. The General Plan includes policies to prohibit development within the 100 year flood plan unless adequate mitigation is provided, such as, requiring a building within Flood Zone A to have a finished floor elevation or exterior waterproofing elevation of two-feet higher than the highest adjacent finished grade. The project site would be required to adhere to the County of San Bernardino Flood Control's requirements for Zone A, as discussed above. In addition, the project does not propose any habitable structures. Adherence to federal, State, and local flood control requirements regarding flooding would reduce the potential impacts to less than significant.

- j) *Inundation by seiche, tsunami, or mudflow? **No Impact.***

The project site is located approximately 75 miles east of the Pacific Ocean and as referenced above, is approximately 11 miles downstream from the Seven Oaks Dam. There is no risk of exposure to inundation by seiche or tsunami. The project site is relatively flat so the potential for a mudflow is unlikely. Thus, no impact would occur.

### **Cumulative Impacts**

The potential impacts related to hydrology and storm water runoff are typically site specific. Furthermore, the analysis determined that the implementation of the proposed project would not result in significant impacts. As a result, no cumulative impacts are anticipated.

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<sup>3</sup> City of San Bernardino General Plan. *Safety Element, Figure S-2 Page 10-15*. November 2005.

<sup>4</sup> City of San Bernardino General Plan. *Safety Element, Figure S-2 Page 10-15*. November 2005.

## 10. Land Use and Planning

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Physically divide an established community?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Conflict with any applicable habitat conservation plan or natural community conservation plan?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Discussion

a) *Physically divide an established community? **No Impact.***

An example of a project that has the potential to divide an established community includes the construction of a new freeway or highway through an established neighborhood. The proposed project would be located on a site in an urban area with similar surrounding land uses. The proposed project would generally blend in with the mix of surrounding uses and would not physically divide an established community. Therefore, no impacts would occur.

b) *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? **Less Than Significant Impact.***

The City's General Plan land use designations for the project site are Industrial and Open Space. The City's zoning designation for the site includes: Industrial Light, Office Industrial Park, and Public Commercial Recreation. The proposed project is not consistent with the land use or zoning designations. Approval of the proposed project, therefore, includes a General Plan Amendment (GPA) and a Zoning Map Amendment (ZMA).

Project implementation requires an amendment to the General Plan and to the Zoning Map to change the General Plan land use designation to Industrial and the zoning designation to Industrial Light. With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site. These amendments would not impact a plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The amendments are required to make the proposed project fully consistent with land use and zoning designations for the project site. Furthermore, the proposed amendments would be consistent with land use designations and zoning surrounding the project site.

Therefore, the proposed project would have a less than significant impact on a plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

c) *Conflict with any applicable habitat conservation plan or natural community conservation plan? **No Impact.***

The project site is not located within an area designated as a habitat conservation plan or natural community conservation plan. Therefore, the proposed project would not conflict either form of plan.

### **Cumulative Impacts**

The analysis of potential impacts indicated that no impacts would result from the proposed project's implementation. As a result, no cumulative impacts related to land use and planning would occur.

## 11. Mineral Resources

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                           |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| Would the project:  |                                |  |                              |                                     |
| a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?                                | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

### Discussion

- a) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State? **No Impact.***

The project site is not mapped by the City as an area containing mineral resources. Therefore, the proposed project would not result in the loss of availability of a known mineral resource.

- b) *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? **No Impact.***

The project site is not located in an area that has been identified as a locally important mineral resource recovery site. Therefore, the proposed project would have no impact.

### Cumulative Impacts

The analysis of potential impacts indicated that no impacts would result from the proposed project. As a result, no cumulative impacts related to mineral resources would occur.

## 12. Noise

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/>            |
| e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Discussion

A Noise Impact Assessment Technical Report was prepared by Kunzman Associates (October 2015) for the proposed project. The technical report discusses the potential operational and construction noise impacts associated with the proposed project. The results and findings are summarized herein and the report is included as Appendix E to this Initial Study.

- a) *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? **Less Than Significant With Mitigation Incorporated.***
- d) *Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? **Less Than Significant With Mitigation Incorporated.***

The City noise regulations and standards are provided in the Noise Element of the General Plan and the Municipal Code. For purposes of this analysis, the Noise Element was used to evaluate traffic and stationary noise impacts from the proposed project. Because there are sensitive receptors near the project site, this analysis applies to the City's residential noise standards. The City specifies that the exterior noise levels at residential locations should not exceed 65 dBA CNEL while interior levels shall not exceed 45 dBA CNEL.

As part of the noise study prepared for the proposed project, an ambient noise level survey was conducted on September 23, 2015. Noise measurements were performed to determine the existing noise environment near noise-sensitive areas within the project area. Sound level measurement locations (MLs) were selected at three locations. Table 10 identifies the results for the noise measurements.

**Table 10: Short-Term Noise Measurements**

| Daytime                |              |      |      |      |      |      |       |       |       |
|------------------------|--------------|------|------|------|------|------|-------|-------|-------|
| Site Location          | Time Started | Leq  | Lmax | Lmin | L(2) | L(8) | L(25) | L(50) | L(90) |
| 1                      | 11:15 AM     | 44.0 | 51.5 | 41.1 | 49.3 | 47.0 | 43.9  | 43.0  | 41.9  |
| 2                      | 11:37 AM     | 60.1 | 68.1 | 46.2 | 66.0 | 64.0 | 61.6  | 58.1  | 50.4  |
| 3                      | 11:55 AM     | 55.3 | 65.3 | 47.3 | 61.6 | 57.4 | 55.6  | 54.1  | 50.9  |
| Source: Kunzman, 2015. |              |      |      |      |      |      |       |       |       |

### Construction

The City considers construction noise to be a short-term impact and would be considered significant if construction activities are undertaken outside the allowable times as described by the City’s Municipal Code (Section 8.54.070). Existing single-family residences located adjacent to the project site may be affected by short-term noise associated the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities.

Construction noise levels will vary depending on the construction process, type of equipment, location of construction in relationship to sensitive receptors, and the schedule and duration of the construction work. Site preparation is expected to produce the highest sustained construction noise levels. A likely worst-case construction noise scenario assuming the use of this equipment was calculated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM) assuming the use of a grader, a dozer, excavator and a dump truck all operating between 75 and 250 feet from the nearest sensitive receptor. Assuming a use factor of 40 percent for each piece of equipment, unmitigated noise levels would reach 78.2 dBA Leq and 81.5 dBALmax at the nearest residential structures.

As noted, the City has an exemption for construction-related noise. However, noise reduction measures are provided to reduce temporary noise levels. These reduction measures yield up to a 10 dBA reduction in the noise such that noise levels during construction would be reduced to 68.2 dBA Leq and 71.5 dBALmax. With implementation of Mitigation Measures N-1 through 9, noise impacts during construction would be less than significant.

### On-site Operations

Sensitive receptors that may be affected by project operational noise include single-family residences to the north and west of the project site.

On-site project operational noise was modeled using the SoundPLAN model. Modeled noise sources include noise associated with parking areas, idling trucks, loading and unloading activities, trucks’ diesel engines, exhaust systems, braking, and forklifts and potential rooftop HVAC. The noisiest hour for all of these activities occurring simultaneously was modeled. The potential worst-case CNELs (assuming continuous 24-hour operation, were also calculated.

Unmitigated peak hour noise levels at nearby land uses would range between 50.5 to 62.9 dBA  $L_{eq}$  (peak hr.) and 57 to 70 CNEL. More specifically, project operational noise levels at nearby single-family residences would range from 62 to 70; from 57 to 68 at the golf course facilities; and 58 to 60 at the office buildings located east of the project site. The unmitigated operational noise levels at residences directly north of the project site will exceed the City's 65 dBA CNEL limit and therefore the project would require an eight-foot-high noise wall to reduce the noise level below the City's 65 dBA limit. With the noise wall (i.e. Mitigation Measure N-10), impacts would be mitigated to a less than significant level. The project would not impact the golf course or the office buildings.

**Noise Impacts to Off-Site Receptors Due to Project Generated Traffic**

Project-generated traffic noise was modeled using the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 50 feet from the centerline of the analyzed roadway. The modeling does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference with and without the project. In addition, the noise contours for 55, 60, 65 and 70 dBA CNEL were calculated.

The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

- Existing Conditions Without Project
- Existing Conditions With Project

Table 11 compares the without and with project scenario and shows the change in traffic noise levels as a result of the proposed project. An increase of 3 dB or more is typically required to have an audible difference. As identified in the table, the project is anticipated have a nominal change in noise levels (approximately 0 to 0.3 dBA CNEL). The change in noise level would not be audible and would be considered less than significant.

**Table 11: Change in Existing Noise Levels as a Result of the Project**

| Roadway         | Segment                           | CNEL at 50 Feet dBA      |                       |                       |                              |
|-----------------|-----------------------------------|--------------------------|-----------------------|-----------------------|------------------------------|
|                 |                                   | Existing Without Project | Existing Plus Project | Change in Noise Level | Potential Significant Impact |
| Waterman Ave    | Mill St to Central Ave            | 74.4                     | 74.4                  | 0.0                   | No                           |
|                 | Central Ave to Orange Show Rd     | 74.4                     | 74.4                  | 0.0                   | No                           |
| Valley View Ave | Mill St to Central Ave            | 61.2                     | 61.2                  | 0.0                   | No                           |
|                 | Central Ave to Orange Show Rd     | 63.9                     | 64.2                  | 0.3                   | No                           |
| Tippecanoe Ave  | Mill St to Central Ave            | 77.5                     | 77.6                  | 0.0                   | No                           |
|                 | Central Ave to Orange Show Rd     | 76.4                     | 76.5                  | 0.0                   | No                           |
| Mill Ave        | Waterman Ave to Valley View Ave   | 69.9                     | 69.9                  | 0.0                   | No                           |
|                 | Valley View Ave to Tippecanoe Ave | 70.0                     | 70.0                  | 0.0                   | No                           |
| Central Ave     | East of Waterman Ave              | 65.2                     | 65.3                  | 0.1                   | No                           |
|                 | Waterman Ave to Valley View Ave   | 67.6                     | 67.8                  | 0.2                   | No                           |
|                 | Valley View Ave to Tippecanoe Ave | 67.8                     | 67.9                  | 0.1                   | No                           |
|                 | West of Tippecanoe Ave            | 70.7                     | 70.7                  | 0.0                   | No                           |
| Orange Show Rd  | Waterman Ave to Valley View Ave   | 72.2                     | 72.2                  | 0.0                   | No                           |
|                 | Valley View Ave to Tippecanoe Ave | 71.3                     | 71.3                  | 0.0                   | No                           |

Source: Kunzman, 2015

## Mitigation Measures

### Construction

- N-1 During all project site excavation and grading on site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
- N-2 The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- N-3 Equipment shall be shut off and not left to idle when not in use.
- N-4 The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
- N-5 The project applicant shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.
- N-6 The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.
- N-7 Limit the use of heavy equipment or vibratory rollers and soil compressors along the project boundaries to the greatest degree possible. It is acknowledged that some soil compression may be necessary along the project boundaries.
- N-8 Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.
- N-9 For the duration of construction activities, the construction manager shall serve as the contact person should noise levels become disruptive to local residents. A sign should be posted at the project site with the contact phone number.

### Operational

- N-10 The project shall construct an 8-foot noise barrier along the northern project boundary in accordance with the Kunzman Noise Study. The wall shall be positioned at the top of slope or pad, whichever is greater such that it provides optimum sound attenuation.

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? **Less Than Significant Impact.***

### Construction Vibration

The City prohibits any uses that generate a discernible vibration impact beyond the property line. The nearest existing structure to the project site is located approximately 65 feet to the north. Due to the proximity of adjacent single-family residences, project construction activities may result in groundborne vibration that is annoying but would be limited to activities within 100 feet of sensitive receptors and would only occur during site grading and preparation activities.

Ground-borne vibration will be maintained at an acceptable level through, where feasible, the use of low-vibration construction procedures such as performing earthmoving and ground-impacting operations during non-overlapping phases. All construction equipment would be located over 100 feet from vibration-sensitive land uses. The project would not require pile driving. No significant construction vibration impacts would be expected.

#### Operational Vibration

The primary source of potential vibration issues associated with the project would be truck traffic. Traffic, including heavy trucks traveling on a highway, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. However, there have been cases in which heavy trucks traveling over potholes or other discontinuities in the pavement have caused vibration high enough to result in complaints from nearby residents (Caltrans, Transportation- and Construction-Induced Vibration Guidance Manual). While the project's traffic could expose or make worse such conditions, the vibration impact would occur when any truck passed over the discontinuity. These types of issues typically can be resolved by smoothing the roadway surface. The project is not anticipated to result in a significant vibration impact.

- c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? **Less Than Significant With Mitigation Incorporated.***

Noise levels associated with the proposed project would increase over existing noise levels. However, as discussed under V.12(a) above, all noise-related impacts can be mitigated to a less than significant level.

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? **Less Than Significant Impact.***

San Bernardino International Airport is located approximately two miles northeast of the project site. No significant noise levels occur at the project site; no impact would occur.

- f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? **No Impact.***

The proposed project site is not located within the vicinity of a private airstrip and therefore, would not expose persons to excessive airport-related noise levels.

#### **Cumulative Impacts**

As discussed above, all construction and operational noise impacts can be mitigated to a less than significant level. Construction noise impacts are by nature localized. The distance of separation among the proposed project and other cumulative projects would be such that the temporary noise and vibration effects of the proposed project would not be compounded or increased by similar noise or vibration effects from other cumulative projects. As discussed, operational noise caused by the proposed project can be mitigated. The noise analysis performed for operation of the proposed project incorporated cumulative noise levels from forecasted traffic volumes in the study area. Other than cumulative traffic volumes, there are no past, present, or reasonably foreseeable projects that would compound or increase the operational noise levels generated by the proposed project. Therefore, cumulative impacts relative to temporary and permanent noise generation associated with the proposed project would be less than significant.

### 13. Population and Housing

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

#### Discussion

- a) *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?* **No Impact.**

The project proposes the development of an industrial center and does not propose residential development. Although development of the facility would create additional job opportunities, it would not substantially induce growth in the area. Roads and infrastructure are already in place to serve the project site, and no additional roadway extensions or infrastructure would be required. As the project does not propose new residences or additional roads, there would be no substantial population growth induced by the proposed project.

- b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?* **Less Than Significant Impact.** and

- c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?* **Less Than Significant Impact.**

The proposed project would require the removal and displacement of five existing single-family residences on the project site. The removal of these residences does not represent a substantial displacement of people necessitating the construction of replacement housing. Although no impact would occur, the project applicant is prepared to purchase those residences at or above fair market value as a part of the project. Therefore, a less than significant impact would occur.

As discussed above in threshold 13.b, the proposed project would require the removal of existing housing on the project site, and, thus the displacement of residents of these homes. However, this consists of a relatively small number of houses, and therefore impacts would not be substantial.

## **Cumulative Impacts**

The proposed project would not result in direct or indirect permanent or temporary impacts related to population or housing. Therefore, the proposed project would not result in incremental effects to population and housing that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. As a result, no cumulative impacts related to population and housing would occur.

## 14. Public Services

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: |                                |  |                                     |                                     |
| i. Fire protection?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| ii. Police protection?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| iii. Schools?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| iv. Parks?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| v. Other public facilities?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Discussion

#### 1) Fire protection? *Less Than Significant Impact.*

Fire protection services would be provided to the project site by the City of San Bernardino Fire Department. The Fire Department has 161 Emergency Operations Personnel. The Fire Department staffs 12 fire engine companies, 2 aerial truck companies, 1 heavy rescue, 5 4-wheel drive brush engines, 1 hazardous material response rig, and 1 medic squad housed in 12 stations in the City. The closest fire station to the project site is Station #231 located at 450 E. Vanderbilt Drive, approximately 0.5 mile southeast of the project site. This station houses one type 1 fire engine and the Fire Department's hazardous materials unit. According to the Fire Department, the response times are determined by the type of activity reported<sup>5</sup>.

The project site is located within the City limits and within the service area of the Fire Department. Increased development on the project site as proposed by the project may incrementally increase the demand for fire protection services to the project site, consequently, the proposed project is subject to fire suppression development impact fees. However, development will not increase to a substantial level considering the site's location and surrounding area of similar uses. Therefore, impacts would be less than significant.

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<sup>5</sup> Written correspondence from Lieutenant Rich Lawhead, Community Affairs/PIO/Community Policing, Narcotics Division Commander, City of San Bernardino Police Department provided on 10/12/15.

2) *Police protection? **Less Than Significant Impact.***

Police protection services would be provided by the City of San Bernardino Police Department. The Police Department has 312 sworn officers and 150 non-sworn employees. The closest police station is located at 710 North D Street approximately 2.5 miles northwest of the project site. Although a new warehouse/manufacturing building would be constructed and will operate on the project site, the proposed project would be located in an urbanized area and would not result in a substantial increase in demand on police services. It is not anticipated to increase response times to the project site or vicinity. As required for a development of this type, the proposed project is subject to law enforcement development impact fees as determined by the City of San Bernardino. The project does not propose new or physically altered police protection facilities. Therefore, impacts would be less than significant.

3) *Schools? **No Impact.***

The proposed project is a non-residential land use. Implementation of the proposed project would not directly result in an increased population in the City and would therefore not increase the need for the construction of additional school facilities. Furthermore, the San Bernardino City Unified School District requires development impact fees be paid by the project applicant based on the square footage of the proposed project. Upon payment of the required fees, no significant impact to school services or facilities would occur.

4) *Parks? **Less than Significant Impact.***

The proposed project is a warehouse/manufacturing building and does not include a residential component. The proposed project would not create a significant increased demand or need for the construction of park facilities. However, construction of the proposed project would require the abandonment of the golf course driving range currently located on the project site. Based on the proximity of other golf course driving ranges in the City and surrounding area, this would represent a less than significant impact.

5) *Other public facilities? **No Impact.***

The proposed project would not result in an increase in population within the City; therefore, no impacts to other public facilities would occur with project implementation.

### **Cumulative Impacts**

The proposed project would not result in a significant impact to any public services or facilities. Therefore, the proposed project would not result in incremental effects to public services or facilities that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. The proposed project would not result in cumulatively considerable impacts to public services or facilities.

## 15. Recreation

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact                           |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?                        | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

### Discussion

- a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? **No Impact.***

The project proposes a lot consolidation and development of an industrial center facility. Implementation of the proposed project would not generate an increase in demand on existing public or private parks or other recreational facilities that would either result in or increase physical deterioration of the facility. Thus, no impact would result from the proposed project.

- b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? **No Impact.***

Implementation of the proposed project would not include recreational facilities, nor would it require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Thus, no impact would result from the proposed project.

### Cumulative Impacts

The proposed project would not result in an increased use of recreational facilities or require construction or expansion of existing recreational facilities. Therefore, no cumulative impacts on recreational facilities would result from project implementation.

## 16. Transportation/Traffic

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e. Result in inadequate emergency access?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

A Traffic Impact Analysis (TIA) and Addendum were prepared by Kunzman Associates (September 2015) to assess the potential traffic impacts of the proposed project. The TIA Addendum evaluated the additional right-in/right-out driveway on South Waterman Avenue (Alternative A). With the exception of the additional right-in/right-out driveway on South Waterman Avenue, the two alternatives are the same; therefore, any analysis specific to the additional driveway is noted as Alternative A in this section. The findings of the TIA and Addendum are summarized in this Initial Study; the TIA and Addendum are provided as Appendix F.

### Discussion

- a) *Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? **Less Than Significant With Mitigation Incorporated.***

The traffic study methodology and traffic study area were defined by the City and Kunzman Associates. The traffic study area includes seven intersections as identified below.

- E Street and Orange Show Road
- Washington Avenue at Orange Show Road
- Waterman Avenue at Orange Show Road
- Waterman Avenue at Dumas Street
- Waterman Avenue at Park Center Circle North
- Waterman Avenue at Park Center Circle South
- Waterman Avenue at Vanderbilt Way

Morning and evening peak hour traffic conditions were analyzed for the following scenarios:

- Existing Conditions (2015)
- Existing Plus Project
- Existing Plus Ambient Growth (2017)
- Opening Year (2017) Without and With Project
- Horizon Year (2035) Without and With Project

Intersection operations were evaluated using the Intersection Delay Method based on the Highway Capacity Manual - Transportation Research Board Special Report 209. To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection.

**Significance Criteria**

The City of San Bernardino General Plan states that peak hour intersection operations of LOS D or better are generally acceptable. Therefore, any intersection operating Level of Service E to F will be considered deficient. For freeway facilities, the definition of deficiency is based on maintaining a level of service standard of LOS E or better, except where an existing LOS F condition is identified. A deficiency is, therefore, defined as any freeway segment operating or projected to operate at LOS F, unless the segment is currently identified.

Based on the City of San Bernardino Development Services Department, *Traffic Impact Study Guidelines* (2015), the impact is considered significant if the project-related increase in the V/C ratio equals or exceeds the thresholds shown below:

| <b>Significant Impact Threshold for Intersections</b> |                        |                             |
|---|------------------------|-----------------------------|
| <b>Level of Service</b>                               | <b>Volume/Capacity</b> | <b>Incremental Increase</b> |
| C   | 0.71-0.80              | 0.04 or more                |
| D   | 0.81-0.90              | 0.02 or more                |
| E/F   | 0.91 - more            | 0.01 or more                |

An intersection mitigation measure shall either fix the deficiency, or reduce the V/C ratio so that it is below the level that occurs without the project. A traffic impact is considered significant if the project both (1) contributes measurable traffic to and (2) substantially and adversely changes the level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the City of San Bernardino General Plan cannot be constructed.

### Existing Conditions

Morning and evening traffic counts were conducted to determine existing intersection traffic conditions. In addition, truck classification counts were conducted at the study area intersections. The existing volumes and types of trucks (number of axles) were used in the conversion of trucks to Passenger Car Equivalents (PCEs). The following conversion rates were used: 2-axle trucks = 2.0 cars; 3-axle trucks = 2.5 cars; and 4+ axle trucks = 3.0 cars. Existing traffic conditions in the study area are identified in Table 12. As identified in the table, all traffic study area intersections are currently operating at acceptable levels of service (LOS D or better) in both the AM and PM peak hours.

**Table 12: Existing Conditions**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| <b>E St (NS) at:</b><br>Orange Show Rd (EW) - #1           | City of SB   | TS                           | 29.4               | C                | 0.377            | 36.6               | D                | 0.557            |
| <b>Washington Ave (NS) at:</b><br>Orange Show Rd (EW) - #2 | City of SB   | TS                           | 10.2               | B                | 0.677            | 10.9               | B                | 0.759            |
| <b>Waterman Ave (NS) at:</b><br>Orange Show Rd (EW) - #5   | City of SB   | TS                           | 28.1               | C                | 0.443            | 31.9               | C                | 0.694            |
| Dumas St (EW) - #6   | City of SB   | CSS                          | 15.6               | C                | N/A              | 27.8               | D                | N/A              |
| Park Center Circle N (EW) - #7                             | City of SB   | CSS                          | 14.8               | B                | N/A              | 14.1               | B                | N/A              |
| Park Center Circle S (EW) - #8                             | City of SB   | TS                           | 11.6               | B                | 0.763            | 13.6               | B                | 0.926            |
| Vanderbilt Way (EW) - #9                                   | City of SB   | TS                           | 22.0               | C                | 0.577            | 18.6               | B                | 0.434            |

1 When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De facto Right Turn.  
2 TS = Traffic Signal; CSS = Cross Street Stop  
3 Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.  
4 LOS = Level of Service; V/C = Volume to Capacity

## Project Trip Generation

Daily and peak hour trips were estimated for the proposed project. Trip generation estimates are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) trip generation rates for High-Cube Warehouse, and the City of Fontana Truck Trip Generation Study (August 2003). Trip generation rates, PCE factors, and the resulting trip generation estimates are identified in Table 13. At build-out of the development, the proposed project is estimated to generate approximately 1,282 PCE vehicle trips on a daily basis, with 87 trips in the morning peak hour and 95 trips in the evening peak hour.

**Table 13: Project Trip Generation**

| Descriptor  | Quantity       | Units <sup>2</sup> | Type of Vehicle |              |              |               | Total Trucks  | Total       |
|---|----------------|--------------------|-----------------|--------------|--------------|---------------|---------------|-------------|
|   |                |                    | Passenger Car   | 2 Axle Truck | 3 Axle Truck | 4+ Axle Truck |               |             |
| <b>Land Use: High-Cube Warehouse</b>  | <b>564.652</b> | <b>TSF</b>         | <b>79.57%</b>   | <b>3.46%</b> | <b>4.64%</b> | <b>12.33%</b> | <b>20.43%</b> | <b>100%</b> |
| <b>Traffic Generation Rates in trips per TSF</b>  |                |                    |                 |              |              |               |               |             |
| Daily   |                |                    | 1.337           | 0.058        | 0.078        | 0.207         | 0.343         | 1.68        |
| Morning Peak Hour   |                |                    | 0.088           | 0.004        | 0.005        | 0.014         | 0.023         | 0.11        |
| Evening Peak Hour   |                |                    | 0.096           | 0.004        | 0.006        | 0.015         | 0.025         | 0.12        |
| <b>Traffic Generation in Vehicles</b>   |                |                    |                 |              |              |               |               |             |
| Daily   |                |                    | 755             | 33           | 44           | 117           | 194           | 949         |
| Morning Peak Hour   |                |                    |                 |              |              |               |               |             |
| Inbound   |                |                    | 36              | 2            | 2            | 6             | 10            | 46          |
| Outbound  |                |                    | 13              | 1            | 1            | 2             | 4             | 17          |
| Total   |                |                    | 49              | 3            | 3            | 8             | 14            | 63          |
| Evening Peak Hour   |                |                    |                 |              |              |               |               |             |
| Inbound   |                |                    | 18              | 1            | 1            | 3             | 5             | 23          |
| Outbound  |                |                    | 36              | 2            | 2            | 6             | 10            | 46          |
| Total   |                |                    | 54              | 3            | 3            | 9             | 15            | 69          |
| <b>Passenger Car Equivalents (PCEs) Factor<sup>3</sup></b>  |                |                    |                 |              |              |               |               |             |
|   |                |                    | 1.00            | 2.00         | 2.50         | 3.00          |               |             |
| <b>Traffic Generation in PCEs</b>   |                |                    |                 |              |              |               |               |             |
| Daily   |                |                    | 755             | 66           | 110          | 351           | 527           | 1,282       |
| Morning Peak Hour   |                |                    |                 |              |              |               |               |             |
| Inbound   |                |                    | 36              | 4            | 5            | 18            | 27            | 63          |
| Outbound  |                |                    | 13              | 2            | 3            | 6             | 11            | 24          |
| Total   |                |                    | 49              | 6            | 8            | 24            | 38            | 87          |
| Evening Peak Hour   |                |                    |                 |              |              |               |               |             |
| Inbound   |                |                    | 18              | 2            | 3            | 9             | 14            | 32          |
| Outbound  |                |                    | 36              | 4            | 5            | 18            | 27            | 63          |
| Total   |                |                    | 54              | 6            | 8            | 27            | 41            | 95          |
| <p>1 Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Category 150 and City of Fontana, Truck Trip Generation Study, August 2003.</p> <p>2 TSF = Thousand Square Feet</p> <p>3 Source: City of San Bernardino Development Services Department, Traffic Impact Study Guidelines, June 2015.</p> |                |                    |                 |              |              |               |               |             |

## Existing Plus Project

This section addresses the impacts associated with adding project-related trips to Existing Conditions traffic volumes. The Existing Plus Project scenario is a hypothetical scenario, which assumes that the proposed project would be fully implemented at the present time, with no other changes to area traffic volumes or to the street network serving the site. This analysis assumes full development of the project and full absorption of project traffic on the circulation system at the present time.

Project-related trips were added to existing traffic volumes to forecast Existing Plus Project conditions. A summary of the resulting intersection levels of service is provided in Table 14. Table 14 shows that all study intersections would continue to operate at a LOS D or better under this scenario, with the exception of the following intersection:

- Waterman Avenue at Park Center Circle N - #7

**Table 14: Existing Plus Project**

| Intersection  | Peak Hour | Existing |     |       | Existing Plus Project |     |       |                |                     |
|---|-----------|----------|-----|-------|-----------------------|-----|-------|----------------|---------------------|
|   |           | Delay    | LOS | V/C   | Delay                 | LOS | V/C   | Project Impact | Significant Impact? |
| E St (NS) at:<br>Orange Show Rd (EW) - #1   | Morning   | 29.4     | C   | 0.377 | 29.4                  | C   | 0.385 | +0.008         | No                  |
|   | Evening   | 36.6     | D   | 0.557 | 36.8                  | D   | 0.561 | +0.004         | No                  |
| Washington Ave (NS) at:<br>Orange Show Rd (EW) - #2                                   | Morning   | 10.2     | B   | 0.677 | 10.4                  | B   | 0.681 | +0.004         | No                  |
|   | Evening   | 10.9     | B   | 0.759 | 11.1                  | B   | 0.761 | +0.002         | No                  |
| Project West Access (NS) at:<br>Dumas St (EW) - #3                                    | Morning   | 0.0      | 0.0 | N/A   | 8.8                   | A   | N/A   | N/A            | No                  |
|   | Evening   | 0.0      | 0.0 | N/A   | 8.9                   | A   | N/A   | N/A            | No                  |
| Project East Access (NS) at:<br>Dumas St (EW) - #4                                    | Morning   | 0.0      | 0.0 | N/A   | 8.4                   | A   | N/A   | N/A            | No                  |
|   | Evening   | 0.0      | 0.0 | N/A   | 8.4                   | A   | N/A   | N/A            | No                  |
| Waterman Ave (NS) at:<br>Orange Show Rd (EW) - #5                                     | Morning   | 28.1     | C   | 0.443 | 28.2                  | C   | 0.444 | +0.001         | No                  |
|   | Evening   | 31.9     | C   | 0.694 | 32.6                  | C   | 0.702 | +0.008         | No                  |
| Waterman Ave (NS) at:<br>Dumas St (EW) - #6   | Morning   | 15.6     | C   | N/A   | 15.0                  | C   | N/A   | N/A            | No                  |
|   | Evening   | 27.8     | D   | N/A   | 22.8                  | C   | N/A   | N/A            | No                  |
| Waterman Ave (NS) at:<br>Park Center Circle N (EW) - #7                               | Morning   | 14.8     | B   | N/A   | 46.3                  | E   | N/A   | N/A            | YES                 |
|   | Evening   | 14.1     | B   | N/A   | 83.9                  | F   | N/A   | N/A            | YES                 |
| Waterman Ave (NS) at:<br>Park Center Circle S (EW) - #8                               | Morning   | 11.6     | B   | 0.763 | 11.6                  | B   | 0.926 | +0.163         | No                  |
|   | Evening   | 13.6     | B   | 0.926 | 13.6                  | B   | 0.926 | +0.000         | No                  |
| Waterman Ave (NS) at:<br>Vanderbilt Way (EW) - #9                                     | Morning   | 22.0     | C   | 0.577 | 22.0                  | C   | 0.577 | +0.000         | No                  |
|   | Evening   | 18.6     | B   | 0.434 | 18.6                  | B   | 0.437 | +0.003         | No                  |
| Alt A: Waterman Ave (NS)<br>Project South Access (EW) -<br>#10                        | Morning   | 0.0      | 0.0 | N/A   | 11.4                  | B   | N/A   | N/A            | No                  |
|   | Evening   | 0.0      | 0.0 | N/A   | 13.1                  | B   | N/A   | N/A            | No                  |
| LOS: Level of Service; V/C:<br>Volume-to-Capacity Ratio<br>Source: Kunzman Associates |           |          |     |       |                       |     |       |                |                     |

### Existing Plus Ambient Growth (2017)

The Existing Plus Ambient Growth (2017) delay and Level of Service for the study area roadway network without other development or the proposed project are shown in Table 15. As shown in the table, study area intersections are forecast to operate at an acceptable levels of service during the morning and evening peak hours. Under this scenario, a traffic signal is projected to be warranted at the following study area intersection:

- Waterman Avenue at Park Center Circle N- #7

**Table 15: Existing Plus Ambient Growth**

| Intersection   | Traffic Control | Peak Hour |     |       |         |     |       |
|--|-----------------|-----------|-----|-------|---------|-----|-------|
|  |                 | Morning   |     |       | Evening |     |       |
|  |                 | Delay     | LOS | V/C   | Delay   | LOS | V/C   |
| E St (NS) at:<br>Orange Show Rd (EW) - #1              | TS              | 29.6      | C   | 0.388 | 37.1    | D   | 0.567 |
| Washington Ave (NS) at:<br>Orange Show Rd (EW) - #2    | TS              | 10.3      | B   | 0.682 | 11.2    | B   | 0.762 |
| Waterman Ave (NS) at:<br>Orange Show Rd (EW) - #5      | TS              | 28.3      | C   | 0.452 | 32.7    | C   | 0.706 |
| Dumas St (EW) - #6                                     | CSS             | 23.1      | C   | N/A   | 29.4    | D   | N/A   |
| Park Center Circle N (EW) - #7<br>Without Improvements | CSS             | 14.0      | B   | N/A   | 14.8    | B   | N/A   |
| With Improvements                                      | <u>TS</u>       | 9.1       | A   | 0.309 | 7.3     | A   | 0.283 |
| Park Center Circle S (EW) - #8                         | TS              | 11.7      | B   | 0.926 | 13.8    | B   | 0.978 |
| Vanderbilt Way (EW) - #9                               | TS              | 22.2      | C   | 0.587 | 19.0    | B   | 0.450 |
| Source: Kunzman Associates, 2015                       |                 |           |     |       |         |     |       |

## Opening Year (2017)

**Opening Year Without Project.** To assess Opening Year (2017) traffic conditions, existing traffic is combined with ambient growth, and other development traffic. Opening Year 2017 traffic volumes have been interpolated from the Year 2035 traffic volumes based upon a proportion of the future growth increment from the San Bernardino Transportation Analysis Model (SBTAM) traffic model Year 2008 and Year 2035 average daily traffic volume forecasts. Study area intersections are forecast to operate at acceptable levels of service during the peak hours without and with improvements.

**Opening Year (2017) With Project.** Project traffic was added to the Opening Year traffic conditions to evaluate the project's contribution to study area intersections. Table 16 identifies that the study area intersections are forecast to operate at acceptable levels of service during the peak hours, except for the following intersection:

- Waterman Avenue at Park Center Circle N - #7

Measures are available to mitigate the impact to this intersection to a less than significant level.

**Table 16: Opening Year With Project**

| Intersection  | Peak Hour | Without Project |     |       | With Project |     |       |                |                                  |
|---|-----------|-----------------|-----|-------|--------------|-----|-------|----------------|----------------------------------|
|   |           | Delay           | LOS | V/C   | Delay        | LOS | V/C   | Project Impact | Significant Impact? <sup>5</sup> |
| E St (NS) at:<br>Orange Show Rd (EW) - #1                       | Morning   | 29.8            | C   | 0.411 | 29.8         | C   | 0.419 | +0.008         | No                               |
|   | Evening   | 38.4            | D   | 0.582 | 38.7         | D   | 0.586 | +0.004         | No                               |
| Washington Ave (NS) at:<br>Orange Show Rd (EW) - #2             | Morning   | 10.3            | B   | 0.700 | 10.5         | B   | 0.704 | +0.004         | No                               |
|   | Evening   | 11.1            | B   | 0.771 | 11.4         | B   | 0.773 | +0.002         | No                               |
| Project West Access (NS) at:<br>Dumas St (EW) - #3              | Morning   | 0.0             | 0.0 | N/A   | 8.8          | A   | N/A   | N/A            | No                               |
|   | Evening   | 0.0             | 0.0 | N/A   | 8.9          | A   | N/A   | N/A            | No                               |
| Project East Access (NS) at:<br>Dumas St (EW) - #4              | Morning   | 0.0             | 0.0 | N/A   | 8.4          | A   | N/A   | N/A            | No                               |
|   | Evening   | 0.0             | 0.0 | N/A   | 8.4          | A   | N/A   | N/A            | No                               |
| Waterman Ave (NS) at:<br>Orange Show Rd (EW) - #5               | Morning   | 28.3            | C   | 0.452 | 28.6         | C   | 0.459 | +0.007         | No                               |
|   | Evening   | 34.6            | C   | 0.750 | 35.5         | D   | 0.762 | +0.012         | No                               |
| Waterman Ave (NS) at:<br>Dumas St (EW) - #6                     | Morning   | 16.6            | C   | N/A   | 15.8         | C   | N/A   | N/A            | No                               |
|   | Evening   | 32.6            | D   | N/A   | 26.1         | D   | N/A   | N/A            | No                               |
| Waterman Ave (NS) at:<br>Park Center Circle N (EW) - #7         | Morning   | 14.8            | B   | N/A   | 57.7         | F   | N/A   | N/A            | <b>YES</b>                       |
|   | Evening   | 15.4            | B   | N/A   | 99.9         | F   | N/A   | N/A            | <b>YES</b>                       |
| Waterman Ave (NS) at:<br>Park Center Circle S (EW) - #8         | Morning   | 11.6            | B   | 0.837 | 11.6         | B   | 0.876 | +0.039         | No                               |
|   | Evening   | 14.0            | B   | 0.936 | 14.0         | B   | 0.943 | +0.007         | No                               |
| Waterman Ave (NS) at:<br>Vanderbilt Way (EW) - #9               | Morning   | 22.5            | C   | 0.608 | 22.5         | C   | 0.608 | +0.000         | No                               |
|   | Evening   | 19.2            | B   | 0.470 | 19.2         | B   | 0.473 | +0.003         | No                               |
| Alt A: Waterman Ave (NS) at:<br>Project South Access (EW) - #10 |           | 0.0             | 0.0 | N/A   | 11.8         | B   | N/A   | N/A            | No                               |
|   | Morning   | 0.0             | 0.0 | N/A   | 13.8         | B   | N/A   | N/A            | No                               |

Source: Kunzman, 2015

## Year (2035)

**Year 2035 Without Project.** To assess Year 2035 traffic conditions, the Year 2035 Without Project daily and peak hour directional roadway segment volume forecasts have been determined using the growth increment approach on the SBTAM traffic model Year 2008 and Year 2035 peak hour volumes. This difference defines the growth in traffic over the 27-year period. Study area intersections are forecast to operate at acceptable levels of service during the peak hours without and with improvements.

**Year 2035 With Project.** Project traffic was added to the Year 2035 traffic conditions to evaluate the project's contribution to study area intersections. Table 17 identifies that the study area intersections are forecast to operate at acceptable levels of service during the peak hours, except for the following intersection:

- Waterman Avenue at Park Center Circle N - #7

Measures are available to mitigate the impact to this intersection to a less than significant level.

**Table 17: Year 2035 Without and With Project**

| Intersection  | Peak Hour | Without Project |     |       | With Project |     |       |                |                     |
|---|-----------|-----------------|-----|-------|--------------|-----|-------|----------------|---------------------|
|   |           | Delay           | LOS | V/C   | Delay        | LOS | V/C   | Project Impact | Significant Impact? |
| E St (NS) at:<br>Orange Show Rd (EW) - #1                       | Morning   | 32.1            | C   | 0.459 | 32.4         | C   | 0.466 | +0.007         | No                  |
|   | Evening   | 40.8            | D   | 0.606 | 41.3         | D   | 0.609 | +0.003         | No                  |
| Washington Ave (NS) at:<br>Orange Show Rd (EW) - #2             | Morning   | 7.3             | A   | 0.851 | 8.3          | A   | 0.952 | +0.101         | No                  |
|   | Evening   | 10.6            | B   | 0.962 | 10.7         | B   | 0.964 | +0.002         | No                  |
| Project West Access (NS) at:<br>Dumas St (EW) - #3              | Morning   | 0.0             | 0.0 | N/A   | 8.7          | A   | N/A   | N/A            | No                  |
|   | Evening   | 0.0             | 0.0 | N/A   | 8.8          | A   | N/A   | N/A            | No                  |
| Project East Access (NS) at:<br>Dumas St (EW) - #4              | Morning   | 0.0             | 0.0 | N/A   | 8.4          | A   | N/A   | N/A            | No                  |
|   | Evening   | 0.0             | 0.0 | N/A   | 8.4          | A   | N/A   | N/A            | No                  |
| Waterman Ave (NS) at:<br>Orange Show Rd (EW) - #5               | Morning   | 29.4            | C   | 0.493 | 29.6         | C   | 0.498 | +0.005         | No                  |
|   | Evening   | 37.1            | D   | 0.776 | 37.9         | D   | 0.784 | +0.008         | No                  |
| Waterman Ave (NS) at:<br>Dumas St (EW) - #6                     | Morning   | 17.2            | C   | N/A   | 16.6         | C   | N/A   | N/A            | No                  |
|   | Evening   | 23.0            | C   | N/A   | 20.8         | C   | N/A   | N/A            | No                  |
| Waterman Ave (NS) at:<br>Park Center Circle N (EW) - #7         | Morning   | 14.8            | B   | N/A   | 69.0         | F   | N/A   | N/A            | <b>YES</b>          |
|   | Evening   | 19.3            | C   | N/A   | 99.9         | F   | N/A   | N/A            | <b>YES</b>          |
| Waterman Ave (NS) at:<br>Park Center Circle S (EW) - #8         | Morning   | 7.7             | A   | 0.837 | 8.4          | A   | 0.926 | +0.089         | No                  |
|   | Evening   | 11.3            | B   | 0.966 | 11.3         | B   | 0.972 | +0.006         | No                  |
| Waterman Ave (NS) at:<br>Vanderbilt Way (EW) - #9               | Morning   | 23.4            | C   | 0.624 | 23.4         | C   | 0.624 | +0.000         | No                  |
|   | Evening   | 19.8            | B   | 0.539 | 19.8         | B   | 0.542 | +0.003         | No                  |
| Alt A: Waterman Ave (NS) at:<br>Project South Access (EW) - #10 | Morning   | 0.0             | 0.0 | N/A   | 12.4         | C   | N/A   | N/A            | No                  |
|   | Evening   | 0.0             | 0.0 | N/A   | 15.2         | C   | N/A   | N/A            | No                  |

Source: Kunzman, 2015.

## Mitigation Measures

TRAF-1 Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnection of the traffic signals to function in a coordinated system.

TRAF-2 As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

- b) *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion/management agency for designated roads or highways? **Less Than Significant Impact.***

The purpose of the Congestion Management Program (CMP) is to develop a coordinated approach to managing and decreasing traffic congestion by linking the various transportation, land use, and air quality planning programs throughout the County, consistent with that of SANBAG. The CMP requires review of substantial individual projects, which might on their own impact the CMP transportation system. Specifically, the CMP Traffic Impact Analysis measures impacts of a project on the CMP Highway System. Compliance with the CMP requirements ensures a city's eligibility to compete for State gas tax funds for local transportation projects.

The CMP requires that a Traffic Impact Analysis must include analysis of any CMP arterial monitoring intersection where the proposed project will add 50 or more trips during either the AM or PM weekday peak hour; and any freeway monitoring location where the project will not add 150 or more trips, in either direction, during either the AM or PM peak hour. The proposed project would not add 50 or more trips during either the AM or PM weekday peak hour to a designated CMP intersection; and would not add 150 or more trips to any freeway mainline location, in either direction, during either the AM or PM peak hour. Therefore, the proposed project would not exceed a level of service standard established by the CMP for designated roads or highways.

- c) *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? **No Impact.***

The proposed project would not include any aviation components or structures where height would be an aviation concern. No associated traffic impacts would occur.

- d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? **No Impact.***

The proposed project does not involve any changes that would create new potentially hazardous conditions or incompatible uses in the project vicinity. Therefore, no impacts are anticipated.

- e) *Result in inadequate emergency access? **No Impact.***

Under Alternative A, the proposed project would provide two access points from Waterman Avenue and two points of access from Dumas Street. Alternative B would provide two access points from Dumas Street and one access point from Waterman Avenue. Constructed roadways and driveways are required to meet access standards of the San

Bernardino City Fire Department. Compliance with the Fire Department requirements would ensure impacts remain less than significant.

- f) *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?* **No Impact.**

The proposed project has been designed to be consistent with local policies, plans, and programs supporting alternative transportation. The main alternative transportation modes available to the project would be bus transit and bicycle access. Transit service is provided by Omnitrans; Transit Route 5 operates on Waterman Avenue, and Transit Routes 2 and 15 operate on E Street. Sidewalks would be provided along the project frontages. The project would not conflict with adopted policies, plans, or programs regarding alternative modes of transportation. No impact would result.

### **Cumulative Impacts**

The TIA and Addendum address both the project-specific and the project's contribution to cumulative impacts. The project would have a significant impact to the intersection of Waterman Avenue at Park Center Circle North; this impact can be mitigated to a less than significant level.

## 17. Utilities and Service Systems

| Issues  | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                           |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| Would the project:  |                                |  |                                     |                                     |
| a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                            | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                     | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| g. Comply with federal, State, and local statutes and regulations related to solid waste?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

### Discussion

- a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? **Less Than Significant Impact.***

The San Bernardino Municipal Water Department (SBMWD) treats, and disposes of all of the City's sewage at the San Bernardino Water Reclamation Plant and the Rapid Infiltration and Extraction. The SBMWD is permitted to treat 40 million gallons per a day (MGD). The average daily flow is 22 MGD<sup>6</sup>. Sanitary sewer lines that serve the project site are maintained by the City of San Bernardino and are already in place to serve the proposed project.

<sup>6</sup> Written correspondence from Michael Nevarez, Associate Engineer, San Bernardino Municipal Water Department provided on 10/07/15.

Since the City's wastewater treatment facilities are operating below the permitted capacity of 40 MGD, it is anticipated that wastewater generated by the proposed project would not result in an exceedance of any wastewater treatment requirements of the Santa Ana Regional Water Quality Control Board (RWQCB). Impacts would be considered less than significant.

- b) *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? **No Impact.***

Sewer and water lines are already in place to serve the project, and expansion of existing facilities or construction of new wastewater treatment facilities would not be needed for implementation of the proposed project. Therefore, there would be no impact.

- c) *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? **No Impact.***

Off-site street improvements for the proposed project would include curbs, gutters, and sidewalks on the south side of Dumas Street and the relocation of one storm drain inlet to outside of a proposed driveway on Waterman Avenue. Potential environmental impacts from the off-site improvements are analyzed as part of this Initial Study. According to the Water Quality Management Plan (WQMP) prepared for this project, a few landscaped areas would have vegetated swales which would connect to the nearest curb inlet within the adjacent parking lot. Through a series of curb inlets and grated inlets, storm water would be collected on site and discharged into one of two underground infiltration basins. These two basins would be the primary treatment method for the project site and are sized to contain the 100-year storm event.

The project would not require or result in the construction of new storm water drainage facilities or the expansion of existing facilities. No impacts would result.

- d) *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? **Less Than Significant Impact.***

The City of San Bernardino Municipal Water Department (SBMWD) provides domestic water for the City and the unincorporated areas of San Bernardino<sup>7</sup>. Buildout of the project site was anticipated in the City's General Plan and General Plan EIR and was planned for in the 2010 San Bernardino Valley Regional Urban Water Management Plan<sup>8</sup>. The City's General Plan land use designations for the project site are Industrial and Open Space. However, there is currently a golf course driving range on the land designated as open space. The Project proposes to develop the driving range only; the golf course will remain. The project proposes the entire project site be an industrial land use designation under the General Plan. Since the project would not change the land use designation in the General Plan to a more water intensive use, it would not increase the demand for water supplies on the project site beyond what has been planned for. Therefore, impacts are considered less than significant in this regard.

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<sup>7</sup> City of San Bernardino General Plan. *Utility Element, Page 9-10.* November 2005.

<sup>8</sup> Kennedy/Jenks Consultants. 2010 San Bernardino Valley Regional Urban Water Management Plan. 2010 as amended September 2012.

On April 1, 2015, Governor Brown issued Executive Order B-29-15. Key provisions include ordering the State Water Resources Control Board to impose restrictions to achieve a 25 percent reduction in potable urban water usage through February 28, 2016; directing the California Department of Water Resources to lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes; and directing the California Energy Commission to implement a statewide appliance rebate program to provide monetary incentives for the replacement of inefficient household devices. Approval of the Project will not preclude the City from complying with this Executive Order.

- e) *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? **Less Than Significant Impact.***

Refer to response V.17(a) and (b) above. The wastewater infrastructure needed to serve the project site is already in place, and the City's wastewater facilities have adequate capacity to serve the project's demand. Impacts would be less than significant in this regard.

- f) *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? **Less Than Significant Impact.***

The City of San Bernardino Refuse and Recycling Division provides collection services to residential and commercial customers for refuse, recyclables, and green waste<sup>9</sup>. The City utilizes Materials Recovery Facilities (MRF) to manage collected waste and recyclables. The Burrtec Waste Industries, Inc. East Valley Transfer and Recycling MRF has the expansion capability to accommodate up to 10,000 tons per day. It is not anticipated that the proposed project would affect existing facilities and cause the need to construct a new facility<sup>10</sup>.

The Mid-Valley Sanitary Landfill, which serves the Valley region of San Bernardino County, has remaining capacity and is anticipated to remain open until 2033<sup>11</sup>. Therefore, impacts would be less than significant.

- g) *Comply with federal, State, and local statutes and regulations related to solid waste? **Less Than Significant Impact.***

Refer to response V.17(f) above. The Mid-Valley Landfill is a facility that has been constructed to meet all required local, State, and federal rules and regulations. The proposed project would not compromise the City's compliance with federal, State and local statutes and regulations related to solid waste. Impacts would be less than significant in this regard.

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<sup>9</sup> City of San Bernardino website, "Public Works – Integrated Waste Management Division." Accessed 12/11/15. [http://www.ci.san-bernardino.ca.us/cityhall/publicworks/integrated\\_waste\\_management\\_division/default.asp](http://www.ci.san-bernardino.ca.us/cityhall/publicworks/integrated_waste_management_division/default.asp).

<sup>10</sup> Written correspondence from Gracie Johnson, Integrated Waste Field Inspector, City of San Bernardino provided on 10/21/15.

<sup>11</sup> CalRecycle website, "Facility/Site Summary Details: Mid-Valley Sanitary Landfill (36-AA-0055)." Accessed 12/11/15. <http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0055/Detail/>.

## **Cumulative Impacts**

The proposed project would have a less than significant impact with respect to utilities/service systems. The proposed project would require water and wastewater infrastructure, as well as solid waste disposal for building facility operation. Development of public utility infrastructure is part of an extensive planning process involving utility providers and jurisdictions with discretionary review authority. The coordination process associated with the preparation of development and infrastructure plans is intended to ensure that adequate resources are available to serve both individual projects and cumulative demand for resources and infrastructure as a result of cumulative growth and development in the area. Each individual project is subject to review for utility capacity to avoid unanticipated interruptions in service or inadequate supplies. Coordination with the utility companies would allow for the provision of utility service to the proposed project and other developments. The proposed project and other planned projects are subject to connection and service fees to assist in facility expansion and service improvements triggered by an increase in demand. Because of the utility planning and coordination activities described above, no significant cumulative utility impacts are anticipated.

## 18. Mandatory Findings of Significance

| Issues   | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less than Significant Impact        | No Impact                |
|--|--------------------------------|--|-------------------------------------|--------------------------|
| Would the project:   |                                |  |                                     |                          |
| a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/> |
| b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?p  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>            | <input type="checkbox"/> |
| c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### Discussion

- a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? **Less Than Significant Impact with Mitigation Incorporated.***

As described throughout the analysis above, the proposed project would not result in any significant impacts to the environment that cannot be mitigated to a less than significant level through the application of uniformly applied development policies and/or standards. The proposed project would be required to implement a range of standard and uniformly applied development policies and standards, as well as implement mitigation measures identified in the analysis herein, which would reduce impacts to a less than significant level.

- b) *Does the project have impacts which are individually limited, but cumulatively considerable (Cumulatively considerable means the projects incremental effects are considerable when compared to the past, present, and future effects of other projects)? **Less Than Significant Impact with Mitigation Incorporated.***

The proposed project would result in significant impacts in the following areas: biological resources, cultural resources, geology/soils, greenhouse gas emissions, noise and transportation/traffic. A Mitigation Program has been prepared for each of these environmental issue areas in order to reduce impacts to less than significant levels.

Standard conditions would also be imposed upon the project. Other new development projects within the City would also be subject to these requirements.

All other impacts of the project were determined either to have no impact or to be less than significant, without the need for mitigation. Cumulatively, the proposed project would not result in any significant impacts that would substantially combine with impacts of other current or probable future impacts. Therefore, the proposed project, in conjunction with other future projects, would not result in any cumulatively considerable impacts.

- c) *Does the project have environmental effects which will have substantial adverse effects on human beings, directly or indirectly? **Less Than Significant Impact.***

As discussed in the respective sections, the proposed project would have no potentially significant impacts. Therefore, impacts related to adverse effects on human beings would be less than significant.

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Written correspondence from Michael Nevarez, Associate Engineer, San Bernardino Municipal Water Department provided on 10/07/15.

## **APPENDIX A**

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Air Quality, Global Climate Change, and Health Risk Assessment  
Impact Analysis



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER (REVISED)**

**AIR QUALITY, GLOBAL CLIMATE CHANGE, AND  
HEALTH RISK ASSESSMENT IMPACT ANALYSIS**

**March 24, 2016**



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER (REVISED)**  
**AIR QUALITY, GLOBAL CLIMATE CHANGE, AND**  
**HEALTH RISK ASSESSMENT IMPACT ANALYSIS**

**March 24, 2016**

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**5629b**

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## **I. INTRODUCTION AND SETTING**

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### **A. Purpose and Objectives**

This study was performed to address the possibility of regional and local air quality impacts, global climate change impacts, and cancer risk from diesel emissions. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality, greenhouse gases, and cancer risk thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- analysis of the operations related cancer risk from diesel emissions
- recommendations for mitigation measures
- analysis of the conformity of the proposed project with the SCAQMD AQMP

The City of San Bernardino is the lead agency responsible for preparation of this air quality analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

### **B. Project Location**

The project is located on the southwest corner of the Waterman Avenue and Dumas Drive intersection in the City of San Bernardino. A vicinity map showing the project location is provided on Figure 1.

According to the SCAQMD's MATES-IV study, the project area has an estimated ambient cancer risk of 336.39 in one million. This increased cancer risk is largely due to the proximity to the I-10 and I-215 Freeways. In comparison the average cancer risk for San Bernardino County is 339 in one million.

### **C. Project Description**

The approximately 25.25 acre project site is proposed to be developed with a 564,652 square foot high-cube warehouse distribution center with 452 total parking stalls, including 281 warehouse parking spaces and 171 trailer parking spaces, and 24 bicycle stalls. The project also includes 103,585 gross square feet of landscaping. The proposed project will have access to Waterman Avenue and Dumas Drive. Figure 2 illustrates the project site plan.

**D. Phasing and Timing**

The project will be constructed in one phase. The construction of the project is expected to begin June 2016 and be completed in March 2017. The project will be operational in 2017.

**E. Sensitive Receptors in Project Vicinity**

For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, or convalescent facility where it is possible that an individual could remain at the location for 24 hours. SCAQMD also considers land uses such as schools, child care centers, athletic facilities, and playgrounds to be sensitive receptors. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain on-site for a full 24 hours, but are present for shorter periods of time, such as eight hours.

The nearest sensitive receptors to the project site are the single-family detached residential dwelling units on the north side of Dumas Street (approximately 65 feet from the project's northern property line), the single-family detached residential dwelling unit to the west of the project site (approximately 170 feet from the western property line). The San Bernardino Public Golf Course is located adjacent to the southern and southwestern property line.

**F. Executive Summary of Findings**

*Construction-Source Emissions*

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

*Operational-Source Emissions*

With incorporation of mitigation measures, the project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related traffic will not cause or result in CO

concentrations exceeding applicable state and/or federal standards (CO “hotspots). The Diesel Emissions Health Risk Assessment conducted for this project showed that DPM emissions from project-related truck traffic will not cause a significantly elevated cancer risk or significant non-cancer-related health risk to nearby receptors. Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

With mitigation, project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions are also considered to be less than significant, with mitigation, and the project does not conflict with the goals of the SANBAG GHG Reduction Plan for the City of San Bernardino.

Figure 1  
Project Location Map

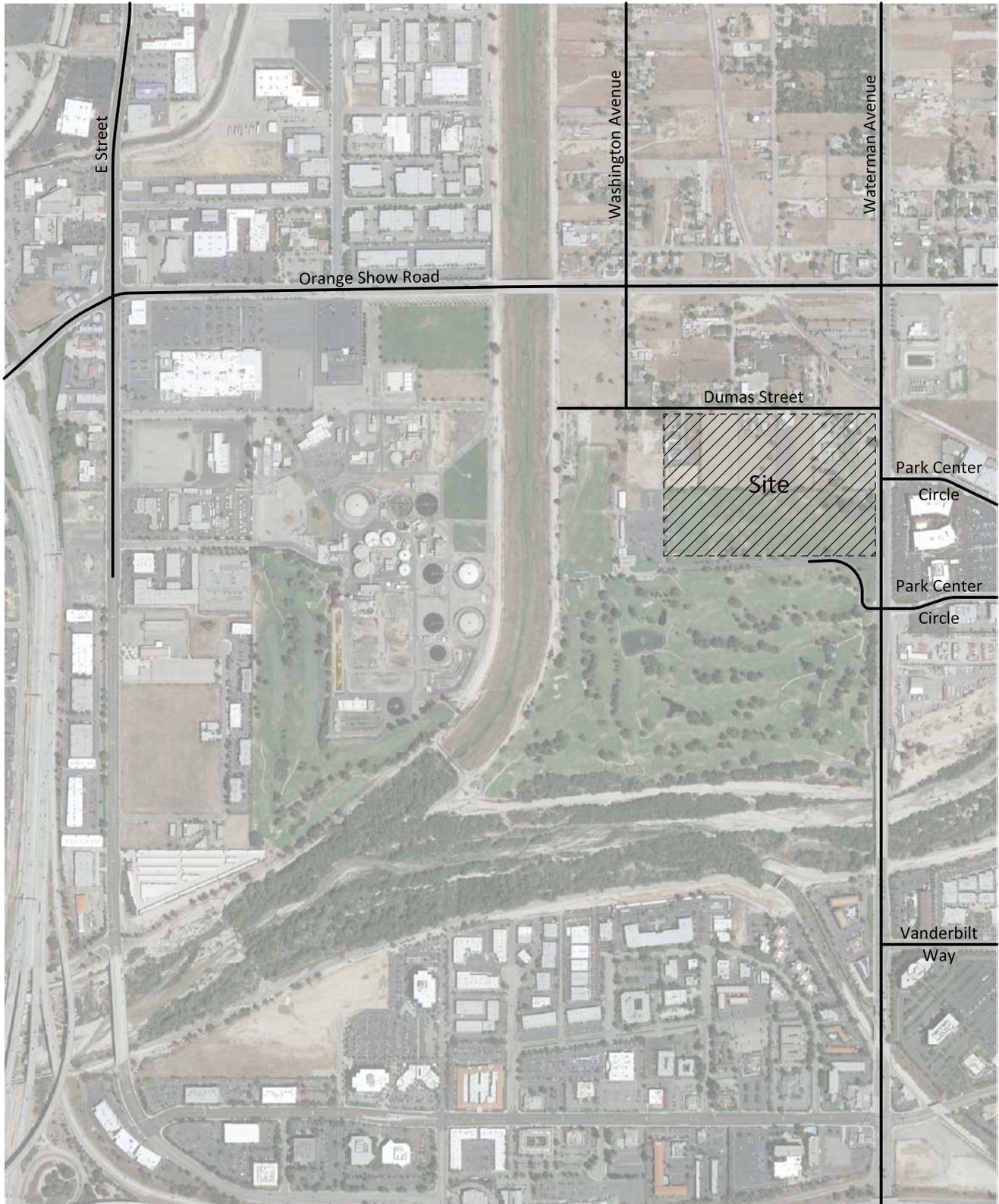
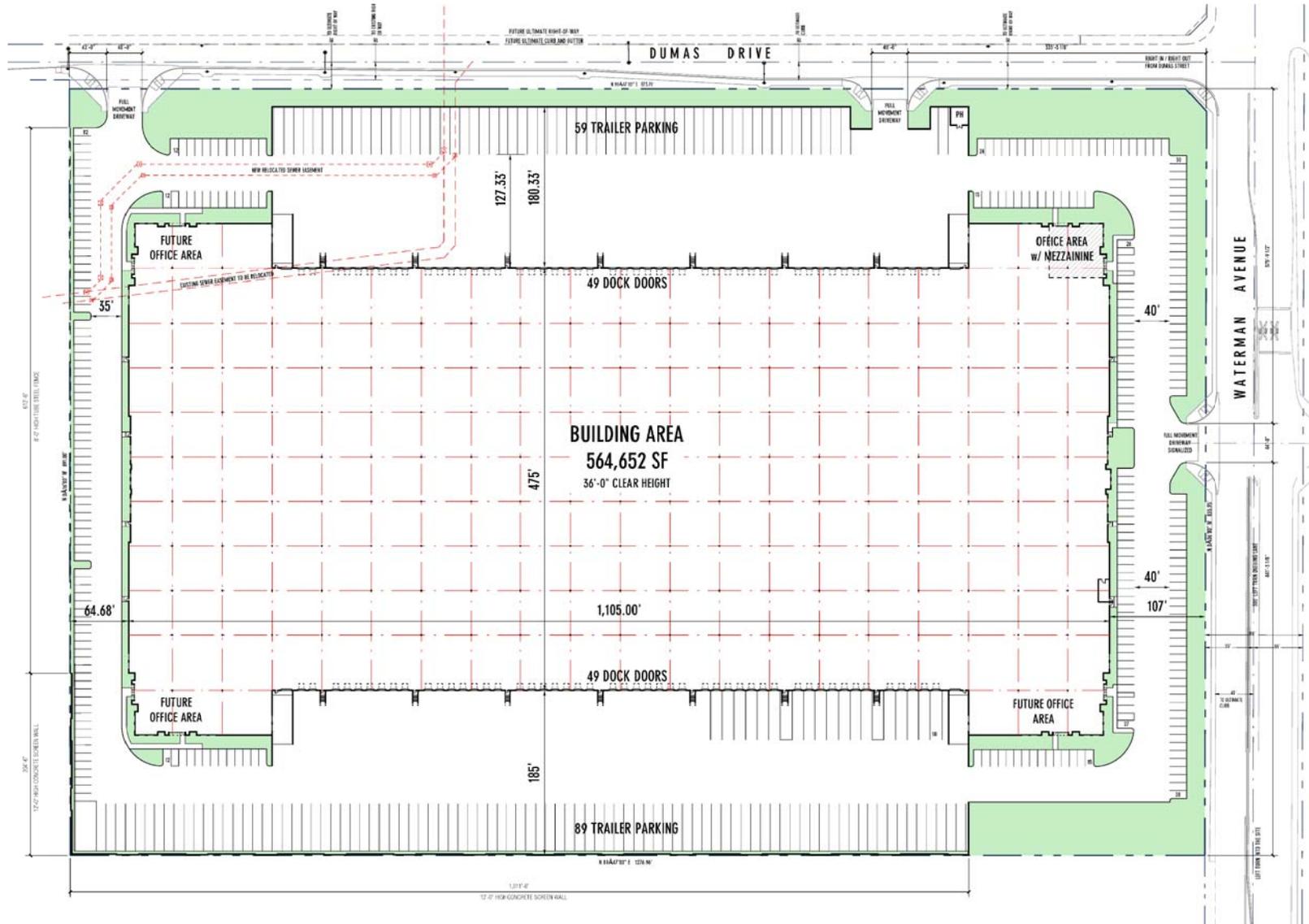


Figure 2  
Site Plan



## II. ATMOSPHERIC SETTING

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The project site is located within the western portion of San Bernardino County, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The project site is located toward the northeast portion of the South Coast Air Basin near the foot of the San Bernardino Mountains, which define the eastern boundary of the South Coast Air Basin.

The climate of western San Bernardino County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western San Bernardino County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the populated areas of the Los Angeles Basin. This airflow brings polluted air into western San Bernardino County late in the afternoon. This transport pattern creates unhealthy air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western San Bernardino County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the South Coast Air Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the South Coast Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite

light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of San Bernardino are shown below in Table 1. Table 1 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

**Table 1**

**San Bernardino Monthly Climate Data<sup>1</sup>**

| Descriptor                     | Month of Year |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|
|                                | Jan           | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
| Avg. Max. Temperature          | 66.4          | 68   | 71.6 | 76.8 | 82.2 | 88.9 | 94.7 | 95.6 | 91.1 | 82.6 | 70.2 | 66.2 |
| Avg. Min. Temperature          | 42.1          | 44.1 | 46.3 | 49.9 | 54.6 | 58.6 | 63.1 | 64.1 | 61   | 54.4 | 44.8 | 41.5 |
| Avg. Total Precipitation (in.) | 2.99          | 3.69 | 2.85 | 1.06 | 0.22 | 0.08 | 0.04 | 0.18 | 0.29 | 0.57 | 1.18 | 2.05 |

<sup>1</sup> Source: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7723>

### III. POLLUTANTS

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Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

#### A. Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants “criteria” air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

##### 1. Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen Oxides (NO<sub>x</sub>) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NO<sub>x</sub> are colorless and odorless, concentrations of nitrogen dioxide (NO<sub>2</sub>) can often be seen as a reddish-brown layer over many urban areas. NO<sub>x</sub> form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO<sub>x</sub> are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO<sub>x</sub> reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO<sub>2</sub>, which cause respiratory problems. NO<sub>x</sub> and the pollutants formed from NO<sub>x</sub> can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NO<sub>x</sub> is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

##### 2. Ozone (O<sub>3</sub>)

Ozone is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NO<sub>x</sub> and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NO<sub>x</sub> and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NO<sub>x</sub> and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO<sub>x</sub> and VOC emissions.

3. Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

4. Sulfur Dioxide (SO<sub>2</sub>)

Sulfur Oxide (SO<sub>x</sub>) gases (including sulfur dioxide [SO<sub>2</sub>]) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SO<sub>x</sub> dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

5. Lead (Pb)

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system,

leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

6. Particulate Matter (PM)

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM<sub>10</sub>) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM<sub>2.5</sub>) have been designated as a subset of PM<sub>10</sub> due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

7. Volatile Organic Compounds (VOCs)

Although not a criteria pollutant, reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM<sub>10</sub> and lower visibility.

**B. Other Pollutants of Concern**

1. Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of

toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2005 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM<sub>2.5</sub> because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

## 2. Asbestos

Asbestos is listed as a TAC by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in San Bernardino County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

## C. Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone, water vapor, nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable

climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO<sub>2</sub> and nitrous oxide (NO<sub>x</sub>) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO<sub>2</sub>, where CO<sub>2</sub> is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

1. Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved in is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

2. Carbon Dioxide

The natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s. Each of these activities has increased in scale and distribution. CO<sub>2</sub> was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of

anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius.

3. Methane

CH<sub>4</sub> is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO<sub>2</sub>. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO<sub>2</sub>, N<sub>2</sub>O, and Chlorofluorocarbons (CFCs)). CH<sub>4</sub> has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

4. Nitrous Oxide

Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

5. Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C<sub>2</sub>H<sub>6</sub>) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

6. Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF<sub>3</sub>), HFC-134a (CF<sub>3</sub>CH<sub>2</sub>F), and HFC-152a (CH<sub>3</sub>CHF<sub>2</sub>). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 HFC-134a are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

7. Perfluorocarbons

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF<sub>4</sub>) and hexafluoroethane (C<sub>2</sub>F<sub>6</sub>). Concentrations of CF<sub>4</sub> in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

8. Sulfur Hexafluoride

SF<sub>6</sub> is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF<sub>6</sub> has the highest global warming potential of any gas evaluated; 23,900 times that of CO<sub>2</sub>. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

9. Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

10. Global Warming Potential

GHGs have varying global warming potential (GWP). The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO<sub>2</sub>. One teragram of carbon dioxide equivalent (Tg CO<sub>2</sub>e) is essentially the emissions of the gas multiplied by the global warming potential. One teragram is equal to one million metric tons. The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the global warming potential of the gas. A summary of the atmospheric lifetime and the global warming potential of selected gases are summarized in Table 2. As shown in Table 2, the global warming potential of GHGs ranges from 1 to 22,800.

**Table 2****Global Warming Potentials and Atmospheric Lifetimes<sup>1</sup>**

| Gas                                     | Atmospheric Lifetime | Global Warming Potential <sup>2</sup><br>(100 Year Horizon) |
|---|----------------------|---|
| Carbon Dioxide (CO <sub>2</sub> )       | — <sup>3</sup>       | 1   |
| Methane (CH <sub>4</sub> )              | 12                   | 28-36   |
| Nitrous Oxide (NO)                      | 114                  | 298   |
| Hydrofluorocarbons (HFCs)               | 1-270                | 12-14,800   |
| Perfluorocarbons (PFCs)                 | 2,600-50,000         | 7,390-12,200  |
| Nitrogen trifluoride (NF <sub>3</sub> ) | 740                  | 17,200  |
| Sulfur Hexafluoride (SF <sub>6</sub> )  | 3,200                | 22,800  |

<sup>1</sup> Source: <http://www3.epa.gov/climatechange/ghgemissions/gases.html>

<sup>2</sup> Compared to the same quantity of CO<sub>2</sub> emissions.

<sup>3</sup> Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean-atmosphere-land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

## IV. AIR QUALITY MANAGEMENT

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### A. Regulatory Setting

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

#### 1. International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by 2000 and methyl chloroform by 2005.

#### 2. Federal - United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 3.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

As indicated below in Table 4, the Basin has been designated by the EPA as a non-attainment area for ozone (O<sub>3</sub>) and suspended particulates (PM<sub>10</sub> and PM<sub>2.5</sub>).

Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>).

In 2011, the Basin exceeded federal standards for either ozone or PM<sub>2.5</sub> at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM<sub>2.5</sub>. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM<sub>2.5</sub> in the Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM<sub>2.5</sub> NAAQS and the 98th percentile form of the 24-hour PM<sub>2.5</sub> NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM<sub>2.5</sub> 24-hour standard level was exceeded in 2011 on 17 sampling days.

The Basin is currently in attainment for the federal standards for carbon monoxide (CO), lead, sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>). While the concentration level of the new 1-hour NO<sub>2</sub> federal standard (100 ppb) was exceeded in the Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO<sub>2</sub> design value has not been exceeded. Therefore, the Basin remains in attainment of the NO<sub>2</sub> NAAQS.

The EPA designated the Los Angeles County portion of the Basin as nonattainment for the recently revised (2008) federal lead standard (0.15 µg/m<sup>3</sup>, rolling 3-month average), due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard in the 2007-2009 period of data used.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO<sub>2</sub> and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

On March 19, 2015, the Whitehouse announced that President Obama will issue an Executive Order that will cut the Federal Government's greenhouse gas (GHG) emissions 40 percent over the next decade from 2008 levels -- saving taxpayers up to \$18 billion in avoided energy costs -- and increase the share of electricity the Federal Government consumes from renewable sources to 30 percent. Complementing this effort, several major Federal suppliers are announcing commitments to cut their own GHG emissions. Today, the Administration is hosting a roundtable that will bring some of these large Federal suppliers together to discuss the benefits of their GHG reduction targets or to make their first-ever corporate commitments to disclose emissions and set new reduction goals.

Together, the combined results of the Federal Government actions and new supplier commitments will reduce GHG emissions by 26 million metric tons by 2025 from 2008 levels, the equivalent of taking nearly 5.5 million cars off the road for a year. And to encourage continued progress across the Federal supply chain, the Administration is releasing a new scorecard to publicly track self-reported emissions disclosure and progress for all major Federal suppliers, who together represent more than \$187 billion in Federal spending and account for more than 40 percent of all Federal contract dollars.

Since the Federal Government is the single largest consumer of energy in the Nation, Federal emissions reductions and progress across the supply chain will have broad impacts. The new commitments announced today support the United States' international commitment to cut net GHG emissions 26-28 percent below 2005 levels by 2025, which President Obama first announced in November 2014 as part of an historic agreement with China. Additionally, the goals build on the strong progress made by Federal agencies during the first six years of the Administration under President Obama's 2009 Executive Order on Federal Leadership on Environmental, Energy and Economic Performance, including reducing Federal GHG emissions by 17 percent — which helped Federal agencies avoid \$1.8 billion in cumulative energy costs — and increasing the share of renewable energy consumption to 9 percent.<sup>1</sup>

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<sup>1</sup> Source: <https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro>.

3. State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 3. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, SO<sub>2</sub>, NO<sub>2</sub>, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m<sup>3</sup> and established an annual average standard for PM2.5 of 12 µg/m<sup>3</sup>. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projected attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard in 2015.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB also proposed interim statewide CEQA thresholds for GHG emissions and released Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act, on October 24, 2008. The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

*Assembly Bill 1493*

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more

stringent tailpipe emission standards for CO<sub>2</sub> and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the “waiver” request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State’s request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

#### *Executive Order S-3-05*

The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

#### *Assembly Bill 32*

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

On December 6, 2007 CARB released the calculated Year 1990 GHG emissions of 427 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e). The 2020 target of 427 MMTCO<sub>2</sub>e requires the reduction of 169 MMTCO<sub>2</sub>e, or approximately 30 percent from the State’s projected 2020 business as usual emissions of 596 MMTCO<sub>2</sub>e and the reduction of 42 MMTCO<sub>2</sub>e, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO<sub>2</sub> in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources that became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May 11, 2009 that proposed a variety of measures including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, a market-based cap-and-trade system, and a fee regulation to fund the program. In current pending litigation, *Association of Irrigated Residents v. California Air Resources Board*, a California State trial court found that the analysis of the alternatives identified in the AB 32 Scoping Plan Functional Equivalent Document (FED) was not sufficient for informed decision-making and public review under CEQA. In response, CARB has appealed the decision. In addition, CARB prepared the *Supplement to the AB 32 Scoping Plan Functional Equivalent Document*, June 13, 2011. On August 24, 2011 CARB recertified the complete AB 32 Scoping Plan Functional Equivalent Environmental Document revised by the Final Supplement. In December, 2011 the Final Supplement was accepted as sufficient to fulfill the trial court's March order.

#### *Senate Bill 1368*

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

#### *Executive Order S-1-07*

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid

electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

#### *Senate Bill 97*

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.

- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation”.
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

*Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09*

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State’s Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

*Senate Bill 375*

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO’s sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as “transit priority projects”.

*Senate Bill X7-7*

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

*Assembly Bill 939 and Senate Bill 1374*

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

*California Code of Regulations (CCR) Title 24, Part 6*

CCR Title 24, Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. CalEEMod modeling defaults to 2008 standards. 2013 Standards have been approved and became effective July 1, 2014.

*California Code of Regulations (CCR) Title 24, Part 11*

All buildings for which an application for a building permit is submitted on or after January 1, 2014 must follow the 2013 standards. The 2013 commercial standards are estimated to be 30 percent more efficient than the 2008 standards; residential standards are 25 percent more efficient. Energy efficient

buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

#### *California Green Building Standards*

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

#### 4. Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies. SCAMD defines a "sensitive receptor" as a land use such as residences, schools, child care centers, athletic facilities, playgrounds, retirement homes and convalescent homes.

#### *South Coast Air Quality Management District*

The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through

educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. A revised draft of the 2012 AQMP was released on September, 2012, and was adopted by the SCAQMD Board on December 7, 2012. The 2012 AQMP is now awaiting approval from CARB and the U.S. EPA. The 2012 AQMP is being prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM<sub>2.5</sub> non-attainment areas prepare a SIP, which was required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM<sub>2.5</sub> standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM<sub>2.5</sub> standard by 2014 in the Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These “black box” emissions reductions represent 65 percent of the remaining NO<sub>x</sub> emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NO<sub>x</sub> control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM<sub>2.5</sub> emissions standards.

The 2012 AQMP is designed to satisfy the California Clean Air Act’s (CCAA) emission reductions of 5 percent per year or adoption of all feasible measures requirements and fulfill the EPA’s requirement to update transportation conformity emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2012 AQMP updates and revises the previous 2007 AQMP. The 2012 AQMP was prepared to comply with the Federal and State CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet Federal and State ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2012 AQMP for the Basin is to set forth a comprehensive program that will lead this area into compliance with all federal and state air-quality planning requirements.

The 2012 AQMP builds upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB’s 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as LPG transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of

several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: 1) Basin-wide and episodic short-term PM<sub>2.5</sub> measures; 2) Section 182(e)(5) implementation measures; and 3) Transportation control measures. Many of the control measures are not based on command and control regulations, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes. More broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals. Many of the same technologies will address both air quality and climate needs.

During construction and operation, the project must comply with applicable rules and regulations. The following are rules the project may be required to comply with, either directly, or indirectly:

**SCAQMD Rule 402** prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

**SCAQMD Rule 403** governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

**SCAQMD Rule 445** prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

**SCAQMD Rule 481** applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- (1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- (2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- (3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

**SCAQMD Rule 1108** governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

**SCAQMD Rule 1113** governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

**SCAQMD Rule 1143** governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

**SCAQMD Rule 1186** limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

**SCAQMD Rule 1303** governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM<sub>10</sub> among other pollutants.

**SCAQMD Rule 1401**, New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

**SCAQMD Rule 2202**, On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

#### **Rules 2700 and 2701**

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2701 provides specific protocols for private parties to follow

to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

#### **Rule 2702**

The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

#### **Rule 3002**

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of CO<sub>2</sub>e are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook), prepared by the SCAQMD, 1993, with the most current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the South Coast Air Basin, and adverse impacts will be minimized.

#### **SCAQMD Stakeholder Working Group**

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions.

At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual thresholds of 10,000 MTCO<sub>2</sub>e for industrial uses.

*Southern California Association of Governments*

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

5. Local – City of San Bernardino

Local jurisdictions, such as the City of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2007 and 2012 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The Natural Resources and Conservation Element of the City of San Bernardino General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goal 12.5: Promote air quality that is compatible with the health, well-being, and enjoyment of life.

Policy 12.5.1: Reduce the emission of pollutants including carbon monoxide, oxides of nitrogen, photochemical smog, and sulfate in

accordance with South Coast Air Quality Management District (SCAQMD) standards.

Policy 12.5.2: Prohibit the development of land uses (e.g., heavy manufacturing) that will contribute significantly to air quality degradation, unless sufficient mitigation measures are undertaken according to SCAQMD standards.

Policy 12.5.3: Require dust abatement measures during grading and construction operations.

Policy 12.5.4: Evaluate the air emissions of industrial land uses to ensure that they will not impact adjacent uses.

Goal 12.6: Reduce the amount of vehicular emissions in San Bernardino County.

Policy 12.6.1: Promote a pattern of land uses which locates residential uses in close proximity to employment and commercial services and provides, to the fullest extent possible, local job opportunities and commercial service to minimize vehicular travel and associated air emissions.

Policy 12.6.4: Facilitate the development of centralized parking lots and structures in commercial districts to promote walking between individual businesses in lieu of the use of automobiles. (LU-1)

Policy 12.6.5: Require qualifying development to implement or participate in transportation demand management programs, which provide incentives for car pooling, van pools, and the use of public transit and employ other trip reduction techniques (consistent with the Circulation Element and South Coast Air Quality Management Plan).

Policy 12.6.7: Promote the use of public transit and alternative travel modes to reduce air emissions.

Goal 12.7: Participate in regional initiatives and programs to improve the South Coast Basin's air quality.

Policy 12.7.1: Cooperate with the South Coast Air Quality Management District and incorporate pertinent local implementation provisions of the Air Quality Management Plan.

Policy 12.7.2: Work with the South Coast Air Quality Management District to establish controls and monitor uses in the City that could add to the air basin's degradation (e.g., auto repair, manufacturers).

- Policy 12.7.3: Coordinate with SCAQMD to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.
- Policy 12.7.4: Work with the other cities in the South Coast Air Basin to implement regional mechanisms to reduce air emissions and improve air quality.
- Policy 12.7.5: Support legislation that promotes cleaner industry, clean fuel vehicles, and more efficient burning engines and fuels.
- Policy 12.7.6: Encourage, publicly recognize, and reward innovative approaches to improve air quality.
- Policy 12.7.7: Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that actively reduce airborne pollutants.

**B. Monitored Air Quality**

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Revised Draft 2012 Air Quality Management Plan, prepared by SCAQMD, September 2012, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust.

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in source receptor area 34 (SRA 34), which is located in San Bernardino County and covers the area from just west of Fontana to Loma Linda. The nearest air monitoring station to the project site is the San Bernardino 4th Street Monitoring Station (San Bernardino Station). The San Bernardino Station is located approximately 2.02 miles northeast of the project site at 24302 East 4th Street, San Bernardino. Table 5 presents the monitored pollutant levels from the San Bernardino Station. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

The monitoring data presented in Table 5 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below. Where state and federal emissions are exceeded, the values have been bolded.

**Ozone**

During the 2012 to 2014 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 22 and 41 days each year at the San Bernardino Station.

The State 8-hour ozone standard has been exceeded between 53 and 77 days each year over the past three years at the San Bernardino Station. The Federal 8-hour ozone standard was exceeded between 36 and 54 days each year over the past five years at the San Bernardino Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO<sub>2</sub>, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

#### **Carbon Monoxide**

CO is another important pollutant that is due mainly to motor vehicles. The San Bernardino Station did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last five years.

#### **Nitrogen Dioxide**

The San Bernardino Station did not record an exceedance of the State or Federal NO<sub>2</sub> standards for the last three years.

#### **Particulate Matter**

The State 24-hour concentration standards for PM<sub>10</sub> have been exceeded between one and two days each year over the past three years at the San Bernardino Station. Over the past three years the Federal 24-hour standard for PM<sub>10</sub> has only been exceeded for one day in 2013 and one day in 2014 at the San Bernardino Station.

The Federal 24 hour standard for PM<sub>2.5</sub> was exceeded one day in 2013 and one day in 2014 over the past three years at the San Bernardino Station. There does not appear to be a noticeable trend for PM<sub>10</sub> or PM<sub>2.5</sub> in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

**Table 3**

**State and Federal Criteria Pollutant Standards**

| Air Pollutant                                     | Concentration / Averaging Time  |   | Most Relevant Effects  |
|---|---|---|--|
|   | California Standards  | Federal Primary Standards                                     |  |
| Ozone (O <sub>3</sub> )                           | 0.09 ppm/1-hour<br>0.07 ppm/8-hour  | 0.075 ppm/8-hour  | (a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; (f) Property damage. |
| Carbon Monoxide (CO)                              | 20.0 ppm/1-hour<br>9.0 ppm/8-hour   | 35.0 ppm/1-hour<br>9.0 ppm/8-hour                             | (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses.   |
| Nitrogen Dioxide (NO <sub>2</sub> )               | 0.18 ppm/1-hour<br>0.03 ppm/annual  | 0.053 ppm/annual  | (a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration.  |
| Sulfur Dioxide (SO <sub>2</sub> )                 | 0.25 ppm/1-hour<br>0.04 ppm/24-hour   | 75 ppb/1-hour<br>0.14 ppm/24-hour                             | (a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.  |
| Suspended Particulate Matter (PM <sub>10</sub> )  | 50 µg/m <sup>3</sup> /24-hour<br>20 µg/m <sup>3</sup> /annual   | 150 µg/m <sup>3</sup> /24-hour                                | (a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly.  |
| Suspended Particulate Matter (PM <sub>2.5</sub> ) | 12 µg/m <sup>3</sup> / annual   | 35 µg/m <sup>3</sup> /24-hour<br>12 µg/m <sup>3</sup> /annual |  |
| Sulfates  | 25 µg/m <sup>3</sup> /24-hour   | No Federal Standards  | (a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage.   |
| Lead  | 1.5 µg/m <sup>3</sup> /30-day   | 1.5 µg/m <sup>3</sup> / calendar quarter                      | (a) Learning disabilities; (b) Impairment of blood formation and nerve conduction.   |
| Visibility Reducing Particles                     | Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent. | No Federal Standards  | Visibility impairment on days when relative humidity is less than 70 percent.  |

<sup>1</sup> Source: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

**Table 4**

**South Coast Air Basin Attainment Status**

| Pollutant                         | Averaging Time                                | National Standards <sup>1</sup>         | Attainment Date <sup>2</sup>                                    | California Standards <sup>3</sup> |
|-----------------------------------|---|---|---|-----------------------------------|
| 1979<br>1-Hour Ozone <sup>4</sup> | 1-Hour<br>(0.12 ppm)                          | Nonattainment<br>(Extreme)              | 11/15/2010<br>(Not attained <sup>4</sup> )                      | Extreme<br>Nonattainment          |
| 1997<br>8-Hour Ozone <sup>5</sup> | 8-Hour<br>(0.08 ppm)                          | Nonattainment<br>(Extreme)              | 6/15/2024   | Nonattainment                     |
| 2008<br>8-Hour Ozone              | 8-Hour<br>(0.075 ppm)                         | Nonattainment<br>(Extreme)              | 12/31/2032  |                                   |
| CO                                | 1-Hour (35 ppm)<br>8-Hour (9 ppm)             | Attainment<br>(Maintenance)             | 6/11/2007<br>(Attained)   | Maintenance                       |
| NO <sub>2</sub> <sup>6</sup>      | 1-Hour (100 ppb)<br>Annual (0.053 ppm)        | Attainment<br>(Maintenance)             | 9/22/1998<br>(Attained)   | Attainment                        |
| SO <sub>2</sub> <sup>7</sup>      | 1-Hour (75 ppb)                               | Designations Pending                    | Pending   | Attainment                        |
|                                   | 24-Hour (0.14 ppm)<br>Annual (0.03 ppm)       | Unclassifiable/<br>Attainment           | 3/19/1979<br>(Attained)   |                                   |
| PM10                              | 24-Hour<br>(150 µg/m <sup>3</sup> )           | Nonattainment<br>(Serious) <sup>8</sup> | 12/31/2006<br>(Redesignation request<br>submitted) <sup>8</sup> | Nonattainment                     |
| PM2.5                             | 24-Hour (35 µg/m <sup>3</sup> )               | Nonattainment                           | --  | Nonattainment                     |
| Lead                              | 3-Months Rolling<br>(0.15 µg/m <sup>3</sup> ) | Nonattainment<br>(Partial) <sup>9</sup> | 12/31/2015  | Attainment                        |

<sup>1</sup> Obtained from Draft 2012 AQMP, SCAQMD, 2012. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassified/Attainment or Unclassifiable.

<sup>2</sup> A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.

<sup>3</sup> Obtained from <http://www.arb.ca.gov/desig/adm/adm.htm>.

<sup>4</sup> 1-hour O<sub>3</sub> standard (0.13 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data has some continuing obligations under the former standard.

<sup>5</sup> 1997 8-hour O<sub>3</sub> standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O<sub>3</sub> standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.

<sup>6</sup> New NO<sub>2</sub> 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO<sub>2</sub> standard retained.

<sup>7</sup> The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO<sub>2</sub> 1-hour standard. Area designations expected in 2012, with SSAB designated Unclassifiable/Attainment.

<sup>8</sup> Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA

<sup>9</sup> Partial Nonattainment designation - Los Angeles County portion of Basin only.

**Table 5**

**Local Area Air Quality Levels from the San Bernardino Air Monitoring Station<sup>1</sup>**

| Pollutant (Standard) <sup>2</sup>                  | Year      |           |           |
|--|-----------|-----------|-----------|
|  | 2012      | 2013      | 2014      |
| <b>Ozone:</b>                                      |           |           |           |
| Maximum 1-Hour Concentration (ppm)                 | 0.124     | 0.139     | 0.121     |
| Days > CAAQS (0.09 ppm)                            | <b>41</b> | <b>22</b> | <b>38</b> |
| Maximum 8-Hour Concentration (ppm)                 | 0.109     | 0.113     | 0.100     |
| Days > NAAQS (0.08 ppm)                            | <b>54</b> | <b>36</b> | <b>51</b> |
| Days > CAAQS (0.070 ppm)                           | <b>77</b> | <b>53</b> | <b>76</b> |
| <b>Carbon Monoxide:</b>                            |           |           |           |
| Maximum 8-Hour Concentration (ppm)                 | 1.64      | --        | --        |
| Days > NAAQS (9 ppm)                               | 0         | 0         | 0         |
| <b>Nitrogen Dioxide:</b>                           |           |           |           |
| Maximum 1-Hour Concentration (ppb)                 | 67        | 72.1      | 72.6      |
| Days > NAAQS (0.25 ppm)                            | 0         | 0         | 0         |
| <b>Inhalable Particulates (PM10):</b>              |           |           |           |
| Maximum 24-Hour Concentration (ug/m <sup>3</sup> ) | 68.1      | 177.3     | 157.2     |
| Days > NAAQS (150 ug/m <sup>3</sup> )              | 0         | <b>1</b>  | <b>1</b>  |
| Days > CAAQS (50 ug/m <sup>3</sup> )               | <b>1</b>  | <b>2</b>  | <b>2</b>  |
| Annual Average (ug/m <sup>3</sup> )                | 31.0      | 30.0      | 33        |
| <b>Ultra-Fine Particulates (PM2.5):</b>            |           |           |           |
| Maximum 24-Hour Concentration (ug/m <sup>3</sup> ) | 34.8      | 55.3      | 73.9      |
| Days > NAAQS (35 ug/m <sup>3</sup> )               | 0         | <b>1</b>  | <b>1</b>  |
| Annual Average (ug/m <sup>3</sup> )                | 11.7      | 11.4      | *         |
| Annual > NAAQS (15 ug/m <sup>3</sup> )             | no        | no        | no        |
| Annual > CAAQS (12 ug/m <sup>3</sup> )             | no        | no        | no        |

<sup>1</sup> Source: <http://www.arb.ca.gov/adam/>

<sup>2</sup> CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

## V. AIR QUALITY STANDARDS

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### A. Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 6.

### B. Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO<sub>2</sub>, CO, PM10, and PM2.5.

The significance thresholds for the local emissions of NO<sub>2</sub> and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 5 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significant Thresholds. Table 6 shows the Localized Significant Thresholds for NO<sub>2</sub>, CO, and PM10 and PM2.5 as well as the ambient significance concentrations.

### C. Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to hazardous air pollutants (HAP), the Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (Diesel Analysis), prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create hazardous air pollutants through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the hazardous air pollutants and the toxicity of the hazardous air pollutants should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

**D. Odor Impacts**

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.”

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

**E. Greenhouse Gases**

1. Regional - South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

**SCAQMD Regulation XXVII, Climate Change.** SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the

thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO<sub>2e</sub> per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the project since the project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

**SCAQMD Threshold Development.** On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project’s construction emissions are averaged over 30 years and are added to a project’s operational emissions. If a project’s emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO<sub>2e</sub> per year
  - Based on land use type: residential: 3,500 MTCO<sub>2e</sub> per year; commercial: 1,400 MTCO<sub>2e</sub> per year; or mixed use: 3,000 MTCO<sub>2e</sub> per year.
  - Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 MTCO<sub>2e</sub> per year.
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.

- Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO<sub>2</sub>e/SP/year for projects and 6.6 MTCO<sub>2</sub>e/SP/year for plans;
- Option 3, 2035 target: 3.0 MTCO<sub>2</sub>e/SP/year for projects and 4.1 MTCO<sub>2</sub>e/SP/year for plans.
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, the Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 MMTCO<sub>2</sub>eq/yr). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

The SCAQMD has adopted a quantitative annual threshold of 10,000 MTCO<sub>2</sub>e for industrial uses. To be conservative, this project's emissions have been compared to both the draft screening threshold of 3,000 MTCO<sub>2</sub>e per year and the industrial threshold of 10,000 MTCO<sub>2</sub>e. Therefore, the SCAQMD's GHG emission thresholds are applicable to the proposed project and have been used as the threshold of significance.

## 2. Local - City of San Bernardino

The City of San Bernardino is a participating member of the San Bernardino Associated Governments (SANBAG) San Bernardino County Regional Greenhouse Gas Reduction Plan. The City of San Bernardino is one of the 21 Partnership Cities of San Bernardino County and the Partnership has committed to actions that will reduce GHG emissions associated with its regional (or Countywide) activities as a whole. The

21 Partnership cities participating in the SANBAG San Bernardino County Regional Greenhouse Gas Reduction Plan are Adelanto, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Victorville, Yucaipa, and Yucca Valley. By working in a collaborative manner on these goals, the cities aim to more effectively address emissions from activities that are affected or influenced by the region as a whole.

According to 3.18 City of San Bernardino Chapter, of the SANBAG San Bernardino County Regional Greenhouse Gas Reduction Plan (2014). The City of San Bernardino selected a goal to reduce its community GHG emissions to a level that is 15% below its 2008 GHG emissions level by 2020. The City will meet and exceed this goal subject to reduction measures that are technologically feasible and cost-effective per AB 32 through a combination of state (~86%) and local (~14%) efforts. The City actually exceeds the goal with only state/county level actions (104% of goal), but has committed to several additional local measures.

The City of San Bernardino's Sustainability Master Plan Task Force, appointed by the City Council, is recommending various draft strategies for the Mayor and Common Council to consider adopting. This framework of strategies is located within the Land Use and Transportation section of the Draft Sustainable Master Plan (SMP). If adopted, the Draft SMP will support the goals of SB 375 and the Sustainable Communities Strategy through a wide range of actions. The Draft SMP will include GHG reduction measures similar to, but different from, the measures listed in the Plan. The Draft SMP measures will generally be more specific to the City of San Bernardino, but they will also support the goals of AB 32. The SMP follows the organization of the SANBAG San Bernardino County GHG Reduction Plan, with the SMP measures following the SANBAG San Bernardino County GHG Reduction Plan measures. For consistency with the County-level plan, estimates of GHG emission reductions identified in the SMP were obtained using the regional quantification tool.

The Pavley vehicle standards, the state's low carbon fuel standard, the RPS, and other state measures will reduce GHG emissions in San Bernardino's on-road, solid waste, and building energy sectors in 2020. An additional reduction of 72,138 MTCO<sub>2</sub>e will be achieved primarily through the following local measures, in order of importance: GHG Performance Standard for New Development; Energy Efficiency for Existing Buildings; and Implementation of the Sustainable Communities Strategy. San Bernardino's Plan has the greatest impacts on GHG emissions in the solid waste management, on-road transportation, and building energy sectors.

**Threshold for this project.** If the project's emissions exceed the SCAQMD's and GHG Reduction Plan's screening threshold of 3,000 MTCO<sub>2</sub>e per year for all land use projects, then the project's year 2020 emissions will be compared to the project's baseline GHG emissions.

**Table 6**

**SCAQMD Air Quality Significance Thresholds<sup>1</sup>**

| Mass Daily Thresholds                                 |  |                     |
|---|--|---------------------|
| Pollutant   | Construction (lbs/day)   | Operation (lbs/day) |
| NOx   | 100  | 55                  |
| VOC   | 75   | 55                  |
| PM10  | 150  | 150                 |
| PM2.5   | 55   | 55                  |
| SOx   | 150  | 150                 |
| CO  | 550  | 550                 |
| Lead  | 3  | 3                   |
| Toxic Air Contaminants, Odor and GHG Thresholds       |  |                     |
| TACs  | Maximum Incremental Cancer Risk $\geq 10$ in 1 million<br>Cancer Burden $> 0.5$ excess cancer cases (in areas $\geq 1$ in 1 million)<br>Chronic & Acute Hazard Index $> 1.0$ (project increment) |                     |
| Odor  | Project creates an odor nuisance pursuant to SCAQMD Rule 402   |                     |
| GHG   | 10,000 MT/yr CO <sub>2</sub> e for industrial facilities   |                     |
| Ambient Air Quality Standards for Criteria Pollutants |  |                     |
| Pollutant   | Significance Threshold   |                     |
| NO <sub>2</sub> -1-hour average                       | 0.18 ppm (338 $\mu\text{g}/\text{m}^3$ )   |                     |
| PM <sub>10</sub> -24-hour average                     | 10.4 $\mu\text{g}/\text{m}^3$  |                     |
| Construction  | 10.4 $\mu\text{g}/\text{m}^3$  |                     |
| Operations  | 2.5 $\mu\text{g}/\text{m}^3$   |                     |
| PM <sub>2.5</sub> -24-hour average                    | 10.4 $\mu\text{g}/\text{m}^3$  |                     |
| Construction  | 10.4 $\mu\text{g}/\text{m}^3$  |                     |
| Operations  | 2.5 $\mu\text{g}/\text{m}^3$   |                     |
| SO <sub>2</sub>                                       | 0.25 ppm   |                     |
| 1-hour average  | 0.25 ppm   |                     |
| 24-hour average                                       | 0.04 ppm   |                     |
| CO  | 20 ppm (23,000 $\mu\text{g}/\text{m}^3$ )  |                     |
| 1-hour average  | 20 ppm (23,000 $\mu\text{g}/\text{m}^3$ )  |                     |
| 8-hour average  | 9 ppm (10,000 $\mu\text{g}/\text{m}^3$ )   |                     |
| Lead  | 1.5 $\mu\text{g}/\text{m}^3$   |                     |
| 30-day average  | 1.5 $\mu\text{g}/\text{m}^3$   |                     |
| Rolling 3-month average                               | 0.15 $\mu\text{g}/\text{m}^3$  |                     |
| Quarterly average                                     | 1.5 $\mu\text{g}/\text{m}^3$   |                     |

<sup>1</sup> Source: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>

## **VI. SHORT-TERM CONSTRUCTION-RELATED AIR QUALITY IMPACTS**

Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The construction activities for the proposed project are anticipated to include: site demolition of approximately 16,332 square feet, grading of 25.25 acres, construction of 564,652 square feet of building space and 103,585 square feet of landscaping, paving of 5.84 acres of on-site roads and a 452-space parking lot, and application of architectural coatings. The project will be constructed in one phase. The construction of the project is expected to begin June 2016 and be completed in March 2017. The project will be operational in 2017.

### **A. Construction-Related Regional Impacts**

The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

#### **1. Construction-Related Criteria Pollutants Analysis**

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants.

##### *Methodology*

Typical emission rates from construction activities were obtained from CalEEMod Version 2013.2.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2011 computer program to calculate the emission rates specific for the western portion of San Bernardino County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2011 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions during each phase was calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions. The construction emissions printouts from CalEEMod are provided in Appendix B.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000

cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area (approximately 25.25 acres) a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 is required.

The phases of the construction activities which have been analyzed below are: 1) grading, 2) building construction, 3) paving, and 4) application of architectural coatings. For details on construction modeling, please see Appendix B.

The application of architectural coatings would occur after the completion of the construction phase. Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings applied after January 1, 2014 will be limited to an average of 50 grams per liter or less and the CalEEMod model default VOC emissions have been adjusted accordingly. The architectural coating phase was modeled based on the CalEEMod-based calculation of the exterior area of 308,227 square feet and 846,978 square feet<sup>2</sup> for the interior. The exterior amount also includes 25,901 square feet of painting for the parking lot (approximately 6 percent of the paved area). According to the site plan, the concrete tilt-up panels will be pre-coated. Therefore, the emissions modeled by CalEEMod are likely an over-estimation VOC emissions.

#### *Project Impacts*

The construction-related criteria pollutant emissions for each phase are shown below in Table 7. Table 7 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

### **B. Construction-Related Local Impacts**

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

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<sup>2</sup> Interior area to be painted (SF) = (building square footage x 2) x 0.75  
Exterior to be painted (SF) = (building square footage x 2) x 0.25

1. Local Air Quality Impacts from Construction

The SCAQMD has published a “Fact Sheet for Applying CalEEMod to Localized Significance Thresholds” (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

- 1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
- 2) The maximum number of acres disturbed on the peak day.
- 3) Any emission control devices added onto off-road equipment.
- 4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The CalEEMod output sheets included in Appendix B show the equipment used for this analysis.

As shown in Table 8, the maximum number of acres disturbed in a day would be five acres during grading.

The local air quality emissions from construction were analyzed using the SCAQMD’s Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the Central San Bernardino Valley source receptor area (SRA 34) and a disturbance of five acres per day at the closest distance, 25 meters (82 feet), as the distance to the nearest sensitive receptors to the north of the site boundary is less than 25 meters. Table 9 shows the on-site emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

2. Construction-Related Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”.

“Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

3. Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

**Table 7**

**Construction-Related Regional Pollutant Emissions<sup>1</sup>**

| Activity                                       | Pollutant Emissions (pounds/day) |              |              |                 |              |             |
|--|----------------------------------|--------------|--------------|-----------------|--------------|-------------|
|  | VOC                              | NOx          | CO           | SO <sub>2</sub> | PM10         | PM2.5       |
| <b>Demolition</b>                              |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 4.29                             | 45.66        | 35.03        | 0.04            | 2.50         | 2.17        |
| Off-Site <sup>3</sup>                          | 0.11                             | 0.79         | 1.52         | 0.00            | 0.22         | 0.07        |
| <b>Subtotal</b>                                | <b>4.39</b>                      | <b>46.45</b> | <b>36.55</b> | <b>0.04</b>     | <b>2.72</b>  | <b>2.24</b> |
| <b>Grading</b>                                 |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 6.48                             | 74.81        | 49.14        | 0.06            | 6.16         | 4.61        |
| Off-Site <sup>3</sup>                          | 0.09                             | 0.11         | 1.38         | 0.00            | 0.23         | 0.06        |
| <b>Subtotal</b>                                | <b>6.57</b>                      | <b>74.93</b> | <b>50.52</b> | <b>0.06</b>     | <b>6.39</b>  | <b>4.67</b> |
| <b>Building Construction</b>                   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 3.41                             | 28.51        | 18.51        | 0.03            | 1.97         | 1.85        |
| Off-Site <sup>3</sup>                          | 3.53                             | 18.82        | 49.85        | 0.10            | 6.62         | 1.98        |
| <b>Subtotal</b>                                | <b>6.93</b>                      | <b>47.33</b> | <b>68.36</b> | <b>0.13</b>     | <b>8.58</b>  | <b>3.82</b> |
| <b>Paving</b>                                  |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 2.95                             | 20.30        | 14.73        | 0.02            | 1.14         | 1.05        |
| Off-Site <sup>3</sup>                          | 0.06                             | 0.07         | 0.93         | 0.00            | 0.17         | 0.05        |
| <b>Subtotal</b>                                | <b>3.00</b>                      | <b>20.37</b> | <b>15.66</b> | <b>0.02</b>     | <b>1.31</b>  | <b>1.09</b> |
| <b>Architectural Coating</b>                   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 58.96                            | 2.19         | 1.87         | 0.00            | 0.17         | 0.17        |
| Off-Site <sup>3</sup>                          | 0.36                             | 0.47         | 5.75         | 0.01            | 1.05         | 0.28        |
| <b>Subtotal</b>                                | <b>59.31</b>                     | <b>2.65</b>  | <b>7.62</b>  | <b>0.02</b>     | <b>1.22</b>  | <b>0.46</b> |
| <b>Total of Overlapping Phases<sup>4</sup></b> | <b>69.25</b>                     | <b>70.34</b> | <b>91.64</b> | <b>0.17</b>     | <b>11.11</b> | <b>5.37</b> |
| <b>SCAQMD Thresholds</b>                       | <b>75</b>                        | <b>100</b>   | <b>550</b>   | <b>150</b>      | <b>150</b>   | <b>55</b>   |
| <b>Exceeds Thresholds</b>                      | no                               | no           | no           | no              | no           | no          |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> On-site emissions from equipment operated on-site that is not operated on public roads.

<sup>3</sup> Off-site emissions from equipment operated on public roads.

<sup>4</sup> Construction, architectural coating, and paving phases may overlap.

**Table 8**

**Maximum Number of Acres Disturbed Per Day<sup>1</sup>**

| Activity        | Equipment                 | Number | Acres/8hr-day | Total Acres |
|-----------------|---------------------------|--------|---------------|-------------|
| Demolition      | Rubber Tired Dozers       | 2      | 0.5           | 1           |
|                 | Excavators                | 3      | 0.5           | 1.5         |
| Total Per Phase |                           | -      | -             | <b>2.5</b>  |
| Site Grading    | Graders                   | 1      | 0.5           | 0.5         |
|                 | Rubber Tired Dozers       | 1      | 0.5           | 0.5         |
|                 | Excavators                | 2      | 0.5           | 1           |
|                 | Tractors/Loaders/Backhoes | 2      | 0.5           | 1           |
|                 | Scrapers                  | 2      | 1             | 2           |
| Total Per Phase |                           | -      | -             | <b>5</b>    |

<sup>1</sup> Source: CalEEMod Output

**Table 9**

**Local Construction Emissions at the Nearest Receptor<sup>1</sup>**

| Phase   | On-Site Pollutant Emissions (pounds/day) |              |           |          |
|---|--|--------------|-----------|----------|
|   | NOx                                      | CO           | PM10      | PM2.5    |
| Demolition  | 45.66                                    | 35.03        | 2.50      | 2.17     |
| Grading   | 74.81                                    | 49.14        | 6.16      | 4.61     |
| Building Construction                                       | 28.51                                    | 18.51        | 1.97      | 1.85     |
| Paving  | 20.30                                    | 14.73        | 1.14      | 1.05     |
| Architectural Coating                                       | 2.19                                     | 1.87         | 0.17      | 0.17     |
| <b>SCAQMD Threshold for 25 meters (82 feet)<sup>2</sup></b> | <b>270</b>                               | <b>1,746</b> | <b>14</b> | <b>8</b> |
| Exceeds Threshold?  | no                                       | no           | no        | no       |

<sup>1</sup> Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in SRA 34 Central San Bernardino Valley.

<sup>2</sup> The estimated distance from the proposed grading activities to the nearest sensitive receptor (residences to the north of the project site) is less than 25 meters or 82 feet.

## VII. LONG-TERM OPERATIONAL AIR QUALITY IMPACTS

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The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

### A. Operations-Related Regional Air Quality Impacts

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

#### 1. Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model. The operating emissions were based on the year 2017, which is the anticipated opening year for the proposed project. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

#### **Mobiles Sources**

Mobile sources include emissions from the vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips from the Waterman Industrial Center Traffic Impact Analysis (TIA) (prepared by Kunzman Associates, Inc. March 2016), into the CalEEMod Model. The Trip Generation Analysis found that the proposed project would create 587 automobile round trips, 61 2-axle truck round trips, 82 3-axle truck round trips, and 218 4+-axle truck round trips per day. The trip generation rate is 1.68 per thousand square feet. The program then applies the emission factors for each trip which is provided by the EMFAC2011 model to determine the vehicular traffic pollutant emissions. The vehicle mix was changed in CalEEMod to match the TIA (see Table 10). Due to the proposed project's location and proposed unrefrigerated warehouse land use, the average customer based trip length was increased to 40 miles for C-W, while all other trip lengths were based on the urban default values. The trip percentages were also revised to match the TIA; 38.1 percent for C-W (trucks) and 61.9 C-NW (cars).

#### **Area Sources**

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed 564,652 square feet of warehouse in the CalEEMod model. In order to account for SCAQMD Rule 1113, VOC content of paints was changed to 50g/L No other changes were made to the default area source parameters.

### **Energy Usage**

Energy usage includes emissions from the generation of electricity and natural gas used on-site. The energy usage emissions were based on the on-going use of the proposed 564,652 square feet of warehouse in the CalEEMod model. No changes were made to the default energy usage parameters. It should be noted that 2013 Title 24 commercial standards are 30 percent more efficient than 2008 Title 24 Standards (used as the baseline for emissions calculations in CalEEMod).

### *Project Impacts*

The worst-case summer or winter VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table 11. The data provided in Table 11 shows that for the on-going operations activities for the proposed project, NO<sub>x</sub> emissions would exceed the SCAQMD regional thresholds of significance discussed above in Section V. Therefore, operation of the proposed project would potentially create a significant regional impact from NO<sub>x</sub> emissions and mitigation is required.

Mitigation Measures 1 through 7 are provided to reduce the operational emissions (see Section XI. Mitigation Measures for details on the measures). Table 12 shows that with incorporation of the aforementioned mitigation measures, operational regional criteria pollutant emissions would no longer exceed regional operational thresholds for NO<sub>x</sub>. Therefore, with mitigation, a less than significant regional air quality impact would occur from operation of the proposed project.

## 2. Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and PM<sub>10</sub> particulate matter. The project area is out of attainment for both ozone and PM<sub>10</sub> particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. With respect to long-term emissions, this project would create a less than significant cumulative impact.

## **B. Operations-Related Local Air Quality Impacts**

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations, and odor impacts.

### **1. Local CO Emission Impacts from Project-Generated Vehicular Trips**

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section V.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section V, a sensitivity analysis is typically conducted to determine the potential for CO “hot spots” at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, “hot spots” typically occur at high traffic volume intersections with a Level of Service E or worse.

The Traffic Analysis showed that the project would only generate a maximum of 949 trips. The intersection with the highest traffic volume is located at E Street and Orange Show Road and has a peak hour volume of 1,816 trips for the Year 2035 With Project AM peak hour scenario. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the intersection with the highest traffic volume falls far short of 100,000 vehicles, no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

### **2. Local Air Quality Impacts from On-Site Operations**

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The nearest sensitive receptors that may be impacted by the proposed project are the residential dwelling units to the north and west of the boundaries of the project site.

The local air quality emissions from on-site operations were analyzed according to the methodology described in Localized Significance Threshold Methodology, prepared by

SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The proposed project was analyzed based on the Central San Bernardino Valley source receptor area and a five acre project site, which is the largest site available in the Look-up Tables and can be used as a screening analysis to determine whether more extension dispersion modeling is required. Table 13 shows the on-site emissions from the CalEEMod model that includes natural gas usage, landscape maintenance equipment, and vehicles operating on-site and the calculated emissions thresholds. The data provided in Table 13 shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section V. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

3. Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from diesel truck emissions and trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project.

**Table 10**

**CalEEMod Revised Vehicle Mix Parameters for Warehouse Uses**

| CalEEMod Vehicle Type               | Vehicle Mix from Traffic Analysis | CalEEMod Default Mix <sup>1</sup> |                    | CalEEMod Revised Mix <sup>2</sup> |                    |
|-------------------------------------|-----------------------------------|-----------------------------------|--------------------|-----------------------------------|--------------------|
|                                     |                                   | Ratio                             | Number of Vehicles | Ratio                             | Number of Vehicles |
| Light Auto                          | Automobile                        | 0.472                             | 448                | 0.336                             | 318                |
| Light Truck < 3750 lbs              | Automobile                        | 0.066                             | 62                 | 0.047                             | 44                 |
| Light Truck 3751-5750 lbs           | Automobile                        | 0.173                             | 164                | 0.123                             | 117                |
| Med Truck 5751-8500 lbs             | Automobile                        | 0.155                             | 147                | 0.110                             | 105                |
| Lite-Heavy Truck 8501-10,000 lbs    | 2-Axle Truck                      | 0.056                             | 53                 | 0.056                             | 53                 |
| Lite-Heavy Truck 10,001-14,000 lbs  | 2-Axle Truck                      | 0.009                             | 9                  | 0.009                             | 8                  |
| Med-Heavy Truck 14,001-33,000 lbs   | 3-Axle Truck                      | 0.017                             | 16                 | 0.087                             | 82                 |
| Heavy-Heavy Truck 33,001-60,000 lbs | 4+-Axle Truck                     | 0.041                             | 39                 | 0.230                             | 218                |
| Other Bus                           | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Urban Bus                           | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Motorcycle                          | Automobile                        | 0.005                             | 5                  | 0.004                             | 3                  |
| School Bus                          | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Motor Home                          | --                                | 0.003                             | 3                  | 0.000                             | 0                  |
| <b>Total</b>                        |                                   | <b>1.0</b>                        | <b>949</b>         | <b>1.0</b>                        | <b>949</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2 default values for Opening year of 2018.

<sup>2</sup> Revised per the vehicle mix provided in the Traffic Impact Analysis of 61.9% Autos, 6.45% 2-Axle Trucks, 8.65% 3-Axle Trucks and 23.0% 4+ Axle Trucks.

**Table 11**

**Unmitigated Regional Operational Pollutant Emissions<sup>1</sup>**

| Activity                    | Pollutant Emissions (pounds/day) |              |              |             |              |             |
|-----------------------------|----------------------------------|--------------|--------------|-------------|--------------|-------------|
|                             | VOC                              | NOx          | CO           | SO2         | PM10         | PM2.5       |
| Area Sources <sup>2</sup>   | 24.84                            | 0.00         | 0.12         | 0.00        | 0.00         | 0.00        |
| Energy Usage <sup>3</sup>   | 0.04                             | 0.32         | 0.27         | 0.00        | 0.02         | 0.02        |
| Mobile Sources <sup>4</sup> | 7.11                             | 70.52        | 92.84        | 0.29        | 14.98        | 4.78        |
| <b>Total Emissions</b>      | <b>31.98</b>                     | <b>70.84</b> | <b>93.23</b> | <b>0.29</b> | <b>15.00</b> | <b>4.80</b> |
| SCAQMD Thresholds           | <b>55</b>                        | <b>55</b>    | <b>550</b>   | <b>150</b>  | <b>150</b>   | <b>55</b>   |
| Exceeds Threshold?          | no                               | yes          | no           | no          | no           | no          |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of emissions from generation of electricity and on-site natural gas usage.

<sup>4</sup> Mobile sources consist of emissions from vehicles and road dust.

**Table 12**

**Mitigated Regional Operational Pollutant Emissions<sup>1</sup>**

| Activity                    | Pollutant Emissions (pounds/day) |              |              |             |              |             |
|-----------------------------|----------------------------------|--------------|--------------|-------------|--------------|-------------|
|                             | VOC                              | NOx          | CO           | SO2         | PM10         | PM2.5       |
| Area Sources <sup>2</sup>   | 22.69                            | 0.00         | 0.12         | 0.00        | 0.00         | 0.00        |
| Energy Usage <sup>3</sup>   | 0.03                             | 0.23         | 0.19         | 0.00        | 0.02         | 0.02        |
| Mobile Sources <sup>4</sup> | 5.90                             | 50.29        | 75.37        | 0.20        | 10.30        | 3.29        |
| <b>Total Emissions</b>      | <b>28.61</b>                     | <b>50.52</b> | <b>75.68</b> | <b>0.20</b> | <b>10.32</b> | <b>3.31</b> |
| SCAQMD Thresholds           | <b>55</b>                        | <b>55</b>    | <b>550</b>   | <b>150</b>  | <b>150</b>   | <b>55</b>   |
| Exceeds Threshold?          | no                               | no           | no           | no          | no           | no          |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of emissions from generation of electricity and on-site natural gas usage.

<sup>4</sup> Mobile sources consist of emissions from vehicles and road dust.

**Table 13**

**Local Unmitigated Operational Emissions at the Nearest Receptor<sup>1</sup>**

| On-Site Emission Source                                     | On-Site Pollutant Emissions (pounds/day) |              |             |             |
|---|--|--------------|-------------|-------------|
|   | NOx                                      | CO           | PM10        | PM2.5       |
| Area Sources <sup>2</sup>                                   | 0.00                                     | 0.12         | 0.00        | 0.00        |
| Energy Usage <sup>3</sup>                                   | 0.32                                     | 0.27         | 0.02        | 0.02        |
| On-Site Vehicle Emissions <sup>4</sup>                      | 7.05                                     | 9.28         | 1.50        | 0.48        |
| <b>Total Emissions</b>                                      | <b>7.38</b>                              | <b>9.67</b>  | <b>1.52</b> | <b>0.50</b> |
| <b>SCAQMD Threshold for 25 meters (80 feet)<sup>5</sup></b> | <b>270</b>                               | <b>1,746</b> | <b>14</b>   | <b>8</b>    |
| Exceeds Threshold?  | no                                       | no           | no          | no          |

<sup>1</sup> Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in Central San Bernardino Valley.

<sup>2</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of emissions from generation of electricity and on-site natural gas usage.

<sup>4</sup> On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.

<sup>5</sup> The estimated distance from the proposed project to the nearest sensitive receptor (residences to the north of the project site) is less than 25 meters or 82 feet.

## VIII. DIESEL EMISSIONS HEALTH RISK ASSESSMENT

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The on-going operation of the proposed project would generate toxic air contaminant emissions from diesel truck emissions created by the on-going operations of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology<sup>3</sup>.

A health risk assessment requires the completion and interaction of four general steps:

1. Quantify project-generated TAC emissions.
2. Identify nearby ground-level receptor locations that may be affected by the emissions (including any special sensitive receptor locations such as residences, schools, hospitals, convalescent homes, and daycare centers).
3. Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project TAC emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.
4. Characterize and compare the calculated health risks with the applicable health risk significance thresholds.

### A. Emission Inventory Development

Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues is addressed below.

#### 1. Emission Source Estimates - DPM from Motor Vehicles

DPM emissions from the various sources were calculated using information derived from the project description, and mobile source emission factors from the CARB EMFAC2011 emissions factor model<sup>4</sup>. Truck mix information was obtained from the project-specific traffic report (Kunzman 2015).

Four pieces of information are required to generate the mobile source emissions from the proposed project:

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<sup>3</sup> In February 2015, the Office of Environmental Health Hazard Assessment updated their "Air Toxics Hot Spots Program, Risk Assessments Guidelines, Guidance Manual for Preparation of Health Risk Assessments; however, the updated OEHHHA guidance states in the page footers "do not cite or quote." SCAQMD staff are still in the process of incorporating the updates into their methodology for SCAQMD's Rules 1401, 1401.1, 1402, and 212, and currently updating their HRA Guidance for permitting and CEQA analyses; therefore, the existing SCAQMD guidance was used to assess HRA impacts in this analysis. Per SCAQMD staff (personal communication with Dr. Jillian Wong 6-19-2015), updated SCAQMD HRA guidance will be forthcoming and use of current methodology and EMFAC2011 is acceptable.

<sup>4</sup> An emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit of activity, volume, distance, or duration of the activity emitting the pollutant (e.g., grams of pollutant emitted per vehicle-mile traveled or grams of pollutant emitted per brake-horsepower).

- Number of vehicle trips for each component of the proposed project;
- Types of vehicles that access the proposed project (passenger car vs. heavy-duty truck and gasoline vs. diesel);
- The allocation of the vehicle trips to each building that comprises the proposed project; and
- Estimate of the vehicle emission factors for estimating exhaust and idling emissions.

#### *Estimate of Vehicle Trips and Vehicle Types*

The Kunzman Associates, Inc. project-specific traffic study (2016) showed the project is expected to generate approximately 949 vehicle trips per day.

The vehicle mix followed the recommendations of the SCAQMD warehouse study with a mix of 61.9 percent cars, 6.45 percent 2-axle trucks, 8.65 percent 3-axle trucks and 23.00 percent 4-axle trucks.

#### *Estimate of Emission Factors*

The DPM emission factors for the various vehicle types were derived from the CARB EMFAC2011 mobile source emission model. The 70-year average factors were derived for San Bernardino County for year 2017, the buildout year the proposed project. Emissions factors were estimated to establish the emissions generated while the vehicles travel off-site, along travel links from the entrance to the loading docks, and while idling at the loading dock during loading or unloading materials. All vehicles were assumed to travel on-site at a speed of 10 miles per hour. Off-site, the speeds along the roads were anticipated to average 35 miles per hour. Delivery vehicles were assumed to idle for a maximum of 15 minutes per vehicle per day (5 minutes per location: at the facility entrance, at the loading bay, and at the facility exit, in keeping with the CARB Air Toxic Control Measure (ATCM), which regulates truck idling time (CARB 2005). Table 14 provides the emission factors used in this assessment. It should be noted that the DPM emissions on both the gram per mile and gram per idle hour bases decline beyond 2015 for all vehicle classes and in particular the heavy-heavy-duty truck class (the 4+ axle “big rig” trucks). This is due to the CARB emissions’ requirements on heavy-duty trucks that call for either the replacement of older trucks with cleaner trucks or the installation of diesel particulate matter filters on the truck fleet.

#### *Emission Source Characterization*

Each of the emission source types described above also requires geometrical and emission release specifications for use in the air dispersion model. Table 15 provides a summary of the assumptions used to configure the various emission sources. The following definitions are used to characterize the emission source geometrical configurations referred to in Table 15:

Point source: A single, identifiable, local source of emissions; it is approximated in the AERMOD air dispersion model as a mathematical point in the modeling region with a location and emission characteristics (such as height of release, temperature, etc.), for example, a truck idle location.

Line source: A series of volume sources along a path, for example, vehicular traffic along a roadway.

Figure 3 provides the location of the project buildings, emission source locations, and the locations of the adjacent sensitive receptors (located near the site's northern boundary [approximately 65 feet from the site] and to the west of the project (approximately 170 feet from the project's western boundary)). Commercial receptors are labeled com\_9, golf\_13, and golf\_14 and are located just north of the site and at the San Bernardino Public Golf Course to the south of the project site (adjacent to the project's southern boundary) respectively. The patrons of the Golf Course are treated like commercial receptors due to their relatively short time at the location (not 24-hours). Residential receptors are shown as orange triangles labeled 1 through 8, 10 through 12, 15 and 16.

## **B. Receptor Network**

The assessment requires that a network of receptors be specified where the impacts can be computed at the various locations surrounding the project. Receptors were located at existing sensitive receptors surrounding the proposed project (as detailed above). In addition, the identified sensitive receptors locations were supplemented by the specification of a modeling grid that extended around the proposed project to identify other potential locations of impact. The locations of the receptors are shown as orange triangles on Figure 3.

## **C. Dispersion Modeling**

The next step in the assessment process utilizes the emissions inventory along with a mathematical air dispersion model and representative meteorological data to calculate impacts at the various receptor locations. The dispersion model used in this assessment is described below.

### **1. Model Selection**

The assessment of air quality and health risk impacts from pollutant emissions from this project applied the USEPA AERMOD Model, which is the air dispersion model accepted by the SCAQMD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

#### **oGeneral Model Assumptions**

### **2. General Model Assumptions**

A summary of Emission Configurations is shown in Table 15. The basic options used in the dispersion modeling are summarized in Table 16.

As indicated in Table 16, the analysis takes into account the effects of building downwash on the dispersion of emissions from the various sources located on the

project's property. Building downwash occurs when the aerodynamic turbulence, induced by nearby buildings, causes pollutants emitted from an elevated source to be mixed rapidly toward the ground (downwash), resulting in potentially higher ground-level concentrations than if the buildings were not present. The AERMOD dispersion model contains algorithms to account for building downwash effects. The required information includes the location of the emission source; the location of adjacent buildings; and the building geometry in terms of length, width, and height. For purposes of this analysis, the emission source and building locations were taken from the project site plan. The building geometries were derived from the project plan, assuming a building height of 43 feet (as stated on the site plan) for the building.

### 3. Meteorological Data

Meteorological data from the Air District's San Bernardino monitoring site was selected for this modeling application. Five full years of sequential meteorological data was collected at the site from January 1, 2007 to December 31, 2011 by the SCAQMD. The SCAQMD processed the data for input to the model. The data was obtained at SCAQMD's <http://www.aqmd.gov/smog/metdata/AERMOD.html> (see Figure 4).

## D. Estimation of Health Risks

Health risks from diesel particulate matter are twofold. First, diesel particulate matter is a carcinogen according to the State of California. Second, long-term chronic exposure to diesel particulate matter can cause health effects to the respiratory system. Each of these health risks is discussed below.

### 1. Cancer Risks

According to the in Health Risk Assessment for Proposed Land Use Projects, prepared by CAPCOA, July 2009 and the SCAQMD Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality, the cancer risk should be calculated using the following formula:

$$[\text{Dose-inh (mg)/(Kg-day)}] * [\text{Oral Slope Factor (kg-day)/mg}] * [1 \times 10^6] = \text{Potential Cancer Risk}$$

Where:

Oral Slope Factor = 1.1

$$\text{Dose-inh} = (\text{C-air} * \text{DBR} * \text{A} * \text{EF} * \text{ED} * 10^{-6}) / \text{AT}$$

Where:

C<sub>air</sub> [Concentration in air (µg/m<sup>3</sup>)] = (Calculated by AERMOD Model)

DBR [Daily breathing rate (L/kg body weight – day)] = 302 for residential, 149 for off-site worker, and 581 for children

A [Inhalation absorption factor] = 1

EF [Exposure frequency (days/year)] = 350

ED [Exposure duration (years)] = 70 for residential, 40 for worker, and 9 for school child

$10^6$  [Micrograms to milligrams conversion]

AT [Average time period over which exposure is averaged in days] = 25,550

The Year 2017 model run results are shown below on Figure 5 and Appendix C. Table 17 provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors for the residential exposure scenario and Table 18 shows the Worker exposure scenario. There are no schools in the project vicinity. Table 17 shows that the highest residential cancer risks at any receptor location does not exceed a cancer risk increase of 6.52 per million people. As shown in Table 18, the highest risk to off-site workers does not exceed a cancer risk increase of 0.65 per million people. As shown on Figure 5, all off-site diesel emissions concentrations were found to be below the 10.0 in a million cancer risk threshold that has been discussed above in Section 2.0. Therefore, no significant long-term health impacts would occur to adjacent receptors from the operation of diesel trucks on the project site.

## 2. Non-Cancer Risks

The relationship for non-cancer health effects is given by the equation:

$$\text{HIDPM} = \text{CDPM}/\text{RELDPM}$$

Where,

- HIDPM = Hazard Index; an expression of the potential for non-cancer health effects.
- CDPM = Annual average diesel particulate matter concentration in  $\mu\text{g}/\text{m}^3$ .
- RELDPM = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The non-carcinogenic hazards to residential and worker receptors are also detailed in Tables 17 and 18 respectively. The RELDPM is  $5 \mu\text{g}/\text{m}^3$ . The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. Using the maximum DPM concentration, the resulting Hazard Index is

$$\text{HIDPM} = 0.03042/5 = 0.0061$$

The criterion for significance is a Hazard Index increase of 1.0 or greater. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer risk from diesel emissions created by the proposed project.

**Table 14**

**2017 DPM Emissions Factors for the Proposed Project (70-year average)<sup>1</sup>**

| Vehicle Class            | Idling (g/hr) | On-Site Travel (g/mi) | Off-Site Travel (g/mi) |
|--------------------------|---------------|-----------------------|------------------------|
| Light Heavy Duty Truck 2 | 0.0185        | 0.04865               | 0.019098               |
| Medium Heavy Duty Truck  | 0.091         | 0.03793               | 0.02879                |
| Heavy Heavy Duty Truck   | 0.103         | 0.0711                | 0.05587                |

<sup>1</sup> Source: EMFAC2011

**Table 15**

**Summary of Emission Configurations**

| Emission Source Type          | Geometric Configuration                                      | Relevant Assumptions   |
|-------------------------------|--|--|
| Off-Site Diesel Truck Traffic | Line Sources   | · Stack release height: 12 feet  |
|                               |  | · Vehicle speed: 35 mph  |
|                               |  | · Length of the line source (from east driveway on Dumas to Waterman Ave, from west driveway to east driveway, from Waterman driveway north to Orange Show Rd, Orange Show westbound from Waterman, Orange Show eastbound from Waterman, Waterman Ave north of Orange Show Rd, and from Waterman driveway south toward the I-10 freeway) |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
|                               |  | · Emission factor: CARB EMFAC2011  |
| On-Site Diesel Truck Traffic  | Line Sources   | · Stack release height: 12 feet  |
|                               |  | · Vehicle speed: 10 mph  |
|                               |  | · Length of the line source (distance from the facility entrances to alongside the loading docks )   |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
| On-Site Diesel Truck Idling   | Point Sources located at the loading docks for each building | · Stack release height: 12 feet  |
|                               |  | · Stack release characteristics  |
|                               |  | > Stack diameter: 0.1 meter (0.3 feet)   |
|                               |  | > Stack velocity: 51.9 mps (170 feet/sec)  |
|                               |  | > Stack temperature: 366 °k (200° F)   |
|                               |  | · Idle time: 15 minutes per truck per day  |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
|                               |  | · Emission factor: CARB EMFAC2011  |

**Table 16**

**General Modeling Assumptions - AERMOD Model**

| Feature                       | Option Selected                           |
|-------------------------------|---|
| Terrain processing            | AERMAP-generated                          |
| Emission source configuration | See Table 15                              |
| Regulatory dispersion options | Default                                   |
| Land use                      | Urban                                     |
| Coordinate system             | UTM                                       |
| Building downwash             | Included in calculations                  |
| Receptor height               | 0 meters above ground                     |
| Meteorological data           | SCAQMD San Bernardino Meteorological Data |

**Table 17**

**MEIR - Residential Exposure Scenario (70-year)**

| Receptor<br>ID<br>(a) | Maximum<br>Concentration |                | Weight<br>Fraction<br>(d) | Contaminant<br>(e) | Carcinogenic Risk  |                |             | Noncarcinogenic Hazards |         |              |
|-----------------------|--------------------------|----------------|---------------------------|--------------------|--------------------|----------------|-------------|-------------------------|---------|--------------|
|                       | (ug/m3)<br>(b)           | (mg/m3)<br>(c) |                           |                    | URF                | CPF            | RISK<br>(h) | REL                     | RfD     | Index<br>(k) |
|                       |                          |                | (ug/m3)<br>(f)            |                    | (mg/kg/day)<br>(g) | (ug/m3)<br>(i) |             | (mg/kg/day)<br>(j)      |         |              |
| 1                     | 0.00371                  | 3.7E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 1.18        | 5.0E+00                 | 1.4E-03 | 0.0007       |
| 2                     | 0.00361                  | 3.6E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 1.14        | 5.0E+00                 | 1.4E-03 | 0.0007       |
| 3                     | 0.00491                  | 4.9E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 1.56        | 5.0E+00                 | 1.4E-03 | 0.0010       |
| 4                     | 0.00644                  | 6.4E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 2.04        | 5.0E+00                 | 1.4E-03 | 0.0013       |
| 5                     | 0.00861                  | 8.6E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 2.73        | 5.0E+00                 | 1.4E-03 | 0.0017       |
| 6                     | 0.00978                  | 9.8E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 3.10        | 5.0E+00                 | 1.4E-03 | 0.0020       |
| 7                     | 0.01013                  | 1.0E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 3.21        | 5.0E+00                 | 1.4E-03 | 0.0020       |
| 8                     | 0.01208                  | 1.2E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 3.83        | 5.0E+00                 | 1.4E-03 | 0.0024       |
| 10                    | 0.01538                  | 1.5E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 4.88        | 5.0E+00                 | 1.4E-03 | 0.0031       |
| 11                    | 0.01637                  | 1.6E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 5.19        | 5.0E+00                 | 1.4E-03 | 0.0033       |
| 12                    | 0.02057                  | 2.1E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 6.52        | 5.0E+00                 | 1.4E-03 | 0.0041       |
| 15                    | 0.01077                  | 1.1E-05        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 3.42        | 5.0E+00                 | 1.4E-03 | 0.0022       |
| 16                    | 0.00411                  | 4.1E-06        | 1.00E+00                  | Particulates       | 3.0E-04            | 1.1E+00        | 1.30        | 5.0E+00                 | 1.4E-03 | 0.0008       |

Note: Exposure factors used to calculate TAC intake

|   |       |
|---|-------|
| Exposure Frequency (days/year)                | 365   |
| Exposure Duration (years)                     | 70    |
| Inhalation Rate (m3/day)*                     | 21.14 |
| Average Body Weight (kg)                      | 70    |
| Averaging Time <sub>(cancer)</sub> (days)     | 25550 |
| Averaging Time <sub>(non-cancer)</sub> (days) | 25550 |

\*Inhalation Rate of 21.14 m3/day equates to the ARB breathing 302 liters per kilogram-day

E= 10<sup>x</sup>, i.e. E-02 = 10<sup>-2</sup>

**Table 18**

**Carcinogenic Risks and Non-Carcinogenic Hazards  
Worker Exposure Scenario (40-year)**

| Receptor<br>ID<br>(a) | Maximum<br>Concentration |                | Weight<br>Fraction<br>(d) | Contaminant<br>(e) | Carcinogenic Risk     |                           |              | Noncarcinogenic Hazards |                           |              |
|-----------------------|--------------------------|----------------|---------------------------|--------------------|-----------------------|---------------------------|--------------|-------------------------|---------------------------|--------------|
|                       | (ug/m3)<br>(b)           | (mg/m3)<br>(c) |                           |                    | URF<br>(ug/m3)<br>(f) | CPF<br>(mg/kg/day)<br>(g) | RISK<br>(h)  | REL<br>(ug/m3)<br>(i)   | RfD<br>(mg/kg/day)<br>(j) | Index<br>(k) |
|                       | com_9                    | 0.01084        |                           |                    | 1.1E-05               | 1.00E+00                  | Particulates | 3.0E-04                 | 1.1E+00                   | 0.65 | 5.0E+00 | 1.4E-03 | 0.002 |
| golf_13               | 0.0046                   | 4.6E-06        | 1.00E+00                  | Particulates       | 3.0E-04               | 1.1E+00                   | 0.28         | 5.0E+00                 | 1.4E-03                   | 0.001        |
| golf_14               | 0.00958                  | 9.6E-06        | 1.00E+00                  | Particulates       | 3.0E-04               | 1.1E+00                   | 0.57         | 5.0E+00                 | 1.4E-03                   | 0.002        |

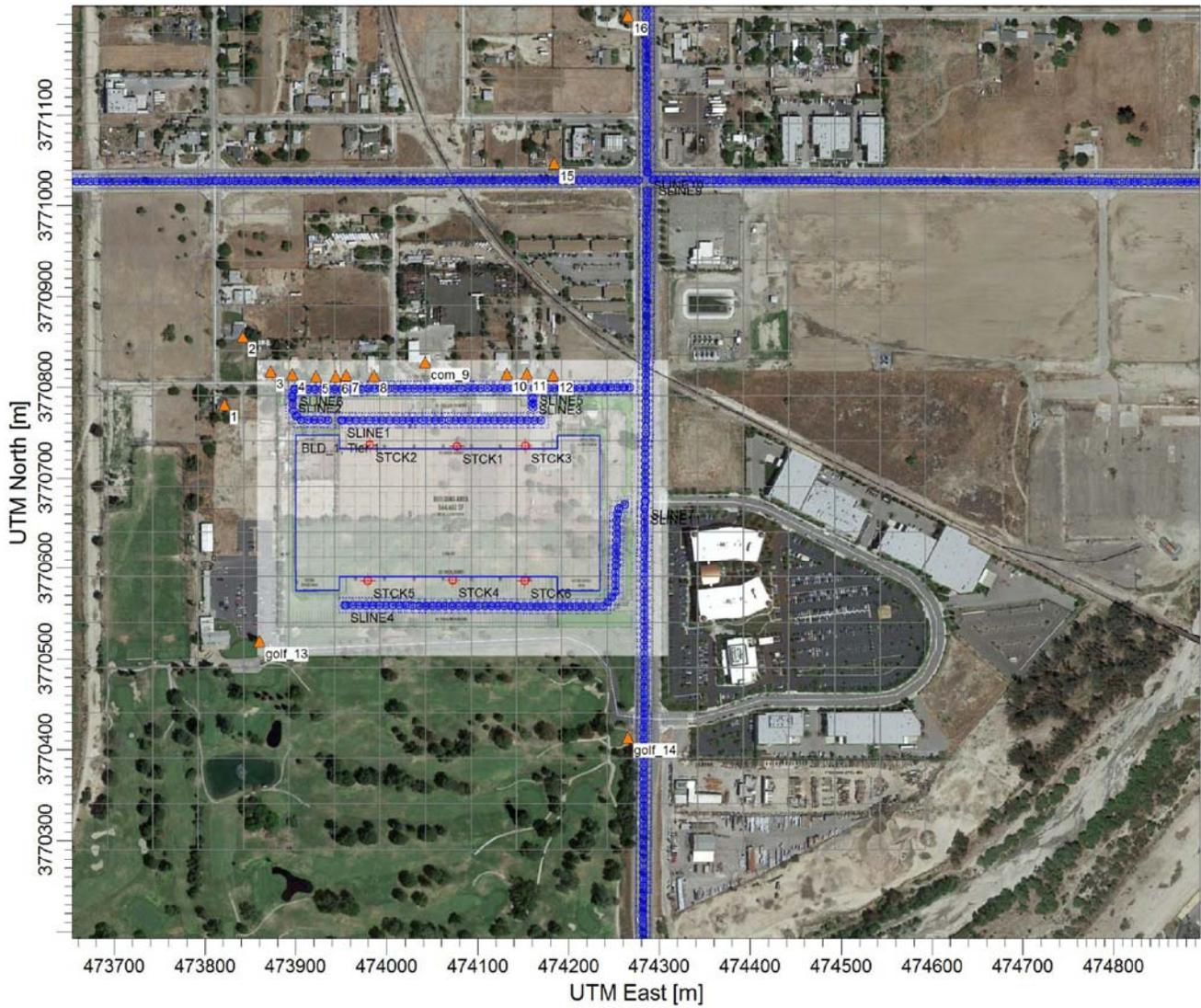
Note: Exposure factors used to calculate TAC intake

|   |       |
|---|-------|
| Exposure Frequency (days/year)                | 245   |
| Exposure Duration (years)                     | 40    |
| Inhalation Rate (m3/day)*                     | 10.43 |
| Average Body Weight (kg)                      | 70    |
| Averaging Time <sub>(cancer)</sub> (days)     | 25550 |
| Averaging Time <sub>(non-cancer)</sub> (days) | 14600 |

\*Inhalation Rate of 10.43 m3/day equates to the ARB breathing 149 liters per kilogram-day

E= 10<sup>x</sup>, i.e. E-02 = 10<sup>-2</sup>

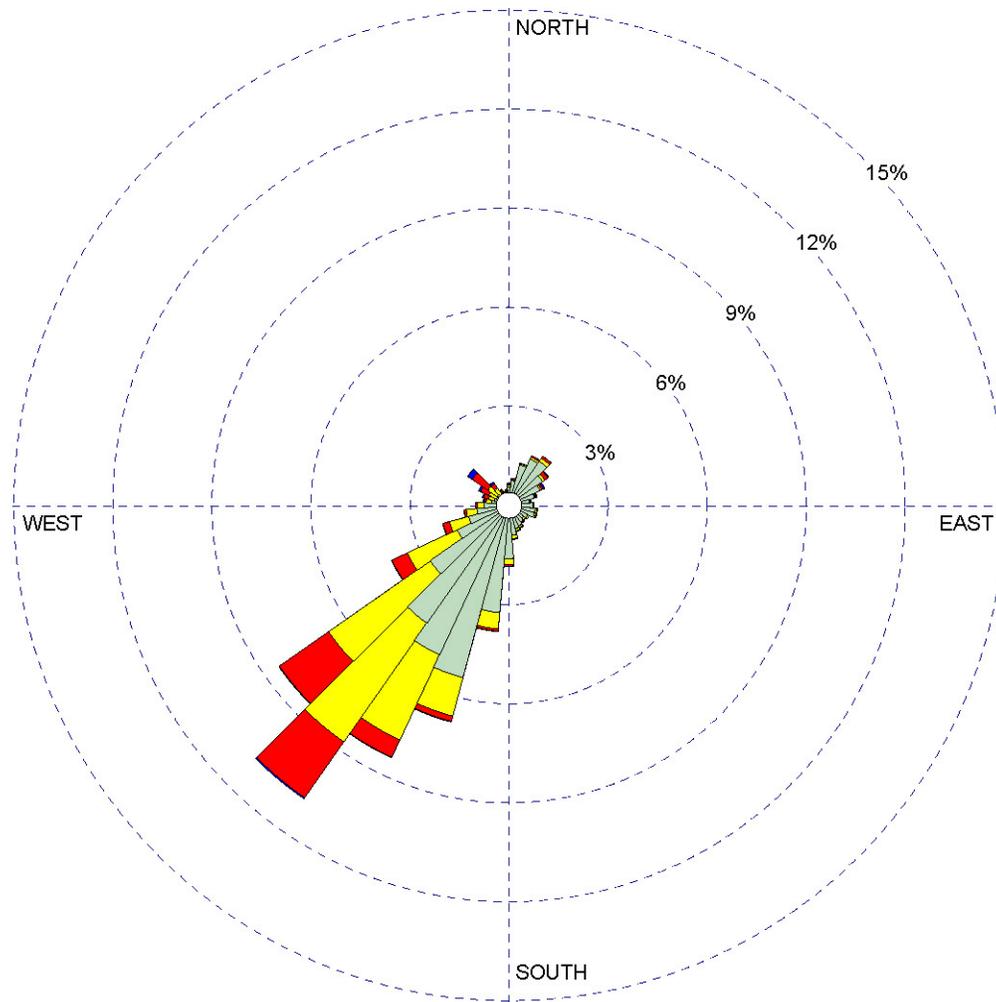
Figure 3  
 AERMOD Model Source and Receptor Placement



**Legend**

-  = Line of Truck Travel
-  = Truck Idling Point
-  = Receptor Location

Figure 4  
Wind Rose: San Bernardino



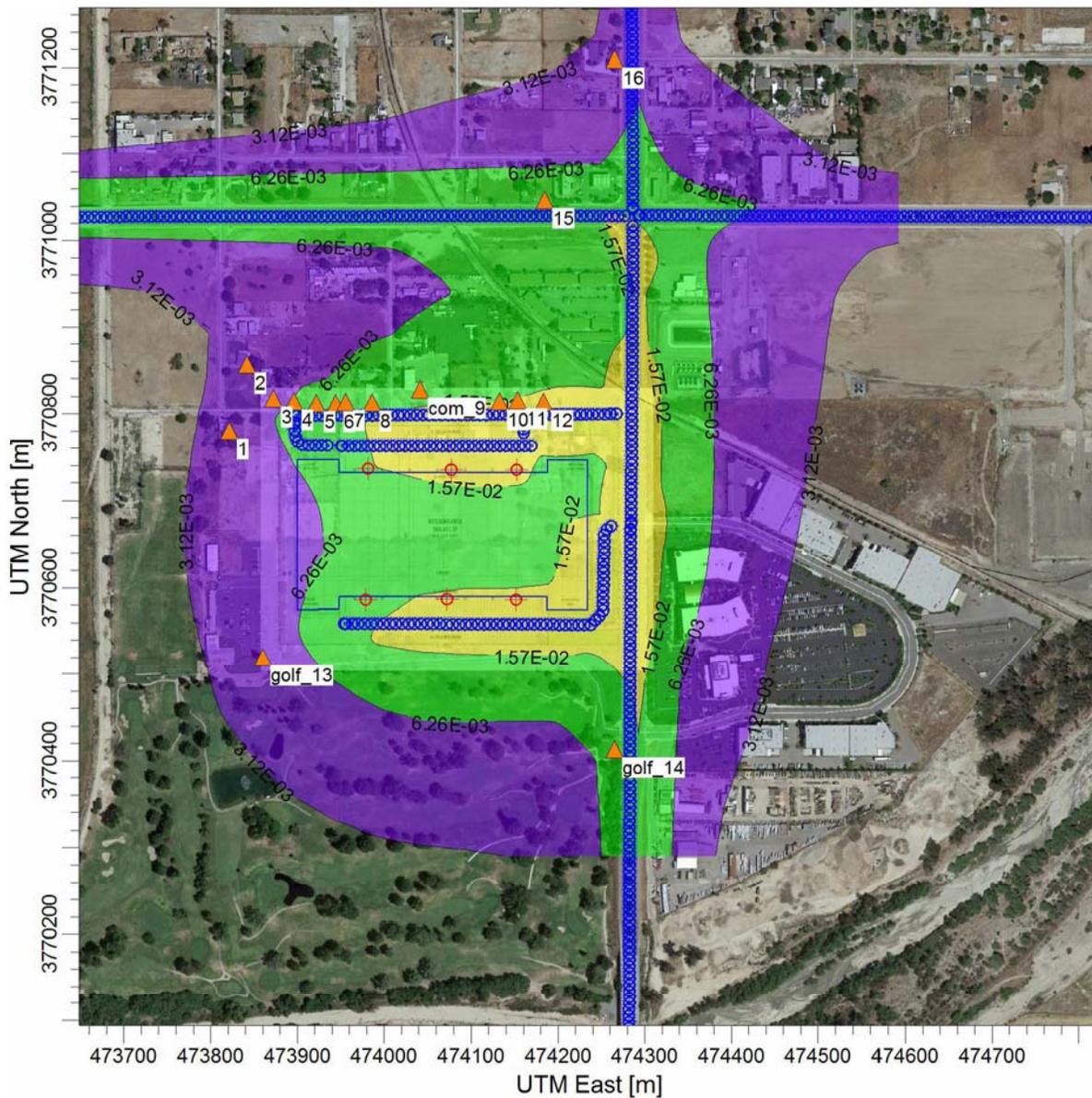
**Legend**

WIND SPEED  
(Knots)

- $\geq 21.58$
- 17.11 - 21.58
- 11.08 - 17.11
- 7.00 - 11.08
- 4.08 - 7.00
- 0.97 - 4.08

Calms: 22.95%

Figure 5  
 Modeled Study Area Annual DPM Emissions



**Cancer Risk For Residential Uses**

- = 10 in One Million
- = 5 in One Million
- = 2 in One Million
- = 1 in One Million

## **IX. GLOBAL CLIMATE CHANGE ANALYSIS**

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The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions, the project impacts and a consistency analysis of the proposed project with any applicable GHG reduction plans, policies or regulations.

### **A. Methodology**

The CalEEMod Version 2013.2.2 was used to calculate the GHG emissions from the proposed project. Through San Bernardino Associated Governments (SANBAG), the City of San Bernardino forms the San Bernardino Chapter of the San Bernardino County Regional GHG Reduction Plan. The Plan has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Based on the CARB Scoping Plan, reducing GHG emissions to 1990 levels by 2020 means cutting approximately 30 percent from business-as-usual (BAU) emissions levels, or about 15 percent from year 2008 levels, which is the baseline year for the GHG Reduction Plan. Consistent with the CARB Scoping Plan, the City of San Bernardino has chosen a reduction target of 15 percent below 2008 GHG emissions levels by 2020. If the project exceeds the SCAQMD screening threshold of 3,000 MTCO<sub>2</sub>e per year for all land use types, then the project's year 2020 emissions will be compared to the project's baseline (BAU) GHG emissions.

The project's year 2017 (opening year) emissions were calculated, compared to the both the SCAQMD 3,000 MTCO<sub>2</sub>e per year screening threshold and the SCAQMD industrial threshold of 10,000 MTCO<sub>2</sub>e per year and the unmitigated results are shown in Table 19.

#### **1. Area Sources**

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Emissions from architectural coating reflect SCAQMD Rule 1113.

#### **2. Energy Usage**

Energy usage includes emissions from the generation of electricity and natural gas used on-site. The energy usage was based on the CalEEMod defaults. No changes were made to the default energy usage parameters.

#### **3. Mobile Sources**

Mobile sources were analyzed in the manner described in Section VII above.

4. Waste

Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The CalEEMod default values were used in the analysis.

5. Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The CalEEMod default values were used in the analysis.

6. Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30 year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod and detailed above in Section VI.

**B. Project Greenhouse Gas Emissions**

The GHG emissions have been calculated based on the parameters described above. A summary of the results are shown below in Table 19 and the CalEEMod Model run for the proposed project is provided in Appendix D. Table 19 shows that without any mitigation, the proposed project would generate 6,006.91 MTCO<sub>2</sub>e per year. However, with mitigation (as detailed in Section XI, Mitigation Measures), the results in Table 20 show that the project would generate 4,307.88 MTCO<sub>2</sub>e per year. According to the thresholds of significance established above in Section 5.0, a cumulative global climate change impact would potentially occur if the GHG emissions created from the on-going operations would exceed the 3,000 metric tons per year of CO<sub>2</sub>e SCAQMD and the SANBAG GHG Reduction Plan Screening threshold. The technical data, emission inventory processes, and methodology used in the San Bernardino County GHG Reduction Plan became the foundational inventory processes and methodology used in the SANBAG Regional GHG Reduction Plan. According to the County Reduction Plan, projects that exceed the screening thresholds would then need to have their base line (year 2010 in CalEEMod as year 2008 is not available) emissions compared to the project's year 2020 emissions to ascertain whether the project can meet the City of San Bernardino's reduction target of 15 percent below 2008 GHG emissions levels by 2020.

The project's baseline (year 2010) emissions (without design features, mitigation or regulation, per CARB protocol) are shown in Table 21 and the mitigated year 2020 emissions are shown in Table 22. As shown in Table 22, the project's year 2020 mitigated emissions will provide a 36.54 percent reduction from the project's year 2010 baseline emissions. Therefore, as the project's emissions meet the City's reduction threshold, the project's GHG emissions are considered to be less than significant.

Furthermore, the project's emissions were also compared the SCAQMD industrial project's threshold of 10,000 metric tons per year of CO<sub>2</sub>e and at 4,307.88 MTCO<sub>2</sub>e per year, do not exceed that industrial GHG threshold.

Therefore, with incorporation of mitigation, the operation of the proposed project would not create a significant cumulative impact to global climate change.

The project is also subject to the requirements of the California Green Building Standards Code. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- Water Efficiency and Conservation [Indoor Water Use (4.303.1)]. Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20 percent shall be provided. The 20 percent reduction shall be demonstrated by one of the following methods:
  - Prescriptive Method: Showerheads ( $\leq 2.0$  gpm @ 80 psi); Residential Lavatory Faucets ( $\leq 1.5$  gpm @ 60 psi); Nonresidential Lavatory Faucets ( $\leq .4$  gpm @ 60 psi); Kitchen Faucets ( $\leq 1.8$  gpm @ 60 psi); Toilets ( $\leq 1.28$  gal/flush); and urinals ( $\leq 0.5$  gal/flush).
  - Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.
- Water Efficiency and Conservation [Outdoor Water Use (4.304.1)]. Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:
  - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change.
  - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
- Construction Waste Reduction of at least 50 percent (4.408.1). Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction

and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4; OR meet a more stringent local construction and demolition waste management ordinance. Documentation is required per Section 4.408.5. Exceptions:

- Excavated soil and land-clearing debris.
- Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
- The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.
- Materials pollution control (4.504.1 – 4.504.6). Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard.
- Installer and Special Inspector Qualifications (702.1-702.2). Mandatory special installer inspector qualifications for installation and inspection of energy systems (e.g., heat furnace, air conditioner, mechanical equipment).

Compliance with 2013 Title 24 Standards and Green Building Standards (CalGreen) is included as mitigation and will reduce project-related greenhouse emissions.

### **C. Greenhouse Gas Plan Consistency**

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. As stated previously, the City of San Bernardino is one of the 21 partnership cities that are participating in the San Bernardino Associated Governments (SANBAG) San Bernardino County Regional GHG Reduction Plan. Therefore, the applicable plan for the proposed project is the SANBAG San Bernardino County Regional GHG Reduction Plan. The City of San Bernardino forms the San Bernardino Chapter of the San Bernardino County Regional GHG Reduction Plan, released March 5, 2014. The Plan has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Consistent with the CARB Scoping Plan, the City of San Bernardino has chosen a reduction target of 15 percent below 2008 GHG emissions levels by 2020.

The City of San Bernardino also has a Sustainability Master Plan. The City of San Bernardino's Sustainability Master Plan Task Force, appointed by the City Council, is recommending various draft strategies for the Mayor and Common Council to consider adopting. This framework of strategies is located within the Land Use and Transportation section of the Draft Sustainable Master Plan (SMP). If adopted, the Draft SMP will support the goals of SB 375 and the Sustainable Communities Strategy through a wide range of actions. The Draft SMP will include GHG reduction measures similar to, but different from, the measures listed in the GHG Plan. The Draft SMP measures will generally be more specific to the City of San Bernardino, but they will also support the goals of AB 32. The SMP follows the organization of the SANBAG San Bernardino County GHG Reduction Plan, with the SMP measures following the County GHG Reduction Plan measures.

As shown above (and in Table 22), the project's year 2020 mitigated emissions are 36.5 percent less than the project's baseline (year 2010) emissions; therefore, the project meet the reduction requirement of the City of San Bernardino Chapter of the SANBAG San Bernardino County Regional GHG Reduction Plan. Furthermore, the project will comply with applicable Green Building Standards and City of San Bernardino's policies regarding sustainability (as dictated by the City's General Plan), further analysis is not warranted. Impacts are considered to be less than significant.

**Table 19**

**Unmitigated Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>                                | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>                                | 0.00  | 598.00                 | 598.00          | 0.03            | 0.01             | 600.48            |
| Mobile Sources <sup>4</sup>                              | 0.00  | 4,490.16               | 4,490.16        | 0.09            | 0.00             | 4,492.02          |
| Waste <sup>5</sup>                                       | 107.74                                      | 0.00                   | 107.74          | 6.37            | 0.00             | 241.46            |
| Water <sup>6</sup>                                       | 41.43                                       | 486.55                 | 527.97          | 4.28            | 0.11             | 650.37            |
| Construction <sup>7</sup>                                | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>                                   | 149.17                                      | 5,597.22               | 5,746.39        | 10.76           | 0.11             | <b>6,006.91</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b> |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>yes</b>        |
| <b>SCAQMD Industrial Threshold</b>                       |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>no</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions based on a 30 year amortization rate.

**Table 20**

**Mitigated Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>                                | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>                                | 0.00  | 540.70                 | 540.70          | 0.02            | 0.01             | 542.91            |
| Mobile Sources <sup>4</sup>                              | 0.00  | 3,113.61               | 3,113.61        | 0.06            | 0.00             | 3,114.92          |
| Waste <sup>5</sup>                                       | 53.87                                       | 0.00                   | 53.87           | 3.18            | 0.00             | 120.73            |
| Water <sup>6</sup>                                       | 33.14                                       | 375.73                 | 408.87          | 3.42            | 0.08             | 506.73            |
| Construction <sup>7</sup>                                | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>                                   | 87.01                                       | 4,052.55               | 4,139.56        | 6.69            | 0.09             | <b>4,307.88</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b> |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>yes</b>        |
| <b>SCAQMD Industrial Threshold</b>                       |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>no</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions based on a 30 year amortization rate.

**Table 21**

**Baseline Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category                    | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|-----------------------------|---|------------------------|-----------------|-----------------|------------------|-------------------|
|                             | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>   | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>   | 0.00  | 598.00                 | 598.00          | 0.03            | 0.01             | 600.48            |
| Mobile Sources <sup>4</sup> | 0.00  | 4,890.59               | 4,890.59        | 0.17            | 0.00             | 4,894.11          |
| Solid Waste <sup>5</sup>    | 107.74                                      | 0.00                   | 107.74          | 6.37            | 0.00             | 241.46            |
| Water <sup>6</sup>          | 41.43                                       | 486.55                 | 527.97          | 4.28            | 0.11             | 650.37            |
| Construction <sup>7</sup>   | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>      | 149.17                                      | 5,997.65               | 6,146.82        | 10.84           | 0.11             | <b>6,409.01</b>   |

<sup>1</sup> Source: CalEEMod Version 2013.2.2 for baseline year 2010 without design features, mitigation or regulation, per CARB protocol.

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions CO<sub>2</sub>e based on opening year emissions and a 30 year amortization rate.

**Table 22**

**Year 2020 Mitigated Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category                    | Greenhouse Gas Emissions (Metric Tons/Year)                       |                        |                 |                 |                  |                   |
|-----------------------------|---|------------------------|-----------------|-----------------|------------------|-------------------|
|                             | Bio-CO2   | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>   | 0.00  | 0.03                   | 0.03            | 0.00            | 0.02             | 0.03              |
| Energy Usage <sup>3</sup>   | 0.00  | 540.70                 | 540.70          | 0.02            | 0.01             | 542.91            |
| Mobile Sources <sup>4</sup> | 0.00  | 2,875.54               | 2,875.54        | 0.05            | 0.00             | 2,876.64          |
| Solid Waste <sup>5</sup>    | 53.87   | 0.00                   | 53.87           | 3.18            | 0.00             | 120.73            |
| Water <sup>6</sup>          | 33.14   | 375.73                 | 408.87          | 3.42            | 0.08             | 506.73            |
| Construction <sup>7</sup>   | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>      | 87.01   | 3,814.48               | 3,901.49        | 6.69            | 0.11             | <b>4,069.60</b>   |
|                             | <b>Project's Percent Reduction from 2010 Baseline</b>             |                        |                 |                 |                  | <b>36.5</b>       |
|                             | <b>Percent Reduction Threshold from SANBAG GHG Reduction Plan</b> |                        |                 |                 |                  | <b>15</b>         |
|                             | <b>Meets Reduction Threshold?</b>                                 |                        |                 |                 |                  | <b>Yes</b>        |

<sup>1</sup> Source: CalEEMod Version 2013.2.2 for year 2020 with mitigation and regulation.

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions CO<sub>2</sub>e based on opening year emissions and a 30 year amortization rate.

## **X. AIR QUALITY COMPLIANCE**

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The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP". Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

### **A. Criterion 1 - Increase in the Frequency or Severity of Violations**

Based on the air quality modeling analysis contained in this Air Analysis, short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that with mitigation, long-term operations impacts will not result in significant impacts based on the SCAQMD local, regional, and toxic air contaminant thresholds of significance.

Therefore, the proposed project is not anticipated to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

### **B. Criterion 2 - Exceed Assumptions in the AQMP?**

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same

forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of San Bernardino General Plan defines the assumptions that are represented in the AQMP.

The City's General Plan land use designations for the project site are Industrial and Open Space. The City's zoning designation for the site includes: Industrial Light, Office Industrial Park, and Public Commercial Recreation. Therefore, the proposed project is not currently consistent with the land use or zoning designations. However, approval of the proposed project includes a General Plan Amendment (GPA) and a Zoning Map Amendment (ZMA) to change the General Plan land use designation to Industrial and the zoning designation to Industrial Light. With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site.

With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site. Therefore, once the proposed project is approved, the project would not result in an inconsistency with the land use designation. Therefore, the proposed would not be anticipated to exceed the AQMP assumptions for the project site and would be consistent with the AQMP for the second criterion.

Based on the above, the proposed project would not conflict with implementation of the AQMP, impacts are considered to be less than significant.

## **XI. MITIGATION MEASURES**

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### **A. Construction Measures**

The project is required to comply with SCAQMD Rule 403 - Fugitive Dust. No construction mitigation is required.

### **B. Operational Measures**

Mitigation Measure 1. The project applicant shall provide sidewalks within the project boundary and along the off-site roadway improvements.

Mitigation Measure 2. The project applicant shall require that any future tenants institute a ride sharing program and employee vanpool/shuttle that is open to all employees.

Mitigation Measure 3. The project applicant shall require that all building structures meet or exceed 2013 Title 24 Standards and Green Building Code Standards.

Mitigation Measure 4. The project applicant shall require that all lighting installed in the proposed structures uses on average a minimum of 5 percent less energy than conventional metal halide warehouse lighting.

Mitigation Measure 5. The project applicant shall require that all faucets, toilets and showers installed in the proposed structures utilize low-flow fixtures that would reduce indoor water demand by 20% per CalGreen Standards.

Mitigation Measure 6. The project applicant shall require that ENERGY STAR-compliant appliances are installed on-site.

Mitigation Measure 7. The project applicant shall require all future tenants to institute recycling programs that reduces waste to landfills by a minimum of 50 percent (75 percent by 2020) and includes designated recycling bins at each proposed structure and requires all green waste to be processed at a recycling or composting facility.

## **XII. REFERENCES**

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### **California Air Pollution Control Officers Association**

2009 Health Risk Assessments for Proposed Land Use Projects

### **California Air Resources Board**

2008 Resolution 08-43

2008 Airborne Toxic Control Measure for in-use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, Section 2477 of Division 3, Chapter 9, Title 13, California Code of Regulations

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2015 Historical Air Quality, Top 4 Summary

### **City of San Bernardino**

2005 City of San Bernardino General Plan. July.

2012 San Bernardino Sustainability Master Plan. Public review Draft. August.

### **Governor's Office of Planning and Research**

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

### **Kunzman Associates, Inc.**

2015 Waterman Industrial Center Traffic Impact Analysis. September 9.

### **Office of Environmental Health Hazard Assessment**

2003 Air Toxics Hot Spots Program Risk Assessment Guidelines

### **San Bernardino Associated Governments (SANBAG)**

2013 San Bernardino County Regional Greenhouse Gas Reduction Plan - Public Draft (Chapter 3.18 [City of San Bernardino]). June.

**South Coast Air Quality Management District**

- 1993 CEQA Air Quality Handbook
  
- 2003 Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis
  
- 2005 Rule 403 Fugitive Dust
  
- 2007 2007 Air Quality Management Plan
  
- 2008 Final Localized Significance Threshold Methodology, Revised
  
- 2011 Appendix A Calculation Details for CalEEMod
  
- 2012 Final 2012 Air Quality Management Plan
  
- 2014 MATES-IV Multiple Air Toxics Exposure Study in the South Coast Air Basin. October.

## **APPENDICES**

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**Appendix A – Glossary of Terms**

**Appendix B – CalEEMod Model Daily Emissions Printouts**

**Appendix C – AERMOD Model Printouts**

**Appendix D – CalEEMod Model Annual Emissions Printouts**

**APPENDIX A**

**Glossary of Terms**

|                      |  |
|----------------------|--|
| AQMP                 | Air Quality Management Plan                              |
| BACT                 | Best Available Control Technologies                      |
| CAAQS                | California Ambient Air Quality Standards                 |
| CalEPA               | California Environmental Protection Agency               |
| CARB                 | California Air Resources Board                           |
| CCAA                 | California Clean Air Act                                 |
| CCAR                 | California Climate Action Registry                       |
| CEQA                 | California Environmental Quality Act                     |
| CFCs                 | Chlorofluorocarbons                                      |
| CH <sub>4</sub>      | Methane  |
| CNG                  | Compressed natural gas                                   |
| CO                   | Carbon monoxide  |
| CO <sub>2</sub>      | Carbon dioxide   |
| CO <sub>2</sub> e    | Carbon dioxide equivalent                                |
| DPM                  | Diesel particulate matter                                |
| EPA                  | U.S. Environmental Protection Agency                     |
| GHG                  | Greenhouse gas   |
| GWP                  | Global warming potential                                 |
| HIDPM                | Hazard Index Diesel Particulate Matter                   |
| HFCs                 | Hydrofluorocarbons                                       |
| IPCC                 | International Panel on Climate Change                    |
| LCFS                 | Low Carbon Fuel Standard                                 |
| LST                  | Localized Significant Thresholds                         |
| MTCO <sub>2</sub> e  | Metric tons of carbon dioxide equivalent                 |
| MMTCO <sub>2</sub> e | Million metric tons of carbon dioxide equivalent         |
| MPO                  | Metropolitan Planning Organization                       |
| NAAQS                | National Ambient Air Quality Standards                   |
| NO <sub>x</sub>      | Nitrogen Oxides  |
| NO <sub>2</sub>      | Nitrogen dioxide   |
| N <sub>2</sub> O     | Nitrous oxide  |
| O <sub>3</sub>       | Ozone  |
| OPR                  | Governor's Office of Planning and Research               |
| PFCs                 | Perfluorocarbons   |
| PM                   | Particle matter  |
| PM10                 | Particles that are less than 10 micrometers in diameter  |
| PM2.5                | Particles that are less than 2.5 micrometers in diameter |
| PMI                  | Point of maximum impact                                  |
| PPM                  | Parts per million  |
| PPB                  | Parts per billion  |
| RTIP                 | Regional Transportation Improvement Plan                 |
| RTP                  | Regional Transportation Plan                             |
| SCAB                 | South Coast Air Basin                                    |
| SCAG                 | Southern California Association of Governments           |
| SCAQMD               | South Coast Air Quality Management District              |

|                 |   |
|-----------------|---|
| SF              | Square Feet   |
| SF <sub>6</sub> | Sulfur hexafluoride                                     |
| SIP             | State Implementation Plan                               |
| SO <sub>x</sub> | Sulfur Oxides   |
| T6              | Heavy Duty Trucks from EMFAC 2007 classifications       |
| T7              | Heavy-Heavy Duty Trucks from EMFAC 2007 classifications |
| TAC             | Toxic air contaminants                                  |
| VOC             | Volatile organic compounds                              |

**APPENDIX B**

**CalEEMod Model Daily Emissions Printouts**

**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Summer**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total    | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|----------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |                | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9319         | 74.9183         | 68.3593         | 0.1312        | 6.8407         | 3.5859        | 10.4266        | 3.4338         | 3.2990        | 6.7328         | 0.0000        | 12,022.64<br>44         | 12,022.64<br>44         | 1.9466        | 0.0000        | 12,063.52<br>28         |
| 2017         | 62.3158        | 63.3168         | 79.4717         | 0.1556        | 6.4802         | 3.1912        | 9.6714         | 1.7417         | 2.9702        | 4.7118         | 0.0000        | 14,165.52<br>20         | 14,165.52<br>20         | 1.6303        | 0.0000        | 14,199.75<br>84         |
| <b>Total</b> | <b>69.2477</b> | <b>138.2351</b> | <b>147.8310</b> | <b>0.2868</b> | <b>13.3209</b> | <b>6.7771</b> | <b>20.0980</b> | <b>5.1754</b>  | <b>6.2692</b> | <b>11.4446</b> | <b>0.0000</b> | <b>26,188.16<br/>64</b> | <b>26,188.16<br/>64</b> | <b>3.5769</b> | <b>0.0000</b> | <b>26,263.28<br/>12</b> |

#### Mitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |               | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9319         | 74.9183         | 68.3593         | 0.1312        | 6.3124         | 3.5859        | 8.5798         | 1.6972         | 3.2990        | 4.6744        | 0.0000        | 12,022.64<br>44         | 12,022.64<br>44         | 1.9466        | 0.0000        | 12,063.52<br>28         |
| 2017         | 62.3158        | 63.3168         | 79.4717         | 0.1556        | 6.4802         | 3.1912        | 9.6714         | 1.7417         | 2.9702        | 4.7118        | 0.0000        | 14,165.52<br>20         | 14,165.52<br>20         | 1.6303        | 0.0000        | 14,199.75<br>84         |
| <b>Total</b> | <b>69.2477</b> | <b>138.2351</b> | <b>147.8310</b> | <b>0.2868</b> | <b>12.7926</b> | <b>6.7771</b> | <b>18.2512</b> | <b>3.4388</b>  | <b>6.2692</b> | <b>9.3862</b> | <b>0.0000</b> | <b>26,188.16<br/>64</b> | <b>26,188.16<br/>64</b> | <b>3.5769</b> | <b>0.0000</b> | <b>26,263.28<br/>12</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 3.97          | 0.00         | 9.19       | 33.55          | 0.00          | 17.99       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 24.8427        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0357         | 0.3246         | 0.2726         | 1.9500e-003   |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779           | 389.4779           | 7.4600e-003   | 7.1400e-003        | 391.8482           |
| Mobile       | 4.7471         | 28.1870        | 63.8421        | 0.1711        | 9.4644        | 0.4411        | 9.9055        | 2.5382         | 0.4058        | 2.9440        |          | 15,175.8152        | 15,175.8152        | 0.4096        |                    | 15,184.4171        |
| <b>Total</b> | <b>29.6255</b> | <b>28.5127</b> | <b>64.2319</b> | <b>0.1731</b> | <b>9.4644</b> | <b>0.4662</b> | <b>9.9306</b> | <b>2.5382</b>  | <b>0.4309</b> | <b>2.9691</b> |          | <b>15,565.5396</b> | <b>15,565.5396</b> | <b>0.4178</b> | <b>7.1400e-003</b> | <b>15,576.5262</b> |

### Mitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 22.6916        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0251         | 0.2286         | 0.1920         | 1.3700e-003   |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725           | 274.2725           | 5.2600e-003   | 5.0300e-003        | 275.9417           |
| Mobile       | 4.1506         | 20.9694        | 50.6476        | 0.1225        | 6.7109        | 0.3157        | 7.0266        | 1.7998         | 0.2904        | 2.0902        |          | 10,865.5529        | 10,865.5529        | 0.2987        |                    | 10,871.8259        |
| <b>Total</b> | <b>26.8673</b> | <b>21.1991</b> | <b>50.9568</b> | <b>0.1239</b> | <b>6.7109</b> | <b>0.3335</b> | <b>7.0444</b> | <b>1.7998</b>  | <b>0.3082</b> | <b>2.1080</b> |          | <b>11,140.0719</b> | <b>11,140.0719</b> | <b>0.3047</b> | <b>5.0300e-003</b> | <b>11,148.0284</b> |

|                   | ROG  | NOx   | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e  |
|-------------------|------|-------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|-------|
| Percent Reduction | 9.31 | 25.65 | 20.67 | 28.40 | 29.09         | 28.47        | 29.06      | 29.09          | 28.47         | 29.00       | 0.00     | 28.43    | 28.43     | 27.07 | 29.55 | 28.43 |

### 3.0 Construction Detail

#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 25.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Fugitive Dust |               |                |                |               | 0.5359        | 0.0000        | 0.5359        | 0.0811         | 0.0000        | 0.0811        |          |                        | 0.0000                 |               |     | 0.0000                 |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        |          | 4,089.284<br>1         | 4,089.284<br>1         | 1.1121        |     | 4,112.637<br>4         |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.5359</b> | <b>2.2921</b> | <b>2.8280</b> | <b>0.0811</b>  | <b>2.1365</b> | <b>2.2177</b> |          | <b>4,089.284<br/>1</b> | <b>4,089.284<br/>1</b> | <b>1.1121</b> |     | <b>4,112.637<br/>4</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0427        | 0.6802        | 0.4836        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0535        | 0.0118         | 9.7300e-003   | 0.0215        |          | 182.2820        | 182.2820        | 1.3100e-003   |     | 182.3095        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0645        | 0.0784        | 1.0333        | 2.1100e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 175.1667        | 175.1667        | 8.7000e-003   |     | 175.3494        |
| <b>Total</b> | <b>0.1072</b> | <b>0.7586</b> | <b>1.5169</b> | <b>3.9200e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>357.4487</b> | <b>357.4487</b> | <b>0.0100</b> |     | <b>357.6589</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 0.2090        | 0.0000        | 0.2090        | 0.0316         | 0.0000        | 0.0316        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        | 0.0000        | 4,089.2841        | 4,089.2841        | 1.1121        |     | 4,112.6374        |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.2090</b> | <b>2.2921</b> | <b>2.5011</b> | <b>0.0316</b>  | <b>2.1365</b> | <b>2.1682</b> | <b>0.0000</b> | <b>4,089.2841</b> | <b>4,089.2841</b> | <b>1.1121</b> |     | <b>4,112.6374</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0427        | 0.6802        | 0.4836        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0535        | 0.0118         | 9.7300e-003   | 0.0215        |          | 182.2820        | 182.2820        | 1.3100e-003   |     | 182.3095        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0645        | 0.0784        | 1.0333        | 2.1100e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 175.1667        | 175.1667        | 8.7000e-003   |     | 175.3494        |
| <b>Total</b> | <b>0.1072</b> | <b>0.7586</b> | <b>1.5169</b> | <b>3.9200e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>357.4487</b> | <b>357.4487</b> | <b>0.0100</b> |     | <b>357.6589</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |                |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 6.6171        | 0.0000        | 6.6171         | 3.3745         | 0.0000        | 3.3745        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842         |                | 3.2975        | 3.2975        |          | 6,414.9807        | 6,414.9807        | 1.9350        |     | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>6.6171</b> | <b>3.5842</b> | <b>10.2014</b> | <b>3.3745</b>  | <b>3.2975</b> | <b>6.6720</b> |          | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0860        | 0.1046        | 1.3777        | 2.8100e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 233.5556        | 233.5556        | 0.0116        |     |      | 233.7992        |
| <b>Total</b> | <b>0.0860</b> | <b>0.1046</b> | <b>1.3777</b> | <b>2.8100e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>233.5556</b> | <b>233.5556</b> | <b>0.0116</b> |     |      | <b>233.7992</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e   |                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|--------|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |        |                   |
| Fugitive Dust |               |                |                |               | 2.5807        | 0.0000        | 2.5807        | 1.3161         | 0.0000        | 1.3161        |               |                   | 0.0000            |               |     | 0.0000 |                   |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842        |                | 3.2975        | 3.2975        | 0.0000        | 6,414.9807        | 6,414.9807        | 1.9350        |     |        | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>2.5807</b> | <b>3.5842</b> | <b>6.1649</b> | <b>1.3161</b>  | <b>3.2975</b> | <b>4.6136</b> | <b>0.0000</b> | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     |        | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0860        | 0.1046        | 1.3777        | 2.8100e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 233.5556        | 233.5556        | 0.0116        |     |      | 233.7992        |
| <b>Total</b> | <b>0.0860</b> | <b>0.1046</b> | <b>1.3777</b> | <b>2.8100e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>233.5556</b> | <b>233.5556</b> | <b>0.0116</b> |     |      | <b>233.7992</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        |          | 2,669.2864        | 2,669.2864        | 0.6620        |     |      | 2,683.1890        |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> |          | <b>2,669.2864</b> | <b>2,669.2864</b> | <b>0.6620</b> |     |      | <b>2,683.1890</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5340        | 15.8077        | 17.9593        | 0.0393        | 1.1372        | 0.2617        | 1.3988        | 0.3247         | 0.2406        | 0.5653        |          | 3,946.547<br>1         | 3,946.547<br>1         | 0.0284        |     |      | 3,947.143<br>8         |
| Worker       | 1.9917        | 2.4205         | 31.8934        | 0.0651        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 5,406.810<br>9         | 5,406.810<br>9         | 0.2686        |     |      | 5,412.452<br>0         |
| <b>Total</b> | <b>3.5257</b> | <b>18.2281</b> | <b>49.8527</b> | <b>0.1044</b> | <b>6.3124</b> | <b>0.3001</b> | <b>6.6125</b> | <b>1.6972</b>  | <b>0.2759</b> | <b>1.9731</b> |          | <b>9,353.358<br/>0</b> | <b>9,353.358<br/>0</b> | <b>0.2970</b> |     |      | <b>9,359.595<br/>8</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        | 0.0000        | 2,669.286<br>4         | 2,669.286<br>4         | 0.6620        |     |      | 2,683.189<br>0         |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> | <b>0.0000</b> | <b>2,669.286<br/>4</b> | <b>2,669.286<br/>4</b> | <b>0.6620</b> |     |      | <b>2,683.189<br/>0</b> |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.5340        | 15.8077        | 17.9593        | 0.0393        | 1.1372        | 0.2617        | 1.3988        | 0.3247         | 0.2406        | 0.5653        |          | 3,946.5471        | 3,946.5471        | 0.0284        |     |      | 3,947.1438        |
| Worker       | 1.9917        | 2.4205         | 31.8934        | 0.0651        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 5,406.8109        | 5,406.8109        | 0.2686        |     |      | 5,412.4520        |
| <b>Total</b> | <b>3.5257</b> | <b>18.2281</b> | <b>49.8527</b> | <b>0.1044</b> | <b>6.3124</b> | <b>0.3001</b> | <b>6.6125</b> | <b>1.6972</b>  | <b>0.2759</b> | <b>1.9731</b> |          | <b>9,353.3580</b> | <b>9,353.3580</b> | <b>0.2970</b> |     |      | <b>9,359.5958</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        |          | 2,639.8053        | 2,639.8053        | 0.6497        |     |      | 2,653.4490        |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> |          | <b>2,639.8053</b> | <b>2,639.8053</b> | <b>0.6497</b> |     |      | <b>2,653.4490</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.4169        | 14.3743        | 17.0391        | 0.0393        | 1.1372        | 0.2334        | 1.3706        | 0.3247         | 0.2147        | 0.5394        |          | 3,881.6100        | 3,881.6100        | 0.0275        |     |      | 3,882.1866        |
| Worker       | 1.7697        | 2.1702         | 28.6483        | 0.0651        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 5,194.7514        | 5,194.7514        | 0.2463        |     |      | 5,199.9229        |
| <b>Total</b> | <b>3.1866</b> | <b>16.5444</b> | <b>45.6874</b> | <b>0.1044</b> | <b>6.3125</b> | <b>0.2704</b> | <b>6.5829</b> | <b>1.6972</b>  | <b>0.2488</b> | <b>1.9460</b> |          | <b>9,076.3614</b> | <b>9,076.3614</b> | <b>0.2737</b> |     |      | <b>9,082.1094</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        | 0.0000        | 2,639.8053        | 2,639.8053        | 0.6497        |     |      | 2,653.4490        |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> | <b>0.0000</b> | <b>2,639.8053</b> | <b>2,639.8053</b> | <b>0.6497</b> |     |      | <b>2,653.4490</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.4169        | 14.3743        | 17.0391        | 0.0393        | 1.1372        | 0.2334        | 1.3706        | 0.3247         | 0.2147        | 0.5394        |          | 3,881.6100        | 3,881.6100        | 0.0275        |     |      | 3,882.1866        |
| Worker       | 1.7697        | 2.1702         | 28.6483        | 0.0651        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 5,194.7514        | 5,194.7514        | 0.2463        |     |      | 5,199.9229        |
| <b>Total</b> | <b>3.1866</b> | <b>16.5444</b> | <b>45.6874</b> | <b>0.1044</b> | <b>6.3125</b> | <b>0.2704</b> | <b>6.5829</b> | <b>1.6972</b>  | <b>0.2488</b> | <b>1.9460</b> |          | <b>9,076.3614</b> | <b>9,076.3614</b> | <b>0.2737</b> |     |      | <b>9,082.1094</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        |          | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> |          | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0573        | 0.0703        | 0.9281        | 2.1100e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 168.2965        | 168.2965        | 7.9800e-003        |     |      | 168.4640        |
| <b>Total</b> | <b>0.0573</b> | <b>0.0703</b> | <b>0.9281</b> | <b>2.1100e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>168.2965</b> | <b>168.2965</b> | <b>7.9800e-003</b> |     |      | <b>168.4640</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        | 0.0000        | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> | <b>0.0000</b> | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0573        | 0.0703        | 0.9281        | 2.1100e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 168.2965        | 168.2965        | 7.9800e-003        |     | 168.4640        |
| <b>Total</b> | <b>0.0573</b> | <b>0.0703</b> | <b>0.9281</b> | <b>2.1100e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>168.2965</b> | <b>168.2965</b> | <b>7.9800e-003</b> |     | <b>168.4640</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        |          | 281.4481        | 281.4481        | 0.0297        |     | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Worker       | 0.3555        | 0.4359        | 5.7544        | 0.0131        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 1,043.4382        | 1,043.4382        | 0.0495        |     |      | 1,044.4770        |
| <b>Total</b> | <b>0.3555</b> | <b>0.4359</b> | <b>5.7544</b> | <b>0.0131</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>1,043.4382</b> | <b>1,043.4382</b> | <b>0.0495</b> |     |      | <b>1,044.4770</b> |

#### Mitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        | 0.0000        | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Worker       | 0.3555        | 0.4359        | 5.7544        | 0.0131        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 1,043.4382        | 1,043.4382        | 0.0495        |     |      | 1,044.4770        |
| <b>Total</b> | <b>0.3555</b> | <b>0.4359</b> | <b>5.7544</b> | <b>0.0131</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>1,043.4382</b> | <b>1,043.4382</b> | <b>0.0495</b> |     |      | <b>1,044.4770</b> |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Employee Vanpool/Shuttle

Provide Ride Sharing Program

|             | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2       | Total CO2       | CH4    | N2O | CO2e            |
|-------------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------------|-----------------|--------|-----|-----------------|
| Category    | lb/day |         |         |        |               |              |            |                |               |             | lb/day   |                 |                 |        |     |                 |
| Mitigated   | 4.1506 | 20.9694 | 50.6476 | 0.1225 | 6.7109        | 0.3157       | 7.0266     | 1.7998         | 0.2904        | 2.0902      |          | 10,865.55<br>29 | 10,865.55<br>29 | 0.2987 |     | 10,871.82<br>59 |
| Unmitigated | 4.7471 | 28.1870 | 63.8421 | 0.1711 | 9.4644        | 0.4411       | 9.9055     | 2.5382         | 0.4058        | 2.9440      |          | 15,175.81<br>52 | 15,175.81<br>52 | 0.4096 |     | 15,184.41<br>71 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|----------------------------------|-------------------------|----------|--------|-------------|------------|
|                                  | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Other Asphalt Surfaces           | 0.00                    | 0.00     | 0.00   |             |            |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00     | 0.00   |             |            |
| Parking Lot                      | 0.00                    | 0.00     | 0.00   |             |            |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |
| Total                            | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                        | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|------------------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category               | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |             |          |
| NaturalGas Mitigated   | 0.0251 | 0.2286 | 0.1920 | 1.3700e-003 |               | 0.0174       | 0.0174     |                | 0.0174        | 0.0174      |          | 274.2725  | 274.2725  | 5.2600e-003 | 5.0300e-003 | 275.9417 |
| NaturalGas Unmitigated | 0.0357 | 0.3246 | 0.2726 | 1.9500e-003 |               | 0.0247       | 0.0247     |                | 0.0247        | 0.0247      |          | 389.4779  | 389.4779  | 7.4600e-003 | 7.1400e-003 | 391.8482 |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |        |        |
|----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|--------|--------|
| Land Use                         | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |        |        |
| Parking Lot                      | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 |        |
| Unrefrigerated Warehouse-No Pail | 3310.56        | 0.0357        | 0.3246        | 0.2726        | 1.9500e-003        |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779        | 389.4779        | 7.4600e-003        | 7.1400e-003        | 391.8482        |        |        |
| Other Asphalt Surfaces           | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 | 0.0000 |
| <b>Total</b>                     |                | <b>0.0357</b> | <b>0.3246</b> | <b>0.2726</b> | <b>1.9500e-003</b> |               | <b>0.0247</b> | <b>0.0247</b> |                | <b>0.0247</b> | <b>0.0247</b> |          | <b>389.4779</b> | <b>389.4779</b> | <b>7.4600e-003</b> | <b>7.1400e-003</b> | <b>391.8482</b> |        |        |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                   | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |
|-----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|
| Land Use                          | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |
| Unrefrigerated Warehouse-No Paint | 2.33132        | 0.0251        | 0.2286        | 0.1920        | 1.3700e-003        |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725        | 274.2725        | 5.2600e-003        | 5.0300e-003        | 275.9417        |
| Other Asphalt Surfaces            | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces        | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Parking Lot                       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| <b>Total</b>                      |                | <b>0.0251</b> | <b>0.2286</b> | <b>0.1920</b> | <b>1.3700e-003</b> |               | <b>0.0174</b> | <b>0.0174</b> |                | <b>0.0174</b> | <b>0.0174</b> |          | <b>274.2725</b> | <b>274.2725</b> | <b>5.2600e-003</b> | <b>5.0300e-003</b> | <b>275.9417</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e   |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category    | lb/day  |             |        |             |               |              |             |                |               |             | lb/day   |           |           |             |     |        |
| Mitigated   | 22.6916 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |
| Unmitigated | 24.8427 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 2.9835         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>24.8427</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 0.8324         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>22.6916</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy  
 Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## **10.0 Vegetation**

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**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Winter**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

## Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total    | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|----------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |                | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9090         | 74.9255         | 66.4063         | 0.1251        | 6.8407         | 3.5859        | 10.4266        | 3.4338         | 3.2990        | 6.7328         | 0.0000        | 11,507.84<br>41         | 11,507.84<br>41         | 1.9466        | 0.0000        | 11,548.72<br>25         |
| 2017         | 62.2894        | 63.8461         | 77.7740         | 0.1492        | 6.4802         | 3.1934        | 9.6736         | 1.7417         | 2.9722        | 4.7139         | 0.0000        | 13,654.34<br>96         | 13,654.34<br>96         | 1.6312        | 0.0000        | 13,688.60<br>39         |
| <b>Total</b> | <b>69.1984</b> | <b>138.7716</b> | <b>144.1803</b> | <b>0.2743</b> | <b>13.3209</b> | <b>6.7793</b> | <b>20.1002</b> | <b>5.1754</b>  | <b>6.2713</b> | <b>11.4467</b> | <b>0.0000</b> | <b>25,162.19<br/>37</b> | <b>25,162.19<br/>37</b> | <b>3.5778</b> | <b>0.0000</b> | <b>25,237.32<br/>64</b> |

#### Mitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |               | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9090         | 74.9255         | 66.4063         | 0.1251        | 6.3124         | 3.5859        | 8.5825         | 1.6972         | 3.2990        | 4.6744        | 0.0000        | 11,507.84<br>41         | 11,507.84<br>41         | 1.9466        | 0.0000        | 11,548.72<br>25         |
| 2017         | 62.2894        | 63.8461         | 77.7740         | 0.1492        | 6.4802         | 3.1934        | 9.6736         | 1.7417         | 2.9722        | 4.7139        | 0.0000        | 13,654.34<br>96         | 13,654.34<br>96         | 1.6312        | 0.0000        | 13,688.60<br>39         |
| <b>Total</b> | <b>69.1984</b> | <b>138.7716</b> | <b>144.1803</b> | <b>0.2743</b> | <b>12.7926</b> | <b>6.7793</b> | <b>18.2561</b> | <b>3.4388</b>  | <b>6.2713</b> | <b>9.3883</b> | <b>0.0000</b> | <b>25,162.19<br/>37</b> | <b>25,162.19<br/>37</b> | <b>3.5778</b> | <b>0.0000</b> | <b>25,237.32<br/>64</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 3.97          | 0.00         | 9.17       | 33.55          | 0.00          | 17.98       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 24.8427        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0357         | 0.3246         | 0.2726         | 1.9500e-003   |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779           | 389.4779           | 7.4600e-003   | 7.1400e-003        | 391.8482           |
| Mobile       | 4.6788         | 29.3064        | 61.0710        | 0.1620        | 9.4644        | 0.4428        | 9.9072        | 2.5382         | 0.4074        | 2.9456        |          | 14,437.3991        | 14,437.3991        | 0.4106        |                    | 14,446.0207        |
| <b>Total</b> | <b>29.5572</b> | <b>29.6321</b> | <b>61.4608</b> | <b>0.1640</b> | <b>9.4644</b> | <b>0.4679</b> | <b>9.9323</b> | <b>2.5382</b>  | <b>0.4325</b> | <b>2.9707</b> |          | <b>14,827.1234</b> | <b>14,827.1234</b> | <b>0.4187</b> | <b>7.1400e-003</b> | <b>14,838.1298</b> |

### Mitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 22.6916        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0251         | 0.2286         | 0.1920         | 1.3700e-003   |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725           | 274.2725           | 5.2600e-003   | 5.0300e-003        | 275.9417           |
| Mobile       | 4.1074         | 21.7438        | 49.8400        | 0.1160        | 6.7109        | 0.3174        | 7.0283        | 1.7998         | 0.2920        | 2.0918        |          | 10,333.6888        | 10,333.6888        | 0.2997        |                    | 10,339.9814        |
| <b>Total</b> | <b>26.8242</b> | <b>21.9735</b> | <b>50.1491</b> | <b>0.1174</b> | <b>6.7109</b> | <b>0.3352</b> | <b>7.0461</b> | <b>1.7998</b>  | <b>0.3098</b> | <b>2.1096</b> |          | <b>10,608.2078</b> | <b>10,608.2078</b> | <b>0.3056</b> | <b>5.0300e-003</b> | <b>10,616.1840</b> |

|                   | ROG  | NOx   | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e  |
|-------------------|------|-------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|-------|
| Percent Reduction | 9.25 | 25.85 | 18.40 | 28.40 | 29.09         | 28.36        | 29.06      | 29.09          | 28.37         | 28.99       | 0.00     | 28.45    | 28.45     | 27.01 | 29.55 | 28.45 |

### 3.0 Construction Detail

#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 25.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Fugitive Dust |               |                |                |               | 0.5359        | 0.0000        | 0.5359        | 0.0811         | 0.0000        | 0.0811        |          |                        | 0.0000                 |               |     | 0.0000                 |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        |          | 4,089.284<br>1         | 4,089.284<br>1         | 1.1121        |     | 4,112.637<br>4         |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.5359</b> | <b>2.2921</b> | <b>2.8280</b> | <b>0.0811</b>  | <b>2.1365</b> | <b>2.2177</b> |          | <b>4,089.284<br/>1</b> | <b>4,089.284<br/>1</b> | <b>1.1121</b> |     | <b>4,112.637<br/>4</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0444        | 0.7071        | 0.5356        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0536        | 0.0118         | 9.7500e-003   | 0.0215        |          | 181.8462        | 181.8462        | 1.3200e-003   |     |      | 181.8740        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0606        | 0.0838        | 0.8837        | 1.9200e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 159.5607        | 159.5607        | 8.7000e-003   |     |      | 159.7434        |
| <b>Total</b> | <b>0.1050</b> | <b>0.7909</b> | <b>1.4193</b> | <b>3.7300e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>341.4069</b> | <b>341.4069</b> | <b>0.0100</b> |     |      | <b>341.6174</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e   |                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|--------|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |        |                   |
| Fugitive Dust |               |                |                |               | 0.2090        | 0.0000        | 0.2090        | 0.0316         | 0.0000        | 0.0316        |               |                   | 0.0000            |               |     | 0.0000 |                   |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        | 0.0000        | 4,089.2841        | 4,089.2841        | 1.1121        |     |        | 4,112.6374        |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.2090</b> | <b>2.2921</b> | <b>2.5011</b> | <b>0.0316</b>  | <b>2.1365</b> | <b>2.1682</b> | <b>0.0000</b> | <b>4,089.2841</b> | <b>4,089.2841</b> | <b>1.1121</b> |     |        | <b>4,112.6374</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0444        | 0.7071        | 0.5356        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0536        | 0.0118         | 9.7500e-003   | 0.0215        |          | 181.8462        | 181.8462        | 1.3200e-003   |     | 181.8740        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0606        | 0.0838        | 0.8837        | 1.9200e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 159.5607        | 159.5607        | 8.7000e-003   |     | 159.7434        |
| <b>Total</b> | <b>0.1050</b> | <b>0.7909</b> | <b>1.4193</b> | <b>3.7300e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>341.4069</b> | <b>341.4069</b> | <b>0.0100</b> |     | <b>341.6174</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |                |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 6.6171        | 0.0000        | 6.6171         | 3.3745         | 0.0000        | 3.3745        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842         |                | 3.2975        | 3.2975        |          | 6,414.9807        | 6,414.9807        | 1.9350        |     | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>6.6171</b> | <b>3.5842</b> | <b>10.2014</b> | <b>3.3745</b>  | <b>3.2975</b> | <b>6.6720</b> |          | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0808        | 0.1117        | 1.1783        | 2.5600e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 212.7476        | 212.7476        | 0.0116        |     | 212.9913        |
| <b>Total</b> | <b>0.0808</b> | <b>0.1117</b> | <b>1.1783</b> | <b>2.5600e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>212.7476</b> | <b>212.7476</b> | <b>0.0116</b> |     | <b>212.9913</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 2.5807        | 0.0000        | 2.5807        | 1.3161         | 0.0000        | 1.3161        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842        |                | 3.2975        | 3.2975        | 0.0000        | 6,414.9807        | 6,414.9807        | 1.9350        |     | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>2.5807</b> | <b>3.5842</b> | <b>6.1649</b> | <b>1.3161</b>  | <b>3.2975</b> | <b>4.6136</b> | <b>0.0000</b> | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0808        | 0.1117        | 1.1783        | 2.5600e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 212.7476        | 212.7476        | 0.0116        |     | 212.9913        |
| <b>Total</b> | <b>0.0808</b> | <b>0.1117</b> | <b>1.1783</b> | <b>2.5600e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>212.7476</b> | <b>212.7476</b> | <b>0.0116</b> |     | <b>212.9913</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |                   |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        |          | 2,669.2864        | 2,669.2864        | 0.6620        |     | 2,683.1890        |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> |          | <b>2,669.2864</b> | <b>2,669.2864</b> | <b>0.6620</b> |     | <b>2,683.1890</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.6320        | 16.2343        | 20.6231        | 0.0391        | 1.1372        | 0.2643        | 1.4014        | 0.3247         | 0.2430        | 0.5677        |          | 3,913.451<br>2         | 3,913.451<br>2         | 0.0293        |     |      | 3,914.065<br>5         |
| Worker       | 1.8708        | 2.5862         | 27.2766        | 0.0592        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 4,925.106<br>5         | 4,925.106<br>5         | 0.2686        |     |      | 4,930.747<br>6         |
| <b>Total</b> | <b>3.5028</b> | <b>18.8205</b> | <b>47.8997</b> | <b>0.0983</b> | <b>6.3124</b> | <b>0.3027</b> | <b>6.6151</b> | <b>1.6972</b>  | <b>0.2783</b> | <b>1.9755</b> |          | <b>8,838.557<br/>7</b> | <b>8,838.557<br/>7</b> | <b>0.2979</b> |     |      | <b>8,844.813<br/>2</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        | 0.0000        | 2,669.286<br>4         | 2,669.286<br>4         | 0.6620        |     |      | 2,683.189<br>0         |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> | <b>0.0000</b> | <b>2,669.286<br/>4</b> | <b>2,669.286<br/>4</b> | <b>0.6620</b> |     |      | <b>2,683.189<br/>0</b> |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.6320        | 16.2343        | 20.6231        | 0.0391        | 1.1372        | 0.2643        | 1.4014        | 0.3247         | 0.2430        | 0.5677        |          | 3,913.451<br>2         | 3,913.451<br>2         | 0.0293        |     |      | 3,914.065<br>5         |
| Worker       | 1.8708        | 2.5862         | 27.2766        | 0.0592        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 4,925.106<br>5         | 4,925.106<br>5         | 0.2686        |     |      | 4,930.747<br>6         |
| <b>Total</b> | <b>3.5028</b> | <b>18.8205</b> | <b>47.8997</b> | <b>0.0983</b> | <b>6.3124</b> | <b>0.3027</b> | <b>6.6151</b> | <b>1.6972</b>  | <b>0.2783</b> | <b>1.9755</b> |          | <b>8,838.557<br/>7</b> | <b>8,838.557<br/>7</b> | <b>0.2979</b> |     |      | <b>8,844.813<br/>2</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        |          | 2,639.805<br>3         | 2,639.805<br>3         | 0.6497        |     |      | 2,653.449<br>0         |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> |          | <b>2,639.805<br/>3</b> | <b>2,639.805<br/>3</b> | <b>0.6497</b> |     |      | <b>2,653.449<br/>0</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5063        | 14.7524        | 19.7001        | 0.0390        | 1.1372        | 0.2356        | 1.3729        | 0.3247         | 0.2167        | 0.5414        |          | 3,848.970<br>4         | 3,848.970<br>4         | 0.0283        |     |      | 3,849.564<br>9         |
| Worker       | 1.6565        | 2.3167         | 24.4264        | 0.0592        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 4,731.235<br>3         | 4,731.235<br>3         | 0.2463        |     |      | 4,736.406<br>7         |
| <b>Total</b> | <b>3.1628</b> | <b>17.0690</b> | <b>44.1265</b> | <b>0.0982</b> | <b>6.3125</b> | <b>0.2726</b> | <b>6.5851</b> | <b>1.6972</b>  | <b>0.2508</b> | <b>1.9480</b> |          | <b>8,580.205<br/>7</b> | <b>8,580.205<br/>7</b> | <b>0.2746</b> |     |      | <b>8,585.971<br/>7</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        | 0.0000        | 2,639.805<br>3         | 2,639.805<br>3         | 0.6497        |     |      | 2,653.449<br>0         |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> | <b>0.0000</b> | <b>2,639.805<br/>3</b> | <b>2,639.805<br/>3</b> | <b>0.6497</b> |     |      | <b>2,653.449<br/>0</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5063        | 14.7524        | 19.7001        | 0.0390        | 1.1372        | 0.2356        | 1.3729        | 0.3247         | 0.2167        | 0.5414        |          | 3,848.970<br>4         | 3,848.970<br>4         | 0.0283        |     |      | 3,849.564<br>9         |
| Worker       | 1.6565        | 2.3167         | 24.4264        | 0.0592        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 4,731.235<br>3         | 4,731.235<br>3         | 0.2463        |     |      | 4,736.406<br>7         |
| <b>Total</b> | <b>3.1628</b> | <b>17.0690</b> | <b>44.1265</b> | <b>0.0982</b> | <b>6.3125</b> | <b>0.2726</b> | <b>6.5851</b> | <b>1.6972</b>  | <b>0.2508</b> | <b>1.9480</b> |          | <b>8,580.205<br/>7</b> | <b>8,580.205<br/>7</b> | <b>0.2746</b> |     |      | <b>8,585.971<br/>7</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        |          | 2,281.058<br>8         | 2,281.058<br>8         | 0.6989        |     |      | 2,295.736<br>0         |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                        | 0.0000                 |               |     |      | 0.0000                 |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> |          | <b>2,281.058<br/>8</b> | <b>2,281.058<br/>8</b> | <b>0.6989</b> |     |      | <b>2,295.736<br/>0</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0537        | 0.0751        | 0.7914        | 1.9200e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 153.2798        | 153.2798        | 7.9800e-003        |     |      | 153.4473        |
| <b>Total</b> | <b>0.0537</b> | <b>0.0751</b> | <b>0.7914</b> | <b>1.9200e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>153.2798</b> | <b>153.2798</b> | <b>7.9800e-003</b> |     |      | <b>153.4473</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        | 0.0000        | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> | <b>0.0000</b> | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0537        | 0.0751        | 0.7914        | 1.9200e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 153.2798        | 153.2798        | 7.9800e-003        |     |      | 153.4473        |
| <b>Total</b> | <b>0.0537</b> | <b>0.0751</b> | <b>0.7914</b> | <b>1.9200e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>153.2798</b> | <b>153.2798</b> | <b>7.9800e-003</b> |     |      | <b>153.4473</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        |          | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.3327        | 0.4653        | 4.9064        | 0.0119        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 950.3345        | 950.3345        | 0.0495        |     |      | 951.3733        |
| <b>Total</b> | <b>0.3327</b> | <b>0.4653</b> | <b>4.9064</b> | <b>0.0119</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>950.3345</b> | <b>950.3345</b> | <b>0.0495</b> |     |      | <b>951.3733</b> |

#### Mitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        | 0.0000        | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.3327        | 0.4653        | 4.9064        | 0.0119        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 950.3345        | 950.3345        | 0.0495        |     |      | 951.3733        |
| <b>Total</b> | <b>0.3327</b> | <b>0.4653</b> | <b>4.9064</b> | <b>0.0119</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>950.3345</b> | <b>950.3345</b> | <b>0.0495</b> |     |      | <b>951.3733</b> |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Employee Vanpool/Shuttle

Provide Ride Sharing Program

|             | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2   | Total CO2   | CH4    | N2O | CO2e        |
|-------------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-------------|-------------|--------|-----|-------------|
| Category    | lb/day |         |         |        |               |              |            |                |               |             | lb/day   |             |             |        |     |             |
| Mitigated   | 4.1074 | 21.7438 | 49.8400 | 0.1160 | 6.7109        | 0.3174       | 7.0283     | 1.7998         | 0.2920        | 2.0918      |          | 10,333.6888 | 10,333.6888 | 0.2997 |     | 10,339.9814 |
| Unmitigated | 4.6788 | 29.3064 | 61.0710 | 0.1620 | 9.4644        | 0.4428       | 9.9072     | 2.5382         | 0.4074        | 2.9456      |          | 14,437.3991 | 14,437.3991 | 0.4106 |     | 14,446.0207 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|----------------------------------|-------------------------|----------|--------|-------------|------------|
|                                  | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Other Asphalt Surfaces           | 0.00                    | 0.00     | 0.00   |             |            |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00     | 0.00   |             |            |
| Parking Lot                      | 0.00                    | 0.00     | 0.00   |             |            |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |
| Total                            | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                        | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|------------------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category               | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |             |          |
| NaturalGas Mitigated   | 0.0251 | 0.2286 | 0.1920 | 1.3700e-003 |               | 0.0174       | 0.0174     |                | 0.0174        | 0.0174      |          | 274.2725  | 274.2725  | 5.2600e-003 | 5.0300e-003 | 275.9417 |
| NaturalGas Unmitigated | 0.0357 | 0.3246 | 0.2726 | 1.9500e-003 |               | 0.0247       | 0.0247     |                | 0.0247        | 0.0247      |          | 389.4779  | 389.4779  | 7.4600e-003 | 7.1400e-003 | 391.8482 |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |        |        |
|----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|--------|--------|
| Land Use                         | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |        |        |
| Parking Lot                      | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 |        |
| Unrefrigerated Warehouse-No Pail | 3310.56        | 0.0357        | 0.3246        | 0.2726        | 1.9500e-003        |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779        | 389.4779        | 7.4600e-003        | 7.1400e-003        | 391.8482        |        |        |
| Other Asphalt Surfaces           | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 | 0.0000 |
| <b>Total</b>                     |                | <b>0.0357</b> | <b>0.3246</b> | <b>0.2726</b> | <b>1.9500e-003</b> |               | <b>0.0247</b> | <b>0.0247</b> |                | <b>0.0247</b> | <b>0.0247</b> |          | <b>389.4779</b> | <b>389.4779</b> | <b>7.4600e-003</b> | <b>7.1400e-003</b> | <b>391.8482</b> |        |        |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                   | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |
|-----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|
| Land Use                          | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |
| Parking Lot                       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Unrefrigerated Warehouse-No Paint | 2.33132        | 0.0251        | 0.2286        | 0.1920        | 1.3700e-003        |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725        | 274.2725        | 5.2600e-003        | 5.0300e-003        | 275.9417        |
| Other Asphalt Surfaces            | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces        | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| <b>Total</b>                      |                | <b>0.0251</b> | <b>0.2286</b> | <b>0.1920</b> | <b>1.3700e-003</b> |               | <b>0.0174</b> | <b>0.0174</b> |                | <b>0.0174</b> | <b>0.0174</b> |          | <b>274.2725</b> | <b>274.2725</b> | <b>5.2600e-003</b> | <b>5.0300e-003</b> | <b>275.9417</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e   |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category    | lb/day  |             |        |             |               |              |             |                |               |             | lb/day   |           |           |             |     |        |
| Mitigated   | 22.6916 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |
| Unmitigated | 24.8427 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 2.9835         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>24.8427</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 0.8324         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>22.6916</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy  
 Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## **10.0 Vegetation**

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**APPENDIX C**

**AERMOD Model Printouts**

## Emission Assumptions

DPM

Emissions

Waterman

### Facility Operations

Buildout year:

2017

### Emission Factors

#### 1) Onsite Vehicle Emissions

##### a) Truck

##### (1) EMFAC2011

##### (a) Annual Meteorology

Temperature: 65 degF

Relative Humidity: 50%

##### (b) Calculations for SB County

##### (c) Truck Mix

4+ axle heavy-heavy duty diesel trucks (HHDT)

4 axle diesel trucks (MHDT)

2 axle diesel trucks (LHDT2)

(d) Onsite Truck Travel Speed: 10 mph

(e) Off-site Truck Travel Speed: 35 mph

(f) Idle speed: 0 mph

(g) Truck Idle time: 15 minutes per truck per day

#### 2) Other Parameters

(a) Width of Volume Source: 12 feet

(b) Truck Operational Schedule: 24 hours/day

|  |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
|--|-----------------------|--------------------------------------|-----------------------------------|---------------------|--------------------------------|--|--|--|----------------------------------|---|---|-----------------|--|
| <b>Waterman</b>                              |                       | <b>Emission:</b>                     | <b>DPM</b>                        |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Processes Modeled</b>                     |                       | <b>Build-out:</b>                    | <b>2017</b>                       |                     |                                |  |  |  |                                  |   |   |                 |  |
| Onsite delivery traffic                      |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| Truck idling                                 |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| Offsite delivery traffic                     |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Facilities in Operation</b>               |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Location</b>                              | <b>Truck type</b>     | <b>Daily trucks</b>                  |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| North and south side of building             | HHDT                  | 117                                  |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| North and south side of building             | MHDT                  | 44                                   |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| North and south side of building             | LHDT                  | 33                                   |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Total</b>                                 |                       | <b>194</b>                           |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Delivery Schedule:</b>                    |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| Waterman                                     |                       | 24 hrs/day, 52weeks/year             |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Emission Factors</b>                      |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
|  | <b>Onsite Exhaust</b> | <b>Offsite Exhaust</b>               | <b>Idle</b>                       |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Vehicle Class</b>                         | <b>(g/mi)</b>         | <b>(g/mi)</b>                        | <b>(g/hr)</b>                     |                     |                                |  |  |  |                                  |   |   |                 |  |
| HHDT   | 0.0711                | 0.05587                              | 0.103                             |                     |                                |  |  |  |                                  |   |   |                 |  |
| MHDT   | 0.03793               | 0.02879                              | 0.091                             |                     |                                |  |  |  |                                  |   |   |                 |  |
| LHDT   | 0.04865               | 0.019098                             | 0.0185                            |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Onsite Roadway Links Modeled</b>          |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Link</b>                                  | <b>Truck Type</b>     | <b>Emission Factor (g/mi)</b>        | <b>Trips per day (in and out)</b> | <b>Length (m)</b>   | <b>Length (mi)</b>             | <b>Daily Emissions Over the Link (g/day)</b> | <b>Emissions Over the Link (g/sec)</b> | <b>Emissions Over Link (lb/hr)</b>     | <b>Daily Emissions (lbs/day)</b> | <b>Annual Avg Emissions Over Link (tons/yr)</b> | <b>Total Daily Emissions for all Vehicles (g/sec)</b> |                 |  |
| Along north side of building                 | HHDT                  | 0.0711                               | 117                               | 221                 | 0.14                           | 1.14E+00                                     | 1.32E-05                               | 9.06E+00                               | 2.52E-03                         | 4.59E-04  |   |                 |  |
| Along north side of building                 | MHDT                  | 0.03793                              | 44                                | 221                 | 0.14                           | 2.29E-01                                     | 2.65E-06                               | 1.82E+00                               | 5.05E-04                         | 9.21E-05  | 1.71E-05  | 50% of trucks   |  |
| Along north side of building                 | LHDT                  | 0.04865                              | 33                                | 221                 | 0.14                           | 2.20E-01                                     | 2.55E-06                               | 1.75E+00                               | 4.85E-04                         | 8.86E-05  |   |                 |  |
| To north side of building from west driveway | HHDT                  | 0.0711                               | 117                               | 62                  | 0.04                           | 3.20E-01                                     | 3.71E-06                               | 2.54E+00                               | 7.06E-04                         | 1.29E-04  |   |                 |  |
| To north side of building from west driveway | MHDT                  | 0.03793                              | 44                                | 62                  | 0.04                           | 6.43E-02                                     | 7.44E-07                               | 5.10E-01                               | 1.42E-04                         | 2.58E-05  | 4.81E-06  | 50% of trucks   |  |
| To north side of building from west driveway | LHDT                  | 0.04865                              | 33                                | 62                  | 0.04                           | 6.18E-02                                     | 7.16E-07                               | 4.90E-01                               | 1.36E-04                         | 2.49E-05  | 6.25E-07  | west exit (13%) |  |
| To north side of building from east driveway | HHDT                  | 0.0711                               | 117                               | 12.4                | 0.01                           | 6.41E-02                                     | 7.42E-07                               | 5.08E-01                               | 1.41E-04                         | 2.58E-05  |   |                 |  |
| To north side of building from east driveway | MHDT                  | 0.03793                              | 44                                | 12.4                | 0.01                           | 1.29E-02                                     | 1.49E-07                               | 1.02E-01                               | 2.83E-05                         | 5.17E-06  | 9.62E-07  | 50% of trucks   |  |
| To north side of building from east driveway | LHDT                  | 0.04865                              | 33                                | 12.4                | 0.01                           | 1.24E-02                                     | 1.43E-07                               | 9.81E-02                               | 2.72E-05                         | 4.97E-06  | 3.56E-07  | east exit (37%) |  |
| To south side of building                    | HHDT                  | 0.0711                               | 117                               | 408.4               | 0.25                           | 2.11E+00                                     | 2.44E-05                               | 1.67E+01                               | 4.65E-03                         | 8.48E-04  |   |                 |  |
| To south side of building                    | MHDT                  | 0.03793                              | 44                                | 408.4               | 0.25                           | 4.23E-01                                     | 4.90E-06                               | 3.36E+00                               | 9.33E-04                         | 1.70E-04  | 3.17E-05  | 50% of trucks   |  |
| To south side of building                    | LHDT                  | 0.04865                              | 33                                | 408.4               | 0.25                           | 4.07E-01                                     | 4.71E-06                               | 3.23E+00                               | 8.97E-04                         | 1.64E-04  |   |                 |  |
| <b>Truck Idling</b>                          |                       |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                 |  |
|  | Idle time             |                                      | 15 minutes                        |                     |                                |  |  |  |                                  |   |   |                 |  |
| <b>Building/Location</b>                     | <b>Truck Type</b>     | <b>Emission Factor (g/Idle-hour)</b> | <b>Idling Time (min)</b>          | <b>Daily Trucks</b> | <b>Total Emissions (g/day)</b> | <b>Max Hourly Emissions (g/sec)</b>          | <b>Max Hourly Emissions (lb/hr)</b>    | <b>Total Daily Emissions (lbs/day)</b> | <b>Total Emissions (tons/yr)</b> | <b>Total Emissions (tons/yr)</b>                |   |                 |  |
| To south side of building                    | HHDT                  | 0.103                                | 15                                | 117                 | 3.01                           | 3.49E-05                                     | 2.77E-04                               | 6.64E-03                               | 1.21E-03                         |   |   |                 |  |
| To south side of building                    | MHDT                  | 0.091                                | 15                                | 44                  | 1.00                           | 1.16E-05                                     | 9.19E-05                               | 2.20E-03                               | 4.02E-04                         | 2.41E-05  | 50% each side   |                 |  |
| To south side of building                    | LHDT                  | 0.0185                               | 15                                | 33                  | 0.15                           | 1.77E-06                                     | 1.40E-05                               | 3.36E-04                               | 6.14E-05                         | 8.04E-06  | per idling location                                   |                 |  |

| Offsite Roadway Links Modeled        |            |                        |               |            |             |                                       |                                 |  |                           |  |               |          |
|--------------------------------------|------------|------------------------|---------------|------------|-------------|---------------------------------------|---------------------------------|--|---------------------------|--|---------------|----------|
| Link                                 | Truck Type | Emission Factor (g/mi) | Trips per day | Length (m) | Length (mi) | Daily Emissions Over the Link (g/day) | Emissions Over the Link (g/sec) | Max Hourly Emissions Over Link (lb/hr) | Daily Emissions (lbs/day) | Annual Avg Emissions Over Link (tons/yr) |               |          |
| East Dwy on Dumas St to Waterman Ave | HHDT       | 0.05587                | 117           | 107.8      | 0.07        | 4.38E-01                              | 5.07E-06                        | 3.47E+00                               | 9.64E-04                  | 1.76E-04                                 | 50% of trucks |          |
| East Dwy on Dumas St to Waterman Ave | MHDT       | 0.02879                | 44            | 107.8      | 0.07        | 8.48E-02                              | 9.82E-07                        | 6.73E-01                               | 1.87E-04                  | 3.41E-05                                 |               | 3.27E-06 |
| East Dwy on Dumas St to Waterman Ave | LHDT       | 0.019098               | 33            | 107.8      | 0.07        | 4.22E-02                              | 4.88E-07                        | 3.35E-01                               | 9.30E-05                  | 1.70E-05                                 |               |          |
| West Dwy to East Dwy (Dumas St)      | HHDT       | 0.05587                | 117           | 250.8      | 0.16        | 1.02E+00                              | 1.18E-05                        | 8.08E+00                               | 2.24E-03                  | 4.09E-04                                 | 13% of trucks |          |
| West Dwy to East Dwy (Dumas St)      | MHDT       | 0.02879                | 44            | 250.8      | 0.16        | 1.97E-01                              | 2.28E-06                        | 1.56E+00                               | 4.35E-04                  | 7.93E-05                                 |               | 1.98E-06 |
| West Dwy to East Dwy (Dumas St)      | LHDT       | 0.019098               | 33            | 250.8      | 0.16        | 9.82E-02                              | 1.14E-06                        | 7.79E-01                               | 2.16E-04                  | 3.95E-05                                 |               |          |
| Waterman driveway NB to Orange Show  | HHDT       | 0.05587                | 117           | 345.9      | 0.21        | 1.40E+00                              | 1.63E-05                        | 1.11E+01                               | 3.09E-03                  | 5.65E-04                                 | 60% of trucks |          |
| Waterman driveway NB to Orange Show  | MHDT       | 0.02879                | 44            | 345.9      | 0.21        | 2.72E-01                              | 3.15E-06                        | 2.16E+00                               | 6.00E-04                  | 1.09E-04                                 |               | 1.26E-05 |
| Waterman driveway NB to Orange Show  | LHDT       | 0.019098               | 33            | 345.9      | 0.21        | 1.35E-01                              | 1.57E-06                        | 1.07E+00                               | 2.98E-04                  | 5.44E-05                                 |               |          |
| Orange Show WB from Waterman         | HHDT       | 0.05587                | 117           | 1007.6     | 0.63        | 4.09E+00                              | 4.74E-05                        | 3.24E+01                               | 9.01E-03                  | 1.64E-03                                 | 40% of trucks |          |
| Orange Show WB from Waterman         | MHDT       | 0.02879                | 44            | 1007.6     | 0.63        | 7.93E-01                              | 9.18E-06                        | 6.29E+00                               | 1.75E-03                  | 3.19E-04                                 |               | 2.44E-05 |
| Orange Show WB from Waterman         | LHDT       | 0.019098               | 33            | 1007.6     | 0.63        | 3.94E-01                              | 4.57E-06                        | 3.13E+00                               | 8.69E-04                  | 1.59E-04                                 |               |          |
| Orange Show EB from Waterman         | HHDT       | 0.05587                | 117           | 619.5      | 0.38        | 2.52E+00                              | 2.91E-05                        | 1.99E+01                               | 5.54E-03                  | 1.01E-03                                 | 10% of trucks |          |
| Orange Show EB from Waterman         | MHDT       | 0.02879                | 44            | 619.5      | 0.38        | 4.88E-01                              | 5.64E-06                        | 3.87E+00                               | 1.07E-03                  | 1.96E-04                                 |               | 3.76E-06 |
| Orange Show EB from Waterman         | LHDT       | 0.019098               | 33            | 619.5      | 0.38        | 2.43E-01                              | 2.81E-06                        | 1.92E+00                               | 5.34E-04                  | 9.75E-05                                 |               |          |
| Waterman Ave N/O Orange Show         | HHDT       | 0.05587                | 117           | 390.6      | 0.24        | 1.59E+00                              | 1.84E-05                        | 1.26E+01                               | 3.49E-03                  | 6.38E-04                                 | 10% of trucks |          |
| Waterman Ave N/O Orange Show         | MHDT       | 0.02879                | 44            | 390.6      | 0.24        | 3.07E-01                              | 3.56E-06                        | 2.44E+00                               | 6.77E-04                  | 1.24E-04                                 |               | 2.37E-06 |
| Waterman Ave N/O Orange Show         | LHDT       | 0.019098               | 33            | 390.6      | 0.24        | 1.53E-01                              | 1.77E-06                        | 1.21E+00                               | 3.37E-04                  | 6.15E-05                                 |               |          |
| Waterman driveway SB toward I-10 fwy | HHDT       | 0.05587                | 117           | 746.1      | 0.46        | 3.03E+00                              | 3.51E-05                        | 2.40E+01                               | 6.67E-03                  | 1.22E-03                                 | 40% of trucks |          |
| Waterman driveway SB toward I-10 fwy | MHDT       | 0.02879                | 44            | 746.1      | 0.46        | 5.87E-01                              | 6.80E-06                        | 4.66E+00                               | 1.29E-03                  | 2.36E-04                                 |               | 1.81E-05 |
| Waterman driveway SB toward I-10 fwy | LHDT       | 0.019098               | 33            | 746.1      | 0.46        | 2.92E-01                              | 3.38E-06                        | 2.32E+00                               | 6.43E-04                  | 1.17E-04                                 |               |          |

PROJECT TITLE:

**Waterman**

**Locations of sources and receptors**

COMMENTS:

SOURCES:

**17**

RECEPTORS:

**457**

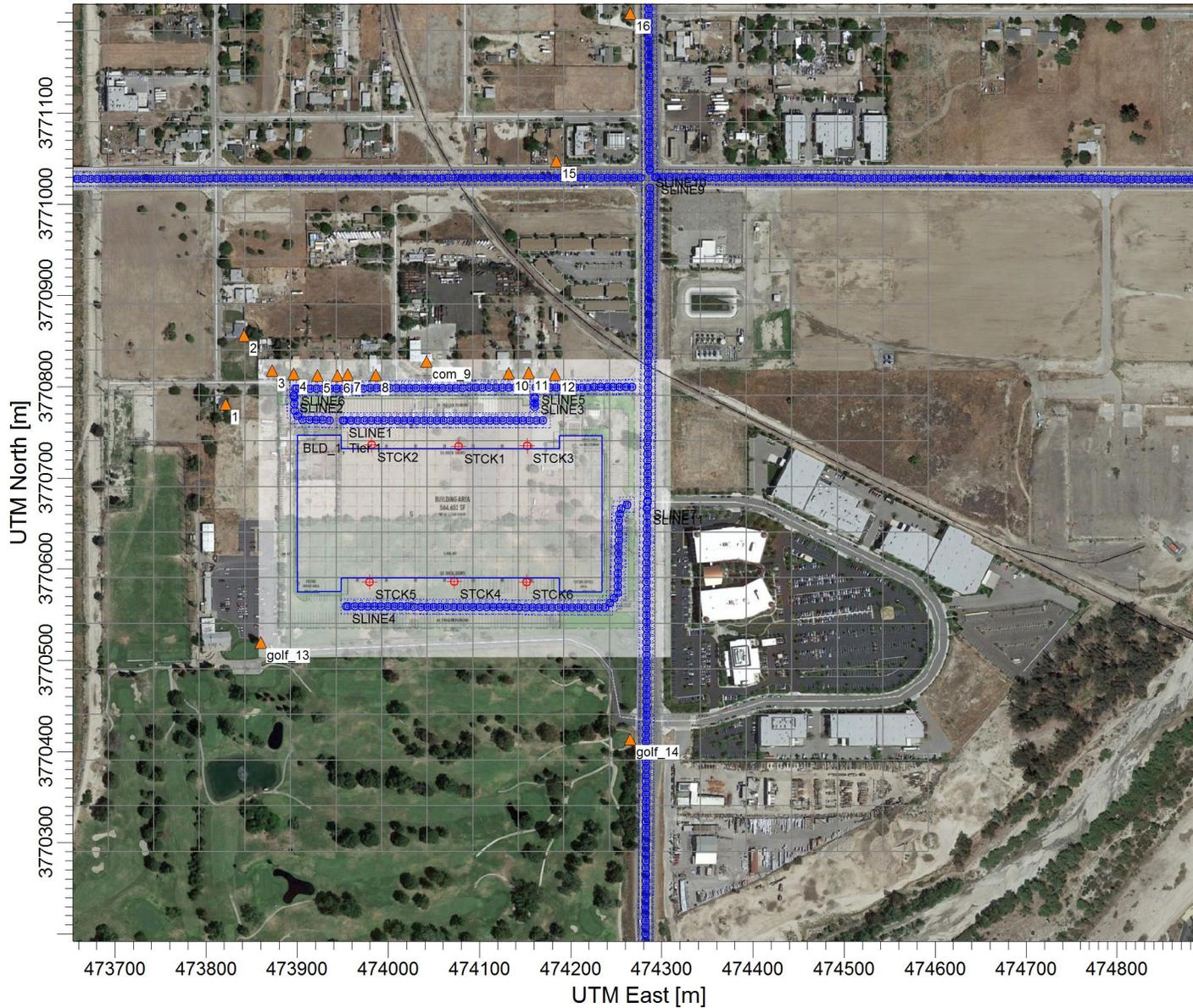
DATE:

**9/21/2015**

SCALE: 1:7,000

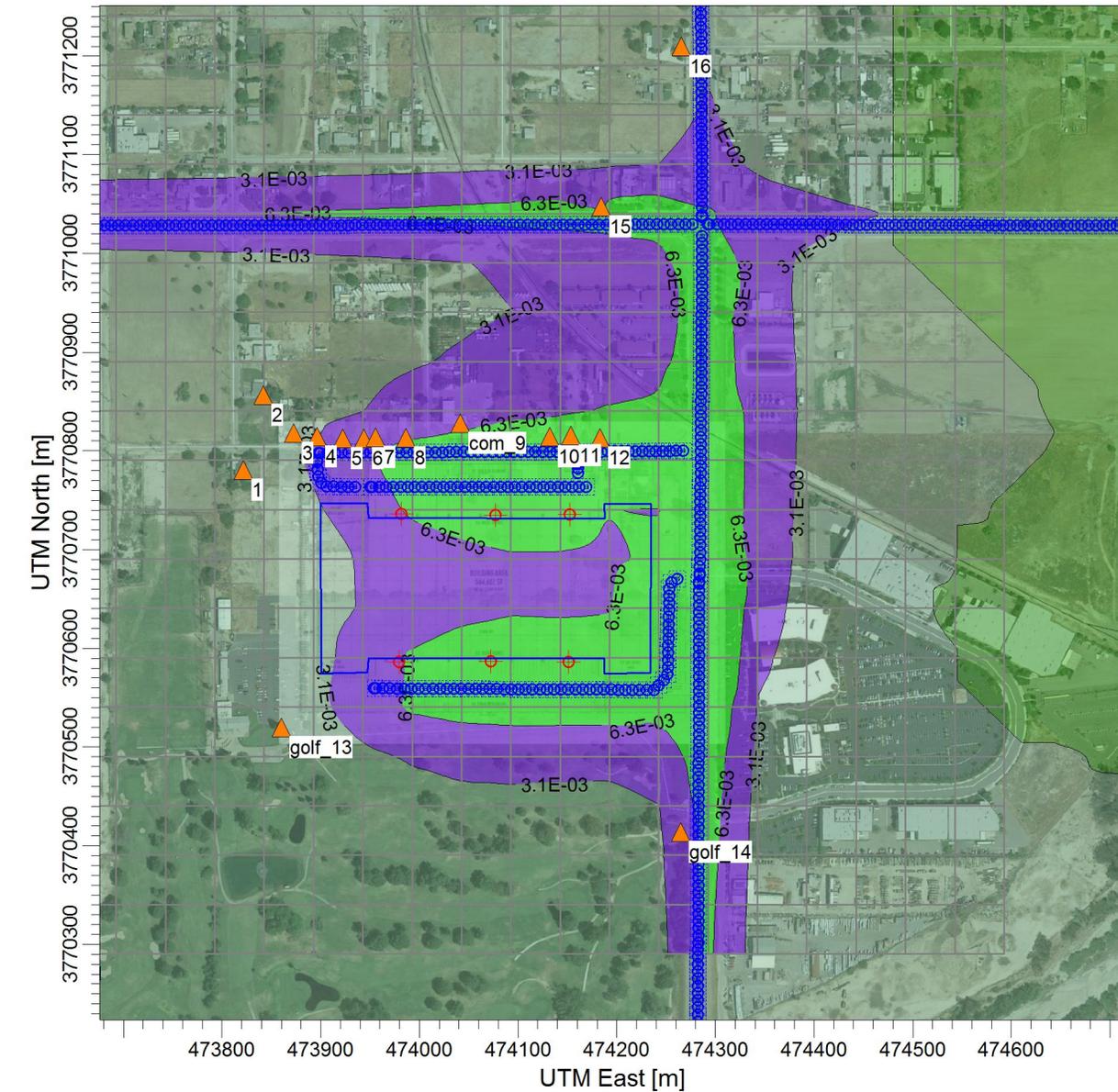
0  0.2 km

PROJECT NO.:



PROJECT TITLE:

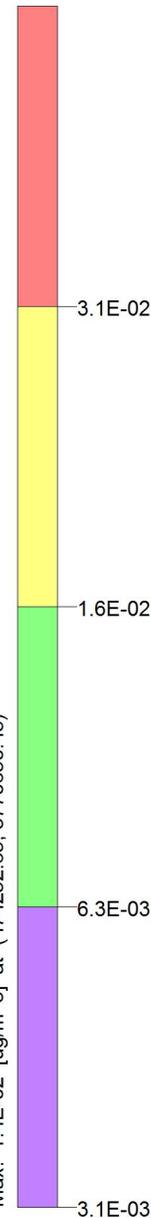
### Waterman DPM Concentrations



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL

Max: 1.4E-02 [ug/m<sup>3</sup>] at (474292.69, 3770690.45)



COMMENTS:

Cancer Risk:  
Red = 10 in 1 million  
Yellow = 5 in 1 million  
Green = 2 in 1 million  
Purple = 1 in 1 million

SOURCES:

**17**

RECEPTORS:

**457**

OUTPUT TYPE:

**Concentration**

MAX:

**1.4E-02 ug/m<sup>3</sup>**

DATE:

**9/21/2015**

SCALE:

1:7,000

0



PROJECT NO.:

**5629b**

```

** Lakes Environmental AERMOD MPI
**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.0.0
** Lakes Environmental Software Inc.
** Date: 9/21/2015
** File: C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.ADI
**
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
CO STARTING
TITLEONE C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc
TITLETWO DPM concentrations onsite, offsite and idling
MODELOPT CONC FASTALL
AVERTIME ANNUAL
URBANOPT 219288 2015_Pop_of_City_of_San_Bernardino
POLLUTID DPM
RUNORNOT RUN
ERRORFIL "5629b Waterman.err"
CO FINISHED
**
*****
** AERMOD Source Pathway
*****
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
LOCATION STCK1 POINT 474076.850 3770734.870 307.000
** DESCRSRC idling north side of building
LOCATION STCK2 POINT 473981.398 3770736.272 306.000
** DESCRSRC idling north side of building
LOCATION STCK3 POINT 474152.095 3770735.393 307.000
** DESCRSRC idling north side of building
LOCATION STCK4 POINT 474072.207 3770586.718 306.000
** DESCRSRC idling south side of building
LOCATION STCK5 POINT 473979.043 3770586.200 306.000
** DESCRSRC idling south side of building
LOCATION STCK6 POINT 474151.397 3770586.200 306.000
** DESCRSRC idling south side of building
** -----
** Line Source Represented by Separated Volume Sources

```

```

** LINE VOLUME Source ID = SLINE1
** DESCRSRC Onsite travel north side of building
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000171
** Elevated
** Building Height = 13.11
** SZINIT = 6.10
** Nodes = 2
** 473950.058, 3770763.212, 306.00, 0.00, 3.37
** 474171.065, 3770763.212, 307.00, 0.00, 3.37

```

```

** -----
LOCATION L0000001    VOLUME  473951.887 3770763.212 306.00
LOCATION L0000002    VOLUME  473959.132 3770763.212 306.00
LOCATION L0000003    VOLUME  473966.377 3770763.212 306.00
LOCATION L0000004    VOLUME  473973.622 3770763.212 306.00
LOCATION L0000005    VOLUME  473980.867 3770763.212 306.02
LOCATION L0000006    VOLUME  473988.112 3770763.212 306.16
LOCATION L0000007    VOLUME  473995.357 3770763.212 306.29
LOCATION L0000008    VOLUME  474002.602 3770763.212 306.43
LOCATION L0000009    VOLUME  474009.847 3770763.212 306.56
LOCATION L0000010    VOLUME  474017.092 3770763.212 306.67
LOCATION L0000011    VOLUME  474024.337 3770763.212 306.77
LOCATION L0000012    VOLUME  474031.582 3770763.212 306.88
LOCATION L0000013    VOLUME  474038.827 3770763.212 306.99
LOCATION L0000014    VOLUME  474046.072 3770763.212 307.00
LOCATION L0000015    VOLUME  474053.317 3770763.212 307.00
LOCATION L0000016    VOLUME  474060.562 3770763.212 307.00
LOCATION L0000017    VOLUME  474067.807 3770763.212 307.00
LOCATION L0000018    VOLUME  474075.051 3770763.212 307.00
LOCATION L0000019    VOLUME  474082.296 3770763.212 307.00
LOCATION L0000020    VOLUME  474089.541 3770763.212 307.00
LOCATION L0000021    VOLUME  474096.786 3770763.212 307.00
LOCATION L0000022    VOLUME  474104.031 3770763.212 307.00
LOCATION L0000023    VOLUME  474111.276 3770763.212 307.00
LOCATION L0000024    VOLUME  474118.521 3770763.212 307.00
LOCATION L0000025    VOLUME  474125.766 3770763.212 307.00
LOCATION L0000026    VOLUME  474133.011 3770763.212 307.00
LOCATION L0000027    VOLUME  474140.256 3770763.212 307.00
LOCATION L0000028    VOLUME  474147.501 3770763.212 307.00
LOCATION L0000029    VOLUME  474154.746 3770763.212 307.00
LOCATION L0000030    VOLUME  474161.991 3770763.212 307.00
LOCATION L0000031    VOLUME  474169.236 3770763.212 307.00

```

```

** End of LINE VOLUME Source ID = SLINE1
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Onsite travel from west driveway to docks
** PREFIX
** Length of Side = 3.66

```

```

** Configuration = Separated
** Emission Rate = 6.25E-07
** Elevated
** Building Height = 13.11
** SZINIT = 6.10
** Nodes = 4
** 473896.411, 3770790.454, 306.00, 0.00, 3.39
** 473897.330, 3770772.540, 306.00, 0.00, 3.39
** 473903.071, 3770764.043, 306.00, 0.00, 3.39
** 473936.831, 3770763.354, 306.00, 0.00, 3.39
** -----
LOCATION L0001177      VOLUME  473896.505 3770788.627 306.00
LOCATION L0001178      VOLUME  473896.878 3770781.349 306.00
LOCATION L0001179      VOLUME  473897.251 3770774.071 306.00
LOCATION L0001180      VOLUME  473900.552 3770767.772 306.00
LOCATION L0001181      VOLUME  473905.858 3770763.986 306.00
LOCATION L0001182      VOLUME  473913.144 3770763.838 306.00
LOCATION L0001183      VOLUME  473920.430 3770763.689 306.00
LOCATION L0001184      VOLUME  473927.716 3770763.540 306.00
LOCATION L0001185      VOLUME  473935.002 3770763.392 306.00
** End of LINE VOLUME Source ID = SLINE2
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Onsite travel from east driveway to northern docks
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 3.56E-07
** Elevated
** Vertical Dimension = 3.66
** SZINIT = 0.85
** Nodes = 2
** 474160.287, 3770788.387, 307.00, 0.00, 2.03
** 474160.516, 3770775.985, 307.00, 0.00, 2.03
** -----
LOCATION L0000041      VOLUME  474160.321 3770786.558 307.01
LOCATION L0000042      VOLUME  474160.402 3770782.186 307.00
LOCATION L0000043      VOLUME  474160.483 3770777.814 307.00
** End of LINE VOLUME Source ID = SLINE3
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC Onsite travel to docks on south side of building
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000317
** Elevated
** Building Height = 13.11
** SZINIT = 6.10

```

\*\* Nodes = 5

\*\* 473953.839, 3770559.348, 306.00, 0.00, 3.36

\*\* 474238.055, 3770557.852, 306.00, 0.00, 3.36

\*\* 474251.517, 3770572.437, 306.00, 0.00, 3.36

\*\* 474253.387, 3770665.181, 307.00, 0.00, 3.36

\*\* 474263.111, 3770671.538, 307.00, 0.00, 3.36

\*\*

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|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000044 | VOLUME | 473955.667 | 3770559.338 | 306.00 |
| LOCATION | L0000045 | VOLUME | 473962.896 | 3770559.300 | 306.00 |
| LOCATION | L0000046 | VOLUME | 473970.124 | 3770559.262 | 306.00 |
| LOCATION | L0000047 | VOLUME | 473977.352 | 3770559.224 | 306.00 |
| LOCATION | L0000048 | VOLUME | 473984.581 | 3770559.186 | 306.00 |
| LOCATION | L0000049 | VOLUME | 473991.809 | 3770559.148 | 306.00 |
| LOCATION | L0000050 | VOLUME | 473999.037 | 3770559.110 | 306.00 |
| LOCATION | L0000051 | VOLUME | 474006.266 | 3770559.072 | 306.00 |
| LOCATION | L0000052 | VOLUME | 474013.494 | 3770559.034 | 306.00 |
| LOCATION | L0000053 | VOLUME | 474020.722 | 3770558.996 | 306.00 |
| LOCATION | L0000054 | VOLUME | 474027.951 | 3770558.958 | 306.00 |
| LOCATION | L0000055 | VOLUME | 474035.179 | 3770558.920 | 306.00 |
| LOCATION | L0000056 | VOLUME | 474042.407 | 3770558.882 | 306.00 |
| LOCATION | L0000057 | VOLUME | 474049.635 | 3770558.844 | 306.00 |
| LOCATION | L0000058 | VOLUME | 474056.864 | 3770558.806 | 306.00 |
| LOCATION | L0000059 | VOLUME | 474064.092 | 3770558.768 | 306.00 |
| LOCATION | L0000060 | VOLUME | 474071.320 | 3770558.730 | 306.00 |
| LOCATION | L0000061 | VOLUME | 474078.549 | 3770558.691 | 306.00 |
| LOCATION | L0000062 | VOLUME | 474085.777 | 3770558.653 | 306.00 |
| LOCATION | L0000063 | VOLUME | 474093.005 | 3770558.615 | 306.00 |
| LOCATION | L0000064 | VOLUME | 474100.234 | 3770558.577 | 306.00 |
| LOCATION | L0000065 | VOLUME | 474107.462 | 3770558.539 | 306.00 |
| LOCATION | L0000066 | VOLUME | 474114.690 | 3770558.501 | 306.00 |
| LOCATION | L0000067 | VOLUME | 474121.919 | 3770558.463 | 306.00 |
| LOCATION | L0000068 | VOLUME | 474129.147 | 3770558.425 | 306.00 |
| LOCATION | L0000069 | VOLUME | 474136.375 | 3770558.387 | 306.00 |
| LOCATION | L0000070 | VOLUME | 474143.604 | 3770558.349 | 306.00 |
| LOCATION | L0000071 | VOLUME | 474150.832 | 3770558.311 | 306.00 |
| LOCATION | L0000072 | VOLUME | 474158.060 | 3770558.273 | 306.00 |
| LOCATION | L0000073 | VOLUME | 474165.288 | 3770558.235 | 306.00 |
| LOCATION | L0000074 | VOLUME | 474172.517 | 3770558.197 | 306.00 |
| LOCATION | L0000075 | VOLUME | 474179.745 | 3770558.159 | 306.00 |
| LOCATION | L0000076 | VOLUME | 474186.973 | 3770558.121 | 306.00 |
| LOCATION | L0000077 | VOLUME | 474194.202 | 3770558.083 | 306.00 |
| LOCATION | L0000078 | VOLUME | 474201.430 | 3770558.045 | 306.00 |
| LOCATION | L0000079 | VOLUME | 474208.658 | 3770558.007 | 306.00 |
| LOCATION | L0000080 | VOLUME | 474215.887 | 3770557.969 | 306.00 |
| LOCATION | L0000081 | VOLUME | 474223.115 | 3770557.931 | 306.00 |
| LOCATION | L0000082 | VOLUME | 474230.343 | 3770557.893 | 306.00 |
| LOCATION | L0000083 | VOLUME | 474237.572 | 3770557.855 | 306.00 |
| LOCATION | L0000084 | VOLUME | 474242.630 | 3770562.808 | 306.00 |
| LOCATION | L0000085 | VOLUME | 474247.533 | 3770568.120 | 306.00 |
| LOCATION | L0000086 | VOLUME | 474251.545 | 3770573.790 | 306.01 |
| LOCATION | L0000087 | VOLUME | 474251.690 | 3770581.017 | 306.03 |

| LOCATION          | VOLUME | 474251.836 | 3770588.244 | 306.05 |
|-------------------|--------|------------|-------------|--------|
| LOCATION L0000088 | VOLUME | 474251.836 | 3770588.244 | 306.05 |
| LOCATION L0000089 | VOLUME | 474251.982 | 3770595.471 | 306.07 |
| LOCATION L0000090 | VOLUME | 474252.128 | 3770602.698 | 306.27 |
| LOCATION L0000091 | VOLUME | 474252.273 | 3770609.925 | 306.50 |
| LOCATION L0000092 | VOLUME | 474252.419 | 3770617.152 | 306.72 |
| LOCATION L0000093 | VOLUME | 474252.565 | 3770624.379 | 306.94 |
| LOCATION L0000094 | VOLUME | 474252.710 | 3770631.606 | 307.00 |
| LOCATION L0000095 | VOLUME | 474252.856 | 3770638.833 | 307.00 |
| LOCATION L0000096 | VOLUME | 474253.002 | 3770646.059 | 307.00 |
| LOCATION L0000097 | VOLUME | 474253.148 | 3770653.286 | 307.00 |
| LOCATION L0000098 | VOLUME | 474253.293 | 3770660.513 | 307.00 |
| LOCATION L0000099 | VOLUME | 474255.530 | 3770666.582 | 307.00 |
| LOCATION L0000100 | VOLUME | 474261.580 | 3770670.538 | 307.00 |

\*\* End of LINE VOLUME Source ID = SLINE4

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE5

\*\* DESCRSRC Offsite east driveway on Dumas to Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 3.27E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474161.482, 3770799.030, 307.07, 0.00, 3.23

\*\* 474269.243, 3770799.984, 308.00, 0.00, 3.23

\*\* -----

|                   |        |            |             |        |
|-------------------|--------|------------|-------------|--------|
| LOCATION L0000696 | VOLUME | 474163.311 | 3770799.046 | 307.09 |
| LOCATION L0000697 | VOLUME | 474170.251 | 3770799.108 | 307.27 |
| LOCATION L0000698 | VOLUME | 474177.191 | 3770799.169 | 307.44 |
| LOCATION L0000699 | VOLUME | 474184.132 | 3770799.231 | 307.62 |
| LOCATION L0000700 | VOLUME | 474191.072 | 3770799.292 | 307.77 |
| LOCATION L0000701 | VOLUME | 474198.012 | 3770799.354 | 307.83 |
| LOCATION L0000702 | VOLUME | 474204.952 | 3770799.415 | 307.89 |
| LOCATION L0000703 | VOLUME | 474211.893 | 3770799.476 | 307.94 |
| LOCATION L0000704 | VOLUME | 474218.833 | 3770799.538 | 307.99 |
| LOCATION L0000705 | VOLUME | 474225.773 | 3770799.599 | 308.00 |
| LOCATION L0000706 | VOLUME | 474232.713 | 3770799.661 | 308.00 |
| LOCATION L0000707 | VOLUME | 474239.654 | 3770799.722 | 308.00 |
| LOCATION L0000708 | VOLUME | 474246.594 | 3770799.784 | 308.00 |
| LOCATION L0000709 | VOLUME | 474253.534 | 3770799.845 | 308.00 |
| LOCATION L0000710 | VOLUME | 474260.474 | 3770799.906 | 308.00 |
| LOCATION L0000711 | VOLUME | 474267.415 | 3770799.968 | 308.00 |

\*\* End of LINE VOLUME Source ID = SLINE5

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE6

\*\* DESCRSRC offsite west driveway to east driveway along Dumas

\*\* PREFIX

\*\* Length of Side = 3.66  
\*\* Configuration = Separated  
\*\* Emission Rate = 1.98E-06  
\*\* Elevated  
\*\* Vertical Dimension = 3.66  
\*\* SZINIT = 0.85  
\*\* Nodes = 2  
\*\* 473897.689, 3770798.001, 306.00, 0.00, 3.38  
\*\* 474148.475, 3770799.321, 307.00, 0.00, 3.38

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|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000712 | VOLUME | 473899.518 | 3770798.011 | 306.00 |
| LOCATION | L0000713 | VOLUME | 473906.786 | 3770798.049 | 306.00 |
| LOCATION | L0000714 | VOLUME | 473914.055 | 3770798.087 | 306.00 |
| LOCATION | L0000715 | VOLUME | 473921.323 | 3770798.125 | 306.00 |
| LOCATION | L0000716 | VOLUME | 473928.592 | 3770798.164 | 306.00 |
| LOCATION | L0000717 | VOLUME | 473935.860 | 3770798.202 | 306.00 |
| LOCATION | L0000718 | VOLUME | 473943.129 | 3770798.240 | 306.00 |
| LOCATION | L0000719 | VOLUME | 473950.397 | 3770798.278 | 306.02 |
| LOCATION | L0000720 | VOLUME | 473957.666 | 3770798.317 | 306.19 |
| LOCATION | L0000721 | VOLUME | 473964.934 | 3770798.355 | 306.37 |
| LOCATION | L0000722 | VOLUME | 473972.203 | 3770798.393 | 306.55 |
| LOCATION | L0000723 | VOLUME | 473979.471 | 3770798.431 | 306.73 |
| LOCATION | L0000724 | VOLUME | 473986.740 | 3770798.470 | 306.80 |
| LOCATION | L0000725 | VOLUME | 473994.008 | 3770798.508 | 306.86 |
| LOCATION | L0000726 | VOLUME | 474001.277 | 3770798.546 | 306.93 |
| LOCATION | L0000727 | VOLUME | 474008.545 | 3770798.584 | 306.99 |
| LOCATION | L0000728 | VOLUME | 474015.814 | 3770798.623 | 307.00 |
| LOCATION | L0000729 | VOLUME | 474023.082 | 3770798.661 | 307.00 |
| LOCATION | L0000730 | VOLUME | 474030.351 | 3770798.699 | 307.00 |
| LOCATION | L0000731 | VOLUME | 474037.619 | 3770798.737 | 307.00 |
| LOCATION | L0000732 | VOLUME | 474044.888 | 3770798.776 | 307.00 |
| LOCATION | L0000733 | VOLUME | 474052.156 | 3770798.814 | 307.00 |
| LOCATION | L0000734 | VOLUME | 474059.425 | 3770798.852 | 307.00 |
| LOCATION | L0000735 | VOLUME | 474066.693 | 3770798.890 | 307.00 |
| LOCATION | L0000736 | VOLUME | 474073.962 | 3770798.929 | 307.00 |
| LOCATION | L0000737 | VOLUME | 474081.230 | 3770798.967 | 307.00 |
| LOCATION | L0000738 | VOLUME | 474088.499 | 3770799.005 | 307.00 |
| LOCATION | L0000739 | VOLUME | 474095.767 | 3770799.044 | 307.00 |
| LOCATION | L0000740 | VOLUME | 474103.036 | 3770799.082 | 307.00 |
| LOCATION | L0000741 | VOLUME | 474110.304 | 3770799.120 | 307.00 |
| LOCATION | L0000742 | VOLUME | 474117.573 | 3770799.158 | 307.00 |
| LOCATION | L0000743 | VOLUME | 474124.841 | 3770799.197 | 307.00 |
| LOCATION | L0000744 | VOLUME | 474132.109 | 3770799.235 | 307.00 |
| LOCATION | L0000745 | VOLUME | 474139.378 | 3770799.273 | 307.00 |
| LOCATION | L0000746 | VOLUME | 474146.646 | 3770799.311 | 307.00 |

\*\* End of LINE VOLUME Source ID = SLINE6

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\*\* Line Source Represented by Separated Volume Sources  
\*\* LINE VOLUME Source ID = SLINE7  
\*\* DESCRSRC offsite Waterman driveway to Orange show Rd  
\*\* PREFIX

```

** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000126
** Elevated
** Vertical Dimension = 3.66
** SZINIT = 0.85
** Nodes = 2
** 474284.155, 3770673.676, 307.11, 0.00, 3.39
** 474286.591, 3771019.582, 309.00, 0.00, 3.39

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** -----
LOCATION L0000747    VOLUME  474284.168 3770675.505 307.15
LOCATION L0000748    VOLUME  474284.219 3770682.786 307.15
LOCATION L0000749    VOLUME  474284.271 3770690.068 307.15
LOCATION L0000750    VOLUME  474284.322 3770697.350 307.15
LOCATION L0000751    VOLUME  474284.373 3770704.632 307.15
LOCATION L0000752    VOLUME  474284.424 3770711.914 307.16
LOCATION L0000753    VOLUME  474284.476 3770719.196 307.24
LOCATION L0000754    VOLUME  474284.527 3770726.478 307.44
LOCATION L0000755    VOLUME  474284.578 3770733.760 307.65
LOCATION L0000756    VOLUME  474284.630 3770741.042 307.85
LOCATION L0000757    VOLUME  474284.681 3770748.323 308.00
LOCATION L0000758    VOLUME  474284.732 3770755.605 308.00
LOCATION L0000759    VOLUME  474284.783 3770762.887 308.00
LOCATION L0000760    VOLUME  474284.835 3770770.169 308.00
LOCATION L0000761    VOLUME  474284.886 3770777.451 308.00
LOCATION L0000762    VOLUME  474284.937 3770784.733 308.00
LOCATION L0000763    VOLUME  474284.989 3770792.015 308.00
LOCATION L0000764    VOLUME  474285.040 3770799.297 308.00
LOCATION L0000765    VOLUME  474285.091 3770806.579 308.00
LOCATION L0000766    VOLUME  474285.142 3770813.861 308.00
LOCATION L0000767    VOLUME  474285.194 3770821.142 308.00
LOCATION L0000768    VOLUME  474285.245 3770828.424 308.00
LOCATION L0000769    VOLUME  474285.296 3770835.706 308.00
LOCATION L0000770    VOLUME  474285.347 3770842.988 308.00
LOCATION L0000771    VOLUME  474285.399 3770850.270 308.00
LOCATION L0000772    VOLUME  474285.450 3770857.552 308.00
LOCATION L0000773    VOLUME  474285.501 3770864.834 308.00
LOCATION L0000774    VOLUME  474285.553 3770872.116 308.00
LOCATION L0000775    VOLUME  474285.604 3770879.398 308.00
LOCATION L0000776    VOLUME  474285.655 3770886.679 308.00
LOCATION L0000777    VOLUME  474285.706 3770893.961 308.00
LOCATION L0000778    VOLUME  474285.758 3770901.243 308.00
LOCATION L0000779    VOLUME  474285.809 3770908.525 308.00
LOCATION L0000780    VOLUME  474285.860 3770915.807 308.00
LOCATION L0000781    VOLUME  474285.912 3770923.089 308.00
LOCATION L0000782    VOLUME  474285.963 3770930.371 308.13
LOCATION L0000783    VOLUME  474286.014 3770937.653 308.38
LOCATION L0000784    VOLUME  474286.065 3770944.935 308.62
LOCATION L0000785    VOLUME  474286.117 3770952.217 308.86
LOCATION L0000786    VOLUME  474286.168 3770959.498 309.00
LOCATION L0000787    VOLUME  474286.219 3770966.780 309.00

```

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000788 | VOLUME | 474286.271 | 3770974.062 | 309.00 |
| LOCATION | L0000789 | VOLUME | 474286.322 | 3770981.344 | 309.00 |
| LOCATION | L0000790 | VOLUME | 474286.373 | 3770988.626 | 309.00 |
| LOCATION | L0000791 | VOLUME | 474286.424 | 3770995.908 | 309.00 |
| LOCATION | L0000792 | VOLUME | 474286.476 | 3771003.190 | 309.00 |
| LOCATION | L0000793 | VOLUME | 474286.527 | 3771010.472 | 309.00 |
| LOCATION | L0000794 | VOLUME | 474286.578 | 3771017.754 | 309.00 |

\*\* End of LINE VOLUME Source ID = SLINE7

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-----  
\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE8

\*\* DESCRSRC offsite Orange Show Rd WB from Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 0.0000244

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 473271.129, 3771027.155, 302.00, 0.00, 3.38

\*\* 474278.692, 3771029.435, 309.00, 0.00, 3.38

\*\*

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|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000795 | VOLUME | 473272.958 | 3771027.159 | 302.00 |
| LOCATION | L0000796 | VOLUME | 473280.233 | 3771027.176 | 302.00 |
| LOCATION | L0000797 | VOLUME | 473287.507 | 3771027.192 | 302.00 |
| LOCATION | L0000798 | VOLUME | 473294.782 | 3771027.209 | 302.00 |
| LOCATION | L0000799 | VOLUME | 473302.057 | 3771027.225 | 302.00 |
| LOCATION | L0000800 | VOLUME | 473309.331 | 3771027.241 | 302.00 |
| LOCATION | L0000801 | VOLUME | 473316.606 | 3771027.258 | 302.00 |
| LOCATION | L0000802 | VOLUME | 473323.881 | 3771027.274 | 302.05 |
| LOCATION | L0000803 | VOLUME | 473331.155 | 3771027.291 | 302.14 |
| LOCATION | L0000804 | VOLUME | 473338.430 | 3771027.307 | 302.23 |
| LOCATION | L0000805 | VOLUME | 473345.705 | 3771027.324 | 302.32 |
| LOCATION | L0000806 | VOLUME | 473352.979 | 3771027.340 | 302.43 |
| LOCATION | L0000807 | VOLUME | 473360.254 | 3771027.357 | 302.59 |
| LOCATION | L0000808 | VOLUME | 473367.529 | 3771027.373 | 302.74 |
| LOCATION | L0000809 | VOLUME | 473374.803 | 3771027.390 | 302.90 |
| LOCATION | L0000810 | VOLUME | 473382.078 | 3771027.406 | 303.00 |
| LOCATION | L0000811 | VOLUME | 473389.353 | 3771027.423 | 303.00 |
| LOCATION | L0000812 | VOLUME | 473396.627 | 3771027.439 | 303.00 |
| LOCATION | L0000813 | VOLUME | 473403.902 | 3771027.455 | 303.00 |
| LOCATION | L0000814 | VOLUME | 473411.177 | 3771027.472 | 303.00 |
| LOCATION | L0000815 | VOLUME | 473418.452 | 3771027.488 | 303.00 |
| LOCATION | L0000816 | VOLUME | 473425.726 | 3771027.505 | 303.00 |
| LOCATION | L0000817 | VOLUME | 473433.001 | 3771027.521 | 303.00 |
| LOCATION | L0000818 | VOLUME | 473440.276 | 3771027.538 | 303.00 |
| LOCATION | L0000819 | VOLUME | 473447.550 | 3771027.554 | 303.00 |
| LOCATION | L0000820 | VOLUME | 473454.825 | 3771027.571 | 303.00 |
| LOCATION | L0000821 | VOLUME | 473462.100 | 3771027.587 | 303.00 |
| LOCATION | L0000822 | VOLUME | 473469.374 | 3771027.604 | 303.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000823 | VOLUME | 473476.649 | 3771027.620 | 303.09 |
| LOCATION | L0000824 | VOLUME | 473483.924 | 3771027.636 | 303.18 |
| LOCATION | L0000825 | VOLUME | 473491.198 | 3771027.653 | 303.27 |
| LOCATION | L0000826 | VOLUME | 473498.473 | 3771027.669 | 303.36 |
| LOCATION | L0000827 | VOLUME | 473505.748 | 3771027.686 | 303.50 |
| LOCATION | L0000828 | VOLUME | 473513.022 | 3771027.702 | 303.65 |
| LOCATION | L0000829 | VOLUME | 473520.297 | 3771027.719 | 303.80 |
| LOCATION | L0000830 | VOLUME | 473527.572 | 3771027.735 | 303.95 |
| LOCATION | L0000831 | VOLUME | 473534.846 | 3771027.752 | 304.00 |
| LOCATION | L0000832 | VOLUME | 473542.121 | 3771027.768 | 304.00 |
| LOCATION | L0000833 | VOLUME | 473549.396 | 3771027.785 | 304.00 |
| LOCATION | L0000834 | VOLUME | 473556.670 | 3771027.801 | 304.00 |
| LOCATION | L0000835 | VOLUME | 473563.945 | 3771027.818 | 304.00 |
| LOCATION | L0000836 | VOLUME | 473571.220 | 3771027.834 | 304.00 |
| LOCATION | L0000837 | VOLUME | 473578.494 | 3771027.850 | 304.00 |
| LOCATION | L0000838 | VOLUME | 473585.769 | 3771027.867 | 304.00 |
| LOCATION | L0000839 | VOLUME | 473593.044 | 3771027.883 | 304.00 |
| LOCATION | L0000840 | VOLUME | 473600.318 | 3771027.900 | 304.00 |
| LOCATION | L0000841 | VOLUME | 473607.593 | 3771027.916 | 304.00 |
| LOCATION | L0000842 | VOLUME | 473614.868 | 3771027.933 | 304.00 |
| LOCATION | L0000843 | VOLUME | 473622.142 | 3771027.949 | 304.08 |
| LOCATION | L0000844 | VOLUME | 473629.417 | 3771027.966 | 304.32 |
| LOCATION | L0000845 | VOLUME | 473636.692 | 3771027.982 | 304.56 |
| LOCATION | L0000846 | VOLUME | 473643.967 | 3771027.999 | 304.81 |
| LOCATION | L0000847 | VOLUME | 473651.241 | 3771028.015 | 305.00 |
| LOCATION | L0000848 | VOLUME | 473658.516 | 3771028.032 | 305.00 |
| LOCATION | L0000849 | VOLUME | 473665.791 | 3771028.048 | 305.00 |
| LOCATION | L0000850 | VOLUME | 473673.065 | 3771028.064 | 305.00 |
| LOCATION | L0000851 | VOLUME | 473680.340 | 3771028.081 | 305.00 |
| LOCATION | L0000852 | VOLUME | 473687.615 | 3771028.097 | 305.00 |
| LOCATION | L0000853 | VOLUME | 473694.889 | 3771028.114 | 305.00 |
| LOCATION | L0000854 | VOLUME | 473702.164 | 3771028.130 | 305.00 |
| LOCATION | L0000855 | VOLUME | 473709.439 | 3771028.147 | 305.00 |
| LOCATION | L0000856 | VOLUME | 473716.713 | 3771028.163 | 305.00 |
| LOCATION | L0000857 | VOLUME | 473723.988 | 3771028.180 | 305.00 |
| LOCATION | L0000858 | VOLUME | 473731.263 | 3771028.196 | 305.00 |
| LOCATION | L0000859 | VOLUME | 473738.537 | 3771028.213 | 305.00 |
| LOCATION | L0000860 | VOLUME | 473745.812 | 3771028.229 | 305.20 |
| LOCATION | L0000861 | VOLUME | 473753.087 | 3771028.246 | 305.44 |
| LOCATION | L0000862 | VOLUME | 473760.361 | 3771028.262 | 305.69 |
| LOCATION | L0000863 | VOLUME | 473767.636 | 3771028.278 | 305.93 |
| LOCATION | L0000864 | VOLUME | 473774.911 | 3771028.295 | 306.00 |
| LOCATION | L0000865 | VOLUME | 473782.185 | 3771028.311 | 306.00 |
| LOCATION | L0000866 | VOLUME | 473789.460 | 3771028.328 | 306.00 |
| LOCATION | L0000867 | VOLUME | 473796.735 | 3771028.344 | 306.00 |
| LOCATION | L0000868 | VOLUME | 473804.009 | 3771028.361 | 306.00 |
| LOCATION | L0000869 | VOLUME | 473811.284 | 3771028.377 | 306.00 |
| LOCATION | L0000870 | VOLUME | 473818.559 | 3771028.394 | 306.00 |
| LOCATION | L0000871 | VOLUME | 473825.833 | 3771028.410 | 306.00 |
| LOCATION | L0000872 | VOLUME | 473833.108 | 3771028.427 | 306.07 |
| LOCATION | L0000873 | VOLUME | 473840.383 | 3771028.443 | 306.21 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000874 | VOLUME | 473847.657 | 3771028.459 | 306.36 |
| LOCATION | L0000875 | VOLUME | 473854.932 | 3771028.476 | 306.50 |
| LOCATION | L0000876 | VOLUME | 473862.207 | 3771028.492 | 306.63 |
| LOCATION | L0000877 | VOLUME | 473869.482 | 3771028.509 | 306.73 |
| LOCATION | L0000878 | VOLUME | 473876.756 | 3771028.525 | 306.82 |
| LOCATION | L0000879 | VOLUME | 473884.031 | 3771028.542 | 306.92 |
| LOCATION | L0000880 | VOLUME | 473891.306 | 3771028.558 | 307.00 |
| LOCATION | L0000881 | VOLUME | 473898.580 | 3771028.575 | 307.00 |
| LOCATION | L0000882 | VOLUME | 473905.855 | 3771028.591 | 307.00 |
| LOCATION | L0000883 | VOLUME | 473913.130 | 3771028.608 | 307.00 |
| LOCATION | L0000884 | VOLUME | 473920.404 | 3771028.624 | 307.00 |
| LOCATION | L0000885 | VOLUME | 473927.679 | 3771028.641 | 307.00 |
| LOCATION | L0000886 | VOLUME | 473934.954 | 3771028.657 | 307.00 |
| LOCATION | L0000887 | VOLUME | 473942.228 | 3771028.673 | 307.00 |
| LOCATION | L0000888 | VOLUME | 473949.503 | 3771028.690 | 307.00 |
| LOCATION | L0000889 | VOLUME | 473956.778 | 3771028.706 | 307.00 |
| LOCATION | L0000890 | VOLUME | 473964.052 | 3771028.723 | 307.00 |
| LOCATION | L0000891 | VOLUME | 473971.327 | 3771028.739 | 307.00 |
| LOCATION | L0000892 | VOLUME | 473978.602 | 3771028.756 | 307.00 |
| LOCATION | L0000893 | VOLUME | 473985.876 | 3771028.772 | 307.20 |
| LOCATION | L0000894 | VOLUME | 473993.151 | 3771028.789 | 307.45 |
| LOCATION | L0000895 | VOLUME | 474000.426 | 3771028.805 | 307.69 |
| LOCATION | L0000896 | VOLUME | 474007.700 | 3771028.822 | 307.93 |
| LOCATION | L0000897 | VOLUME | 474014.975 | 3771028.838 | 308.00 |
| LOCATION | L0000898 | VOLUME | 474022.250 | 3771028.855 | 308.00 |
| LOCATION | L0000899 | VOLUME | 474029.524 | 3771028.871 | 308.00 |
| LOCATION | L0000900 | VOLUME | 474036.799 | 3771028.887 | 308.00 |
| LOCATION | L0000901 | VOLUME | 474044.074 | 3771028.904 | 308.00 |
| LOCATION | L0000902 | VOLUME | 474051.348 | 3771028.920 | 308.00 |
| LOCATION | L0000903 | VOLUME | 474058.623 | 3771028.937 | 308.00 |
| LOCATION | L0000904 | VOLUME | 474065.898 | 3771028.953 | 308.00 |
| LOCATION | L0000905 | VOLUME | 474073.172 | 3771028.970 | 308.00 |
| LOCATION | L0000906 | VOLUME | 474080.447 | 3771028.986 | 308.00 |
| LOCATION | L0000907 | VOLUME | 474087.722 | 3771029.003 | 308.00 |
| LOCATION | L0000908 | VOLUME | 474094.997 | 3771029.019 | 308.00 |
| LOCATION | L0000909 | VOLUME | 474102.271 | 3771029.036 | 308.00 |
| LOCATION | L0000910 | VOLUME | 474109.546 | 3771029.052 | 308.00 |
| LOCATION | L0000911 | VOLUME | 474116.821 | 3771029.069 | 308.00 |
| LOCATION | L0000912 | VOLUME | 474124.095 | 3771029.085 | 308.00 |
| LOCATION | L0000913 | VOLUME | 474131.370 | 3771029.101 | 308.00 |
| LOCATION | L0000914 | VOLUME | 474138.645 | 3771029.118 | 308.00 |
| LOCATION | L0000915 | VOLUME | 474145.919 | 3771029.134 | 308.00 |
| LOCATION | L0000916 | VOLUME | 474153.194 | 3771029.151 | 308.00 |
| LOCATION | L0000917 | VOLUME | 474160.469 | 3771029.167 | 308.00 |
| LOCATION | L0000918 | VOLUME | 474167.743 | 3771029.184 | 308.00 |
| LOCATION | L0000919 | VOLUME | 474175.018 | 3771029.200 | 308.00 |
| LOCATION | L0000920 | VOLUME | 474182.293 | 3771029.217 | 308.00 |
| LOCATION | L0000921 | VOLUME | 474189.567 | 3771029.233 | 308.00 |
| LOCATION | L0000922 | VOLUME | 474196.842 | 3771029.250 | 308.00 |
| LOCATION | L0000923 | VOLUME | 474204.117 | 3771029.266 | 308.00 |
| LOCATION | L0000924 | VOLUME | 474211.391 | 3771029.282 | 308.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000925 | VOLUME | 474218.666 | 3771029.299 | 308.00 |
| LOCATION | L0000926 | VOLUME | 474225.941 | 3771029.315 | 308.21 |
| LOCATION | L0000927 | VOLUME | 474233.215 | 3771029.332 | 308.45 |
| LOCATION | L0000928 | VOLUME | 474240.490 | 3771029.348 | 308.69 |
| LOCATION | L0000929 | VOLUME | 474247.765 | 3771029.365 | 308.93 |
| LOCATION | L0000930 | VOLUME | 474255.039 | 3771029.381 | 309.00 |
| LOCATION | L0000931 | VOLUME | 474262.314 | 3771029.398 | 309.00 |
| LOCATION | L0000932 | VOLUME | 474269.589 | 3771029.414 | 309.00 |
| LOCATION | L0000933 | VOLUME | 474276.863 | 3771029.431 | 309.00 |

\*\* End of LINE VOLUME Source ID = SLINE8

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE9

\*\* DESCRSRC offsite Orange Show Rd EB from Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 3.76E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474292.426, 3771029.765, 309.00, 0.00, 3.37

\*\* 474911.905, 3771027.295, 312.08, 0.00, 3.37

\*\* -----

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000934 | VOLUME | 474294.255 | 3771029.758 | 309.00 |
| LOCATION | L0000935 | VOLUME | 474301.500 | 3771029.729 | 309.00 |
| LOCATION | L0000936 | VOLUME | 474308.745 | 3771029.700 | 309.00 |
| LOCATION | L0000937 | VOLUME | 474315.990 | 3771029.671 | 309.00 |
| LOCATION | L0000938 | VOLUME | 474323.235 | 3771029.642 | 309.00 |
| LOCATION | L0000939 | VOLUME | 474330.479 | 3771029.613 | 309.00 |
| LOCATION | L0000940 | VOLUME | 474337.724 | 3771029.584 | 309.00 |
| LOCATION | L0000941 | VOLUME | 474344.969 | 3771029.555 | 309.00 |
| LOCATION | L0000942 | VOLUME | 474352.214 | 3771029.526 | 309.00 |
| LOCATION | L0000943 | VOLUME | 474359.459 | 3771029.498 | 309.00 |
| LOCATION | L0000944 | VOLUME | 474366.704 | 3771029.469 | 309.00 |
| LOCATION | L0000945 | VOLUME | 474373.949 | 3771029.440 | 309.00 |
| LOCATION | L0000946 | VOLUME | 474381.194 | 3771029.411 | 309.00 |
| LOCATION | L0000947 | VOLUME | 474388.439 | 3771029.382 | 309.00 |
| LOCATION | L0000948 | VOLUME | 474395.684 | 3771029.353 | 309.00 |
| LOCATION | L0000949 | VOLUME | 474402.929 | 3771029.324 | 309.11 |
| LOCATION | L0000950 | VOLUME | 474410.174 | 3771029.295 | 309.35 |
| LOCATION | L0000951 | VOLUME | 474417.419 | 3771029.266 | 309.59 |
| LOCATION | L0000952 | VOLUME | 474424.664 | 3771029.238 | 309.83 |
| LOCATION | L0000953 | VOLUME | 474431.909 | 3771029.209 | 310.00 |
| LOCATION | L0000954 | VOLUME | 474439.154 | 3771029.180 | 310.00 |
| LOCATION | L0000955 | VOLUME | 474446.399 | 3771029.151 | 310.00 |
| LOCATION | L0000956 | VOLUME | 474453.644 | 3771029.122 | 310.00 |
| LOCATION | L0000957 | VOLUME | 474460.889 | 3771029.093 | 310.00 |
| LOCATION | L0000958 | VOLUME | 474468.134 | 3771029.064 | 310.00 |
| LOCATION | L0000959 | VOLUME | 474475.379 | 3771029.035 | 310.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000960 | VOLUME | 474482.624 | 3771029.006 | 310.00 |
| LOCATION | L0000961 | VOLUME | 474489.868 | 3771028.978 | 310.00 |
| LOCATION | L0000962 | VOLUME | 474497.113 | 3771028.949 | 310.00 |
| LOCATION | L0000963 | VOLUME | 474504.358 | 3771028.920 | 310.00 |
| LOCATION | L0000964 | VOLUME | 474511.603 | 3771028.891 | 310.00 |
| LOCATION | L0000965 | VOLUME | 474518.848 | 3771028.862 | 310.00 |
| LOCATION | L0000966 | VOLUME | 474526.093 | 3771028.833 | 310.00 |
| LOCATION | L0000967 | VOLUME | 474533.338 | 3771028.804 | 310.00 |
| LOCATION | L0000968 | VOLUME | 474540.583 | 3771028.775 | 310.00 |
| LOCATION | L0000969 | VOLUME | 474547.828 | 3771028.746 | 310.00 |
| LOCATION | L0000970 | VOLUME | 474555.073 | 3771028.718 | 310.00 |
| LOCATION | L0000971 | VOLUME | 474562.318 | 3771028.689 | 310.00 |
| LOCATION | L0000972 | VOLUME | 474569.563 | 3771028.660 | 310.00 |
| LOCATION | L0000973 | VOLUME | 474576.808 | 3771028.631 | 310.00 |
| LOCATION | L0000974 | VOLUME | 474584.053 | 3771028.602 | 310.00 |
| LOCATION | L0000975 | VOLUME | 474591.298 | 3771028.573 | 310.00 |
| LOCATION | L0000976 | VOLUME | 474598.543 | 3771028.544 | 310.00 |
| LOCATION | L0000977 | VOLUME | 474605.788 | 3771028.515 | 310.00 |
| LOCATION | L0000978 | VOLUME | 474613.033 | 3771028.486 | 310.00 |
| LOCATION | L0000979 | VOLUME | 474620.278 | 3771028.458 | 310.00 |
| LOCATION | L0000980 | VOLUME | 474627.523 | 3771028.429 | 310.00 |
| LOCATION | L0000981 | VOLUME | 474634.768 | 3771028.400 | 310.00 |
| LOCATION | L0000982 | VOLUME | 474642.012 | 3771028.371 | 310.07 |
| LOCATION | L0000983 | VOLUME | 474649.257 | 3771028.342 | 310.32 |
| LOCATION | L0000984 | VOLUME | 474656.502 | 3771028.313 | 310.56 |
| LOCATION | L0000985 | VOLUME | 474663.747 | 3771028.284 | 310.80 |
| LOCATION | L0000986 | VOLUME | 474670.992 | 3771028.255 | 311.00 |
| LOCATION | L0000987 | VOLUME | 474678.237 | 3771028.226 | 311.00 |
| LOCATION | L0000988 | VOLUME | 474685.482 | 3771028.198 | 311.00 |
| LOCATION | L0000989 | VOLUME | 474692.727 | 3771028.169 | 311.00 |
| LOCATION | L0000990 | VOLUME | 474699.972 | 3771028.140 | 311.00 |
| LOCATION | L0000991 | VOLUME | 474707.217 | 3771028.111 | 311.00 |
| LOCATION | L0000992 | VOLUME | 474714.462 | 3771028.082 | 311.00 |
| LOCATION | L0000993 | VOLUME | 474721.707 | 3771028.053 | 311.00 |
| LOCATION | L0000994 | VOLUME | 474728.952 | 3771028.024 | 311.00 |
| LOCATION | L0000995 | VOLUME | 474736.197 | 3771027.995 | 311.00 |
| LOCATION | L0000996 | VOLUME | 474743.442 | 3771027.967 | 311.00 |
| LOCATION | L0000997 | VOLUME | 474750.687 | 3771027.938 | 311.00 |
| LOCATION | L0000998 | VOLUME | 474757.932 | 3771027.909 | 311.00 |
| LOCATION | L0000999 | VOLUME | 474765.177 | 3771027.880 | 311.00 |
| LOCATION | L0001000 | VOLUME | 474772.422 | 3771027.851 | 311.00 |
| LOCATION | L0001001 | VOLUME | 474779.667 | 3771027.822 | 311.00 |
| LOCATION | L0001002 | VOLUME | 474786.912 | 3771027.793 | 311.00 |
| LOCATION | L0001003 | VOLUME | 474794.157 | 3771027.764 | 311.15 |
| LOCATION | L0001004 | VOLUME | 474801.401 | 3771027.735 | 311.39 |
| LOCATION | L0001005 | VOLUME | 474808.646 | 3771027.707 | 311.63 |
| LOCATION | L0001006 | VOLUME | 474815.891 | 3771027.678 | 311.87 |
| LOCATION | L0001007 | VOLUME | 474823.136 | 3771027.649 | 312.00 |
| LOCATION | L0001008 | VOLUME | 474830.381 | 3771027.620 | 312.00 |
| LOCATION | L0001009 | VOLUME | 474837.626 | 3771027.591 | 312.00 |
| LOCATION | L0001010 | VOLUME | 474844.871 | 3771027.562 | 312.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001011 | VOLUME | 474852.116 | 3771027.533 | 312.00 |
| LOCATION | L0001012 | VOLUME | 474859.361 | 3771027.504 | 312.00 |
| LOCATION | L0001013 | VOLUME | 474866.606 | 3771027.475 | 312.00 |
| LOCATION | L0001014 | VOLUME | 474873.851 | 3771027.447 | 312.00 |
| LOCATION | L0001015 | VOLUME | 474881.096 | 3771027.418 | 312.00 |
| LOCATION | L0001016 | VOLUME | 474888.341 | 3771027.389 | 312.00 |
| LOCATION | L0001017 | VOLUME | 474895.586 | 3771027.360 | 312.00 |
| LOCATION | L0001018 | VOLUME | 474902.831 | 3771027.331 | 312.00 |
| LOCATION | L0001019 | VOLUME | 474910.076 | 3771027.302 | 312.01 |

\*\* End of LINE VOLUME Source ID = SLINE9

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-----  
\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE10

\*\* DESCRSRC offsite Waterman Ave n/o Orange Show Rd

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 2.37E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474286.472, 3771037.367, 309.00, 0.00, 3.40

\*\* 474284.302, 3771427.958, 308.94, 0.00, 3.40

\*\*

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001020 | VOLUME | 474286.462 | 3771039.196 | 309.00 |
| LOCATION | L0001021 | VOLUME | 474286.422 | 3771046.496 | 309.00 |
| LOCATION | L0001022 | VOLUME | 474286.381 | 3771053.797 | 309.00 |
| LOCATION | L0001023 | VOLUME | 474286.341 | 3771061.098 | 309.00 |
| LOCATION | L0001024 | VOLUME | 474286.300 | 3771068.398 | 309.00 |
| LOCATION | L0001025 | VOLUME | 474286.259 | 3771075.699 | 309.00 |
| LOCATION | L0001026 | VOLUME | 474286.219 | 3771082.999 | 309.00 |
| LOCATION | L0001027 | VOLUME | 474286.178 | 3771090.300 | 309.00 |
| LOCATION | L0001028 | VOLUME | 474286.138 | 3771097.601 | 309.00 |
| LOCATION | L0001029 | VOLUME | 474286.097 | 3771104.901 | 309.00 |
| LOCATION | L0001030 | VOLUME | 474286.057 | 3771112.202 | 309.00 |
| LOCATION | L0001031 | VOLUME | 474286.016 | 3771119.503 | 309.00 |
| LOCATION | L0001032 | VOLUME | 474285.976 | 3771126.803 | 309.00 |
| LOCATION | L0001033 | VOLUME | 474285.935 | 3771134.104 | 309.00 |
| LOCATION | L0001034 | VOLUME | 474285.894 | 3771141.405 | 309.00 |
| LOCATION | L0001035 | VOLUME | 474285.854 | 3771148.705 | 309.00 |
| LOCATION | L0001036 | VOLUME | 474285.813 | 3771156.006 | 309.00 |
| LOCATION | L0001037 | VOLUME | 474285.773 | 3771163.307 | 309.00 |
| LOCATION | L0001038 | VOLUME | 474285.732 | 3771170.607 | 309.00 |
| LOCATION | L0001039 | VOLUME | 474285.692 | 3771177.908 | 309.00 |
| LOCATION | L0001040 | VOLUME | 474285.651 | 3771185.208 | 309.00 |
| LOCATION | L0001041 | VOLUME | 474285.611 | 3771192.509 | 309.00 |
| LOCATION | L0001042 | VOLUME | 474285.570 | 3771199.810 | 309.00 |
| LOCATION | L0001043 | VOLUME | 474285.529 | 3771207.110 | 309.00 |
| LOCATION | L0001044 | VOLUME | 474285.489 | 3771214.411 | 309.00 |
| LOCATION | L0001045 | VOLUME | 474285.448 | 3771221.712 | 309.00 |

| LOCATION | VOLUME     |             |        |  |  |
|----------|------------|-------------|--------|--|--|
| L0001046 | 474285.408 | 3771229.012 | 309.00 |  |  |
| L0001047 | 474285.367 | 3771236.313 | 309.00 |  |  |
| L0001048 | 474285.327 | 3771243.614 | 309.00 |  |  |
| L0001049 | 474285.286 | 3771250.914 | 309.00 |  |  |
| L0001050 | 474285.246 | 3771258.215 | 309.00 |  |  |
| L0001051 | 474285.205 | 3771265.516 | 309.00 |  |  |
| L0001052 | 474285.164 | 3771272.816 | 309.00 |  |  |
| L0001053 | 474285.124 | 3771280.117 | 309.00 |  |  |
| L0001054 | 474285.083 | 3771287.417 | 309.00 |  |  |
| L0001055 | 474285.043 | 3771294.718 | 309.00 |  |  |
| L0001056 | 474285.002 | 3771302.019 | 309.00 |  |  |
| L0001057 | 474284.962 | 3771309.319 | 309.00 |  |  |
| L0001058 | 474284.921 | 3771316.620 | 309.00 |  |  |
| L0001059 | 474284.880 | 3771323.921 | 309.00 |  |  |
| L0001060 | 474284.840 | 3771331.221 | 309.00 |  |  |
| L0001061 | 474284.799 | 3771338.522 | 309.00 |  |  |
| L0001062 | 474284.759 | 3771345.823 | 309.00 |  |  |
| L0001063 | 474284.718 | 3771353.123 | 309.00 |  |  |
| L0001064 | 474284.678 | 3771360.424 | 309.00 |  |  |
| L0001065 | 474284.637 | 3771367.725 | 309.00 |  |  |
| L0001066 | 474284.597 | 3771375.025 | 309.00 |  |  |
| L0001067 | 474284.556 | 3771382.326 | 309.00 |  |  |
| L0001068 | 474284.515 | 3771389.626 | 309.00 |  |  |
| L0001069 | 474284.475 | 3771396.927 | 309.00 |  |  |
| L0001070 | 474284.434 | 3771404.228 | 309.00 |  |  |
| L0001071 | 474284.394 | 3771411.528 | 309.00 |  |  |
| L0001072 | 474284.353 | 3771418.829 | 309.00 |  |  |
| L0001073 | 474284.313 | 3771426.130 | 309.00 |  |  |

\*\* End of LINE VOLUME Source ID = SLINE10

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE11

\*\* DESCRSRC offsite Waterman driveway SB toward I-10 fwy

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 0.0000181

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474283.609, 3770667.605, 307.10, 0.00, 3.39

\*\* 474281.303, 3769921.475, 305.49, 0.00, 3.39

\*\* -----

| LOCATION | VOLUME     |             |        |  |  |
|----------|------------|-------------|--------|--|--|
| L0001074 | 474283.603 | 3770665.776 | 307.13 |  |  |
| L0001075 | 474283.581 | 3770658.497 | 307.13 |  |  |
| L0001076 | 474283.558 | 3770651.218 | 307.10 |  |  |
| L0001077 | 474283.536 | 3770643.939 | 307.07 |  |  |
| L0001078 | 474283.513 | 3770636.660 | 307.04 |  |  |
| L0001079 | 474283.491 | 3770629.380 | 307.01 |  |  |
| L0001080 | 474283.468 | 3770622.101 | 307.00 |  |  |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001081 | VOLUME | 474283.446 | 3770614.822 | 307.00 |
| LOCATION | L0001082 | VOLUME | 474283.423 | 3770607.543 | 307.00 |
| LOCATION | L0001083 | VOLUME | 474283.401 | 3770600.264 | 307.00 |
| LOCATION | L0001084 | VOLUME | 474283.378 | 3770592.985 | 306.89 |
| LOCATION | L0001085 | VOLUME | 474283.356 | 3770585.706 | 306.64 |
| LOCATION | L0001086 | VOLUME | 474283.333 | 3770578.426 | 306.40 |
| LOCATION | L0001087 | VOLUME | 474283.311 | 3770571.147 | 306.16 |
| LOCATION | L0001088 | VOLUME | 474283.288 | 3770563.868 | 306.00 |
| LOCATION | L0001089 | VOLUME | 474283.266 | 3770556.589 | 306.00 |
| LOCATION | L0001090 | VOLUME | 474283.243 | 3770549.310 | 306.00 |
| LOCATION | L0001091 | VOLUME | 474283.221 | 3770542.031 | 306.00 |
| LOCATION | L0001092 | VOLUME | 474283.198 | 3770534.752 | 306.00 |
| LOCATION | L0001093 | VOLUME | 474283.176 | 3770527.472 | 306.00 |
| LOCATION | L0001094 | VOLUME | 474283.153 | 3770520.193 | 306.00 |
| LOCATION | L0001095 | VOLUME | 474283.131 | 3770512.914 | 306.00 |
| LOCATION | L0001096 | VOLUME | 474283.108 | 3770505.635 | 306.00 |
| LOCATION | L0001097 | VOLUME | 474283.086 | 3770498.356 | 306.00 |
| LOCATION | L0001098 | VOLUME | 474283.063 | 3770491.077 | 306.00 |
| LOCATION | L0001099 | VOLUME | 474283.041 | 3770483.798 | 306.00 |
| LOCATION | L0001100 | VOLUME | 474283.018 | 3770476.518 | 306.00 |
| LOCATION | L0001101 | VOLUME | 474282.996 | 3770469.239 | 306.00 |
| LOCATION | L0001102 | VOLUME | 474282.973 | 3770461.960 | 306.00 |
| LOCATION | L0001103 | VOLUME | 474282.951 | 3770454.681 | 306.00 |
| LOCATION | L0001104 | VOLUME | 474282.929 | 3770447.402 | 306.00 |
| LOCATION | L0001105 | VOLUME | 474282.906 | 3770440.123 | 306.00 |
| LOCATION | L0001106 | VOLUME | 474282.884 | 3770432.844 | 306.00 |
| LOCATION | L0001107 | VOLUME | 474282.861 | 3770425.564 | 306.00 |
| LOCATION | L0001108 | VOLUME | 474282.839 | 3770418.285 | 306.00 |
| LOCATION | L0001109 | VOLUME | 474282.816 | 3770411.006 | 306.00 |
| LOCATION | L0001110 | VOLUME | 474282.794 | 3770403.727 | 306.00 |
| LOCATION | L0001111 | VOLUME | 474282.771 | 3770396.448 | 306.00 |
| LOCATION | L0001112 | VOLUME | 474282.749 | 3770389.169 | 306.00 |
| LOCATION | L0001113 | VOLUME | 474282.726 | 3770381.890 | 306.00 |
| LOCATION | L0001114 | VOLUME | 474282.704 | 3770374.610 | 306.00 |
| LOCATION | L0001115 | VOLUME | 474282.681 | 3770367.331 | 306.00 |
| LOCATION | L0001116 | VOLUME | 474282.659 | 3770360.052 | 306.00 |
| LOCATION | L0001117 | VOLUME | 474282.636 | 3770352.773 | 306.00 |
| LOCATION | L0001118 | VOLUME | 474282.614 | 3770345.494 | 306.00 |
| LOCATION | L0001119 | VOLUME | 474282.591 | 3770338.215 | 306.00 |
| LOCATION | L0001120 | VOLUME | 474282.569 | 3770330.936 | 306.00 |
| LOCATION | L0001121 | VOLUME | 474282.546 | 3770323.656 | 305.92 |
| LOCATION | L0001122 | VOLUME | 474282.524 | 3770316.377 | 305.70 |
| LOCATION | L0001123 | VOLUME | 474282.501 | 3770309.098 | 305.48 |
| LOCATION | L0001124 | VOLUME | 474282.479 | 3770301.819 | 305.26 |
| LOCATION | L0001125 | VOLUME | 474282.456 | 3770294.540 | 305.08 |
| LOCATION | L0001126 | VOLUME | 474282.434 | 3770287.261 | 305.06 |
| LOCATION | L0001127 | VOLUME | 474282.411 | 3770279.982 | 305.04 |
| LOCATION | L0001128 | VOLUME | 474282.389 | 3770272.702 | 305.02 |
| LOCATION | L0001129 | VOLUME | 474282.366 | 3770265.423 | 305.00 |
| LOCATION | L0001130 | VOLUME | 474282.344 | 3770258.144 | 305.00 |
| LOCATION | L0001131 | VOLUME | 474282.321 | 3770250.865 | 305.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001132 | VOLUME | 474282.299 | 3770243.586 | 305.00 |
| LOCATION | L0001133 | VOLUME | 474282.276 | 3770236.307 | 305.00 |
| LOCATION | L0001134 | VOLUME | 474282.254 | 3770229.027 | 305.00 |
| LOCATION | L0001135 | VOLUME | 474282.231 | 3770221.748 | 305.00 |
| LOCATION | L0001136 | VOLUME | 474282.209 | 3770214.469 | 305.00 |
| LOCATION | L0001137 | VOLUME | 474282.186 | 3770207.190 | 305.00 |
| LOCATION | L0001138 | VOLUME | 474282.164 | 3770199.911 | 305.00 |
| LOCATION | L0001139 | VOLUME | 474282.141 | 3770192.632 | 305.00 |
| LOCATION | L0001140 | VOLUME | 474282.119 | 3770185.353 | 305.00 |
| LOCATION | L0001141 | VOLUME | 474282.096 | 3770178.073 | 305.00 |
| LOCATION | L0001142 | VOLUME | 474282.074 | 3770170.794 | 305.00 |
| LOCATION | L0001143 | VOLUME | 474282.051 | 3770163.515 | 305.00 |
| LOCATION | L0001144 | VOLUME | 474282.029 | 3770156.236 | 305.00 |
| LOCATION | L0001145 | VOLUME | 474282.006 | 3770148.957 | 305.00 |
| LOCATION | L0001146 | VOLUME | 474281.984 | 3770141.678 | 305.00 |
| LOCATION | L0001147 | VOLUME | 474281.961 | 3770134.399 | 305.00 |
| LOCATION | L0001148 | VOLUME | 474281.939 | 3770127.119 | 305.00 |
| LOCATION | L0001149 | VOLUME | 474281.916 | 3770119.840 | 305.00 |
| LOCATION | L0001150 | VOLUME | 474281.894 | 3770112.561 | 305.00 |
| LOCATION | L0001151 | VOLUME | 474281.871 | 3770105.282 | 305.00 |
| LOCATION | L0001152 | VOLUME | 474281.849 | 3770098.003 | 305.00 |
| LOCATION | L0001153 | VOLUME | 474281.826 | 3770090.724 | 305.00 |
| LOCATION | L0001154 | VOLUME | 474281.804 | 3770083.445 | 305.00 |
| LOCATION | L0001155 | VOLUME | 474281.781 | 3770076.165 | 305.00 |
| LOCATION | L0001156 | VOLUME | 474281.759 | 3770068.886 | 305.00 |
| LOCATION | L0001157 | VOLUME | 474281.736 | 3770061.607 | 305.00 |
| LOCATION | L0001158 | VOLUME | 474281.714 | 3770054.328 | 305.00 |
| LOCATION | L0001159 | VOLUME | 474281.691 | 3770047.049 | 305.00 |
| LOCATION | L0001160 | VOLUME | 474281.669 | 3770039.770 | 305.00 |
| LOCATION | L0001161 | VOLUME | 474281.646 | 3770032.491 | 305.00 |
| LOCATION | L0001162 | VOLUME | 474281.624 | 3770025.211 | 305.00 |
| LOCATION | L0001163 | VOLUME | 474281.601 | 3770017.932 | 305.00 |
| LOCATION | L0001164 | VOLUME | 474281.579 | 3770010.653 | 305.00 |
| LOCATION | L0001165 | VOLUME | 474281.556 | 3770003.374 | 305.00 |
| LOCATION | L0001166 | VOLUME | 474281.534 | 3769996.095 | 305.00 |
| LOCATION | L0001167 | VOLUME | 474281.511 | 3769988.816 | 305.00 |
| LOCATION | L0001168 | VOLUME | 474281.489 | 3769981.537 | 305.00 |
| LOCATION | L0001169 | VOLUME | 474281.466 | 3769974.257 | 305.00 |
| LOCATION | L0001170 | VOLUME | 474281.444 | 3769966.978 | 305.00 |
| LOCATION | L0001171 | VOLUME | 474281.421 | 3769959.699 | 305.00 |
| LOCATION | L0001172 | VOLUME | 474281.399 | 3769952.420 | 305.00 |
| LOCATION | L0001173 | VOLUME | 474281.376 | 3769945.141 | 305.00 |
| LOCATION | L0001174 | VOLUME | 474281.354 | 3769937.862 | 305.00 |
| LOCATION | L0001175 | VOLUME | 474281.331 | 3769930.583 | 305.19 |
| LOCATION | L0001176 | VOLUME | 474281.309 | 3769923.303 | 305.44 |

\*\* End of LINE VOLUME Source ID = SLINE11

\*\* Source Parameters \*\*

|          |       |          |       |         |          |       |
|----------|-------|----------|-------|---------|----------|-------|
| SRCPARAM | STCK1 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK2 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK3 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK4 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |

|                                   |               |       |         |          |       |
|-----------------------------------|---------------|-------|---------|----------|-------|
| SRCPARAM STCK5                    | 8.04E-06      | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM STCK6                    | 8.04E-06      | 3.658 | 366.000 | 51.81600 | 0.091 |
| ** LINE VOLUME Source ID = SLINE1 |               |       |         |          |       |
| SRCPARAM L0000001                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000002                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000003                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000004                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000005                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000006                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000007                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000008                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000009                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000010                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000011                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000012                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000013                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000014                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000015                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000016                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000017                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000018                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000019                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000020                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000021                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000022                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000023                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000024                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000025                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000026                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000027                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000028                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000029                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000030                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM L0000031                 | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| ** -----                          |               |       |         |          |       |
| ** LINE VOLUME Source ID = SLINE2 |               |       |         |          |       |
| SRCPARAM L0001177                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001178                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001179                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001180                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001181                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001182                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001183                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001184                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM L0001185                 | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| ** -----                          |               |       |         |          |       |
| ** LINE VOLUME Source ID = SLINE3 |               |       |         |          |       |
| SRCPARAM L0000041                 | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| SRCPARAM L0000042                 | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| SRCPARAM L0000043                 | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| ** -----                          |               |       |         |          |       |



|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000094 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000095 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000096 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000097 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000098 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000099 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000100 | 0.0000005561 | 0.00 | 3.36 | 6.10 |

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\*\* LINE VOLUME Source ID = SLINE5

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000696 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000697 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000698 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000699 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000700 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000701 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000702 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000703 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000704 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000705 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000706 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000707 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000708 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000709 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000710 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000711 | 0.0000002044 | 0.00 | 3.23 | 0.85 |

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\*\* LINE VOLUME Source ID = SLINE6

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000712 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000713 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000714 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000715 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000716 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000717 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000718 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000719 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000720 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000721 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000722 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000723 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000724 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000725 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000726 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000727 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000728 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000729 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000730 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000731 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000732 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000733 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000734 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000735 | 0.00000005657 | 0.00 | 3.38 | 0.85 |

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000736 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000737 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000738 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000739 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000740 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000741 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000742 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000743 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000744 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000745 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000746 | 0.00000005657 | 0.00 | 3.38 | 0.85 |

\*\*

\*\* LINE VOLUME Source ID = SLINE7

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000747 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000748 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000749 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000750 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000751 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000752 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000753 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000754 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000755 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000756 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000757 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000758 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000759 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000760 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000761 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000762 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000763 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000764 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000765 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000766 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000767 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000768 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000769 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000770 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000771 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000772 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000773 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000774 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000775 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000776 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000777 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000778 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000779 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000780 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000781 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000782 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000783 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000784 | 0.0000002625 | 0.00 | 3.39 | 0.85 |

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000785 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000786 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000787 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000788 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000789 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000790 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000791 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000792 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000793 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000794 | 0.0000002625 | 0.00 | 3.39 | 0.85 |

\*\*

\*\* LINE VOLUME Source ID = SLINE8

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000795 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000796 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000797 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000798 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000799 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000800 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000801 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000802 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000803 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000804 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000805 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000806 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000807 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000808 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000809 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000810 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000811 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000812 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000813 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000814 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000815 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000816 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000817 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000818 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000819 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000820 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000821 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000822 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000823 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000824 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000825 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000826 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000827 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000828 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000829 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000830 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000831 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000832 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000833 | 0.0000001755 | 0.00 | 3.38 | 0.85 |







|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000985 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000986 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000987 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000988 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000989 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000990 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000991 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000992 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000993 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000994 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000995 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000996 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000997 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000998 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000999 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001000 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001001 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001002 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001003 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001004 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001005 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001006 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001007 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001008 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001009 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001010 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001011 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001012 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001013 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001014 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001015 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001016 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001017 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001018 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001019 | 0.00000004372 | 0.00 | 3.37 | 0.85 |

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 \*\* LINE VOLUME Source ID = SLINE10

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0001020 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001021 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001022 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001023 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001024 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001025 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001026 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001027 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001028 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001029 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001030 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001031 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001032 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001033 | 0.00000004389 | 0.00 | 3.40 | 0.85 |

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0001034 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001035 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001036 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001037 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001038 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001039 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001040 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001041 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001042 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001043 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001044 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001045 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001046 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001047 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001048 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001049 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001050 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001051 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001052 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001053 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001054 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001055 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001056 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001057 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001058 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001059 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001060 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001061 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001062 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001063 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001064 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001065 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001066 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001067 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001068 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001069 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001070 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001071 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001072 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001073 | 0.00000004389 | 0.00 | 3.40 | 0.85 |

\*\*

\*\* LINE VOLUME Source ID = SLINE11

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0001074 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001075 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001076 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001077 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001078 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001079 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001080 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001081 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001082 | 0.0000001757 | 0.00 | 3.39 | 0.85 |









|           |       |         |         |         |         |         |         |
|-----------|-------|---------|---------|---------|---------|---------|---------|
| BUILDLLEN | STCK4 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK4 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK4 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK4 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK5 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK5 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK5 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK5 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK5 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK5 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK6 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK6 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK6 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK6 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK6 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK6 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| XBADJ     | STCK1 | -188.45 | -210.96 | -227.06 | -236.26 | -238.28 | -233.06 |
| XBADJ     | STCK1 | -220.76 | -201.75 | -176.97 | -176.36 | -170.38 | -159.24 |
| XBADJ     | STCK1 | -143.25 | -122.91 | -98.83  | -71.76  | -42.50  | -11.95  |
| XBADJ     | STCK1 | -38.43  | -64.47  | -88.54  | -109.93 | -127.97 | -142.13 |
| XBADJ     | STCK1 | -151.96 | -157.19 | -157.63 | -182.64 | -202.46 | -216.13 |
| XBADJ     | STCK1 | -223.23 | -223.55 | -217.08 | -204.01 | -184.74 | -160.22 |
| XBADJ     | STCK2 | -173.26 | -179.63 | -180.55 | -175.98 | -166.06 | -151.10 |
| XBADJ     | STCK2 | -131.54 | -107.99 | -81.52  | -82.11  | -80.21  | -75.87  |
| XBADJ     | STCK2 | -69.23  | -60.48  | -49.90  | -37.80  | -24.55  | -10.55  |
| XBADJ     | STCK2 | -53.63  | -95.80  | -135.05 | -170.21 | -200.19 | -224.09 |
| XBADJ     | STCK2 | -241.18 | -250.94 | -253.08 | -276.88 | -292.63 | -299.49 |
| XBADJ     | STCK2 | -297.25 | -285.98 | -266.02 | -237.97 | -202.69 | -161.62 |
| XBADJ     | STCK3 | -202.03 | -237.19 | -265.13 | -285.03 | -296.26 | -298.49 |
| XBADJ     | STCK3 | -291.65 | -275.95 | -252.22 | -250.37 | -240.92 | -224.14 |
| XBADJ     | STCK3 | -200.56 | -170.88 | -136.01 | -97.00  | -55.05  | -11.43  |
| XBADJ     | STCK3 | -24.85  | -38.24  | -50.47  | -61.16  | -69.99  | -76.70  |
| XBADJ     | STCK3 | -81.07  | -82.99  | -82.38  | -108.62 | -131.93 | -151.22 |
| XBADJ     | STCK3 | -165.92 | -175.58 | -179.90 | -178.76 | -172.19 | -160.74 |
| XBADJ     | STCK4 | -41.75  | -70.16  | -96.44  | -119.79 | -139.50 | -154.97 |
| XBADJ     | STCK4 | -165.73 | -171.45 | -172.33 | -197.51 | -216.69 | -229.29 |
| XBADJ     | STCK4 | -234.92 | -233.42 | -224.82 | -209.39 | -187.59 | -160.10 |
| XBADJ     | STCK4 | -185.14 | -205.27 | -219.16 | -226.40 | -226.75 | -220.22 |
| XBADJ     | STCK4 | -207.00 | -187.48 | -162.27 | -161.48 | -156.15 | -146.07 |
| XBADJ     | STCK4 | -131.56 | -113.04 | -91.10  | -66.38  | -39.65  | -12.07  |
| XBADJ     | STCK5 | -25.06  | -37.80  | -49.40  | -59.50  | -67.79  | -74.02  |
| XBADJ     | STCK5 | -78.00  | -79.61  | -79.16  | -105.85 | -129.32 | -148.86 |
| XBADJ     | STCK5 | -163.88 | -173.93 | -178.68 | -178.01 | -171.93 | -160.62 |
| XBADJ     | STCK5 | -201.83 | -237.62 | -266.20 | -286.68 | -298.46 | -301.17 |

|       |       |         |         |         |         |         |         |
|-------|-------|---------|---------|---------|---------|---------|---------|
| XBADJ | STCK5 | -294.72 | -279.33 | -255.44 | -253.15 | -243.52 | -226.50 |
| XBADJ | STCK5 | -202.60 | -172.53 | -137.23 | -97.76  | -55.31  | -11.55  |
| XBADJ | STCK6 | -54.99  | -96.76  | -135.58 | -170.29 | -199.82 | -223.29 |
| XBADJ | STCK6 | -239.96 | -249.35 | -251.52 | -275.59 | -291.29 | -298.13 |
| XBADJ | STCK6 | -295.92 | -284.72 | -264.86 | -236.96 | -201.86 | -160.62 |
| XBADJ | STCK6 | -171.90 | -178.67 | -180.02 | -175.89 | -166.42 | -151.90 |
| XBADJ | STCK6 | -132.76 | -109.58 | -83.08  | -83.41  | -81.56  | -77.23  |
| XBADJ | STCK6 | -70.56  | -61.74  | -51.05  | -38.81  | -25.38  | -11.55  |
| YBADJ | STCK1 | -3.14   | -16.04  | -28.45  | -39.99  | -50.32  | -59.12  |
| YBADJ | STCK1 | -66.13  | -71.12  | -74.14  | -75.01  | -73.25  | -69.26  |
| YBADJ | STCK1 | -63.17  | -55.15  | -45.47  | -34.40  | -22.28  | -9.67   |
| YBADJ | STCK1 | 3.14    | 16.04   | 28.45   | 39.99   | 50.32   | 59.12   |
| YBADJ | STCK1 | 66.13   | 71.12   | 74.14   | 75.01   | 73.25   | 69.26   |
| YBADJ | STCK1 | 63.17   | 55.15   | 45.47   | 34.40   | 22.28   | 9.67    |
| YBADJ | STCK2 | -97.38  | -106.21 | -111.81 | -114.01 | -112.75 | -108.06 |
| YBADJ | STCK2 | -100.09 | -89.07  | -75.54  | -59.82  | -41.92  | -22.75  |
| YBADJ | STCK2 | -2.88   | 17.06   | 36.50   | 54.82   | 71.48   | 85.78   |
| YBADJ | STCK2 | 97.38   | 106.21  | 111.81  | 114.01  | 112.75  | 108.06  |
| YBADJ | STCK2 | 100.09  | 89.07   | 75.54   | 59.82   | 41.92   | 22.75   |
| YBADJ | STCK2 | 2.88    | -17.06  | -36.50  | -54.82  | -71.48  | -85.78  |
| YBADJ | STCK3 | 70.87   | 54.50   | 36.46   | 17.32   | -2.35   | -21.95  |
| YBADJ | STCK3 | -40.88  | -58.57  | -74.66  | -88.59  | -99.47  | -107.33 |
| YBADJ | STCK3 | -111.93 | -113.13 | -110.89 | -105.29 | -96.48  | -84.92  |
| YBADJ | STCK3 | -70.87  | -54.50  | -36.46  | -17.32  | 2.35    | 21.95   |
| YBADJ | STCK3 | 40.88   | 58.57   | 74.66   | 88.59   | 99.47   | 107.33  |
| YBADJ | STCK3 | 111.93  | 113.13  | 110.89  | 105.29  | 96.48   | 84.92   |
| YBADJ | STCK4 | 18.01   | 30.27   | 41.61   | 51.68   | 60.19   | 66.86   |
| YBADJ | STCK4 | 71.50   | 73.97   | 74.01   | 71.69   | 67.55   | 61.36   |
| YBADJ | STCK4 | 53.31   | 43.63   | 32.63   | 20.63   | 8.01    | -5.03   |
| YBADJ | STCK4 | -18.01  | -30.27  | -41.61  | -51.68  | -60.19  | -66.86  |
| YBADJ | STCK4 | -71.50  | -73.97  | -74.01  | -71.69  | -67.55  | -61.36  |
| YBADJ | STCK4 | -53.31  | -43.63  | -32.63  | -20.63  | -8.01   | 5.03    |
| YBADJ | STCK5 | -73.65  | -57.10  | -38.82  | -19.36  | 0.70    | 20.73   |
| YBADJ | STCK5 | 40.13   | 58.31   | 74.53   | 88.38   | 99.91   | 108.40  |
| YBADJ | STCK5 | 113.59  | 115.34  | 113.57  | 108.36  | 99.86   | 88.14   |
| YBADJ | STCK5 | 73.65   | 57.10   | 38.82   | 19.36   | -0.70   | -20.73  |
| YBADJ | STCK5 | -40.13  | -58.31  | -74.53  | -88.38  | -99.91  | -108.40 |
| YBADJ | STCK5 | -113.59 | -115.34 | -113.57 | -108.36 | -99.86  | -88.14  |
| YBADJ | STCK6 | 96.09   | 104.86  | 110.45  | 112.68  | 111.49  | 106.91  |
| YBADJ | STCK6 | 99.08   | 88.24   | 74.53   | 58.45   | 40.96   | 22.22   |
| YBADJ | STCK6 | 2.80    | -16.70  | -35.69  | -53.60  | -69.88  | -84.22  |
| YBADJ | STCK6 | -96.09  | -104.86 | -110.45 | -112.68 | -111.49 | -106.91 |
| YBADJ | STCK6 | -99.08  | -88.24  | -74.53  | -58.45  | -40.96  | -22.22  |
| YBADJ | STCK6 | -2.80   | 16.70   | 35.69   | 53.60   | 69.88   | 84.22   |

```

URBANSRC ALL
SRCGROUP ALL
SO FINISHED
**
*****
** AERMOD Receptor Pathway
*****
**
**
RE STARTING
  INCLUDED "5629b Waterman.rou"
RE FINISHED
**
*****
** AERMOD Meteorology Pathway
*****
**
**
ME STARTING
  SURFFILE "C:\Users\Kate Wilson\Desktop\Met data\snbo8.sfc"
  PROFFILE "C:\Users\Kate Wilson\Desktop\Met data\snbo8.PFL"
  SURFDATA 0 2007
  UAIRDATA 3190 2007
  SITEDATA 99999 2007
  PROFBASE 305.0 METERS
ME FINISHED
**
*****
** AERMOD Output Pathway
*****
**
**
OU STARTING
** Auto-Generated Plotfiles
  PLOTFILE ANNUAL ALL "5629b Waterman.AD\AN00GALL.PLT" 31
  SUMMFILE "5629b Waterman.sum"
OU FINISHED

```

\*\*\* Message Summary For AERMOD Model Setup \*\*\*

----- Summary of Total Messages -----

```

A Total of          0 Fatal Error Message(s)
A Total of          6 Warning Message(s)
A Total of          0 Informational Message(s)

```

```

***** FATAL ERROR MESSAGES *****
*** NONE ***

```

```

***** WARNING MESSAGES *****
SO W320      812      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      813      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      814      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      815      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      816      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      817      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS

```

```

*****
*** SETUP Finishes Successfully ***
*****

```

```

*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
                                                                    ***   PAGE 1

```

```

**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL      URBAN

```

```

***      MODEL SETUP OPTIONS SUMMARY      ***

```

```

-- -- -- -- --
**Model Is Setup For Calculation of Average CONCentration Values.

```

```

-- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT = F
**Model Uses NO WET DEPLETION.  WETDPLT = F

```

```

**Model Uses URBAN Dispersion Algorithm for the SBL for 587 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 219288.0 ; Urban Roughness Length = 1.000 m

```

```

**Model Allows User-Specified Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

```

```

**Other Options Specified:
FASTALL - Use effective sigma-y to optimize meander for
          POINT and VOLUME sources, and hybrid approach
          to optimize AREA sources (formerly TOXICS option)
TEMP_Sub - Meteorological data includes TEMP substitutions

```

```

**Model Assumes No FLAGPOLE Receptor Heights.

```

\*\*The User Specified a Pollutant Type of: DPM

\*\*Model Calculates ANNUAL Averages Only

\*\*This Run Includes: 587 Source(s); 1 Source Group(s); and 457 Receptor(s)

with: 6 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 581 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 OPENPIT source(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 14134

\*\*Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 305.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 4.6 MB of RAM.

\*\*Detailed Error/Message File: 5629b Waterman.err  
\*\*File for Summary of Results: 5629b Waterman.sum

\*\*\* AERMOD - VERSION 15181 \*\*\* \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc \*\*\* 09/21/15  
\*\*\* AERMET - VERSION 14134 \*\*\* \*\*\* DPM concentrations onsite, offsite and idling \*\*\* 17:22:52  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* POINT SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | STACK HEIGHT (METERS) | STACK TEMP. (DEG.K) | STACK EXIT VEL. (M/SEC) | STACK DIAMETER (METERS) | BLDG EXISTS | URBAN SOURCE | CAP/ HOR | EMIS RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-----------------------|---------------------|-------------------------|-------------------------|-------------|--------------|----------|--------------------------|
| STCK1     | 0                  | 0.80400E-05               | 474076.8   | 3770734.9  | 307.0               | 3.66                  | 366.00              | 51.82                   | 0.09                    | YES         | YES          | NO       |                          |
| STCK2     | 0                  | 0.80400E-05               | 473981.4   | 3770736.3  | 306.0               | 3.66                  | 366.00              | 51.82                   | 0.09                    | YES         | YES          | NO       |                          |

|       |   |             |          |           |       |      |        |       |      |     |     |    |
|-------|---|-------------|----------|-----------|-------|------|--------|-------|------|-----|-----|----|
| STCK3 | 0 | 0.80400E-05 | 474152.1 | 3770735.4 | 307.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK4 | 0 | 0.80400E-05 | 474072.2 | 3770586.7 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK5 | 0 | 0.80400E-05 | 473979.0 | 3770586.2 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK6 | 0 | 0.80400E-05 | 474151.4 | 3770586.2 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000001  | 0                  | 0.55160E-06               | 473951.9   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000002  | 0                  | 0.55160E-06               | 473959.1   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000003  | 0                  | 0.55160E-06               | 473966.4   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000004  | 0                  | 0.55160E-06               | 473973.6   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000005  | 0                  | 0.55160E-06               | 473980.9   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000006  | 0                  | 0.55160E-06               | 473988.1   | 3770763.2  | 306.2               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000007  | 0                  | 0.55160E-06               | 473995.4   | 3770763.2  | 306.3               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000008  | 0                  | 0.55160E-06               | 474002.6   | 3770763.2  | 306.4               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000009  | 0                  | 0.55160E-06               | 474009.8   | 3770763.2  | 306.6               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000010  | 0                  | 0.55160E-06               | 474017.1   | 3770763.2  | 306.7               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000011  | 0                  | 0.55160E-06               | 474024.3   | 3770763.2  | 306.8               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000012  | 0                  | 0.55160E-06               | 474031.6   | 3770763.2  | 306.9               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000013  | 0                  | 0.55160E-06               | 474038.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000014  | 0                  | 0.55160E-06               | 474046.1   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000015  | 0                  | 0.55160E-06               | 474053.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000016  | 0                  | 0.55160E-06               | 474060.6   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000017  | 0                  | 0.55160E-06               | 474067.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000018  | 0                  | 0.55160E-06               | 474075.1   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000019  | 0                  | 0.55160E-06               | 474082.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000020  | 0                  | 0.55160E-06               | 474089.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000021  | 0                  | 0.55160E-06               | 474096.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000022  | 0                  | 0.55160E-06               | 474104.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000023  | 0                  | 0.55160E-06               | 474111.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000024  | 0                  | 0.55160E-06               | 474118.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000025  | 0                  | 0.55160E-06               | 474125.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000026  | 0                  | 0.55160E-06               | 474133.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000027  | 0                  | 0.55160E-06               | 474140.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000028  | 0                  | 0.55160E-06               | 474147.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000029  | 0                  | 0.55160E-06               | 474154.7   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000030  | 0                  | 0.55160E-06               | 474162.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000031  | 0                  | 0.55160E-06               | 474169.2   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0001177  | 0                  | 0.69440E-07               | 473896.5   | 3770788.6  | 306.0               | 0.00                    | 3.39              | 6.10              | YES          |                              |
| L0001178  | 0                  | 0.69440E-07               | 473896.9   | 3770781.3  | 306.0               | 0.00                    | 3.39              | 6.10              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0001179 | 0 | 0.69440E-07 | 473897.3 | 3770774.1 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001180 | 0 | 0.69440E-07 | 473900.6 | 3770767.8 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001181 | 0 | 0.69440E-07 | 473905.9 | 3770764.0 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001182 | 0 | 0.69440E-07 | 473913.1 | 3770763.8 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001183 | 0 | 0.69440E-07 | 473920.4 | 3770763.7 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001184 | 0 | 0.69440E-07 | 473927.7 | 3770763.5 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001185 | 0 | 0.69440E-07 | 473935.0 | 3770763.4 | 306.0 | 0.00 | 3.39 | 6.10 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL        URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000041  | 0                  | 0.11870E-06               | 474160.3   | 3770786.6  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000042  | 0                  | 0.11870E-06               | 474160.4   | 3770782.2  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000043  | 0                  | 0.11870E-06               | 474160.5   | 3770777.8  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000044  | 0                  | 0.55610E-06               | 473955.7   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000045  | 0                  | 0.55610E-06               | 473962.9   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000046  | 0                  | 0.55610E-06               | 473970.1   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000047  | 0                  | 0.55610E-06               | 473977.4   | 3770559.2  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000048  | 0                  | 0.55610E-06               | 473984.6   | 3770559.2  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000049  | 0                  | 0.55610E-06               | 473991.8   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000050  | 0                  | 0.55610E-06               | 473999.0   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000051  | 0                  | 0.55610E-06               | 474006.3   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000052  | 0                  | 0.55610E-06               | 474013.5   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000053  | 0                  | 0.55610E-06               | 474020.7   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000054  | 0                  | 0.55610E-06               | 474028.0   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000055  | 0                  | 0.55610E-06               | 474035.2   | 3770558.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000056  | 0                  | 0.55610E-06               | 474042.4   | 3770558.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000057  | 0                  | 0.55610E-06               | 474049.6   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000058  | 0                  | 0.55610E-06               | 474056.9   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000059  | 0                  | 0.55610E-06               | 474064.1   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000060  | 0                  | 0.55610E-06               | 474071.3   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000061  | 0                  | 0.55610E-06               | 474078.5   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000062  | 0                  | 0.55610E-06               | 474085.8   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000063  | 0                  | 0.55610E-06               | 474093.0   | 3770558.6  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000064  | 0                  | 0.55610E-06               | 474100.2   | 3770558.6  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000065  | 0                  | 0.55610E-06               | 474107.5   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000066  | 0                  | 0.55610E-06               | 474114.7   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000067  | 0                  | 0.55610E-06               | 474121.9   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000068  | 0                  | 0.55610E-06               | 474129.1   | 3770558.4  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000069  | 0                  | 0.55610E-06               | 474136.4   | 3770558.4  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000070  | 0                  | 0.55610E-06               | 474143.6   | 3770558.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000071 | 0 | 0.55610E-06 | 474150.8 | 3770558.3 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000072 | 0 | 0.55610E-06 | 474158.1 | 3770558.3 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000073 | 0 | 0.55610E-06 | 474165.3 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000074 | 0 | 0.55610E-06 | 474172.5 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000075 | 0 | 0.55610E-06 | 474179.7 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000076 | 0 | 0.55610E-06 | 474187.0 | 3770558.1 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000077 | 0 | 0.55610E-06 | 474194.2 | 3770558.1 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000078 | 0 | 0.55610E-06 | 474201.4 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000079 | 0 | 0.55610E-06 | 474208.7 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000080 | 0 | 0.55610E-06 | 474215.9 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |

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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE |         |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|---------------|---------|
|           |                    |                           |            |            |                     |                         |                   |                   |              | SCALAR        | VARY BY |
| L0000081  | 0                  | 0.55610E-06               | 474223.1   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000082  | 0                  | 0.55610E-06               | 474230.3   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000083  | 0                  | 0.55610E-06               | 474237.6   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000084  | 0                  | 0.55610E-06               | 474242.6   | 3770562.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000085  | 0                  | 0.55610E-06               | 474247.5   | 3770568.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000086  | 0                  | 0.55610E-06               | 474251.5   | 3770573.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000087  | 0                  | 0.55610E-06               | 474251.7   | 3770581.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000088  | 0                  | 0.55610E-06               | 474251.8   | 3770588.2  | 306.1               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000089  | 0                  | 0.55610E-06               | 474252.0   | 3770595.5  | 306.1               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000090  | 0                  | 0.55610E-06               | 474252.1   | 3770602.7  | 306.3               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000091  | 0                  | 0.55610E-06               | 474252.3   | 3770609.9  | 306.5               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000092  | 0                  | 0.55610E-06               | 474252.4   | 3770617.2  | 306.7               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000093  | 0                  | 0.55610E-06               | 474252.6   | 3770624.4  | 306.9               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000094  | 0                  | 0.55610E-06               | 474252.7   | 3770631.6  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000095  | 0                  | 0.55610E-06               | 474252.9   | 3770638.8  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000096  | 0                  | 0.55610E-06               | 474253.0   | 3770646.1  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000097  | 0                  | 0.55610E-06               | 474253.1   | 3770653.3  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000098  | 0                  | 0.55610E-06               | 474253.3   | 3770660.5  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000099  | 0                  | 0.55610E-06               | 474255.5   | 3770666.6  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000100  | 0                  | 0.55610E-06               | 474261.6   | 3770670.5  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000696  | 0                  | 0.20440E-06               | 474163.3   | 3770799.0  | 307.1               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000697  | 0                  | 0.20440E-06               | 474170.3   | 3770799.1  | 307.3               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000698  | 0                  | 0.20440E-06               | 474177.2   | 3770799.2  | 307.4               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000699  | 0                  | 0.20440E-06               | 474184.1   | 3770799.2  | 307.6               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000700  | 0                  | 0.20440E-06               | 474191.1   | 3770799.3  | 307.8               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000701  | 0                  | 0.20440E-06               | 474198.0   | 3770799.4  | 307.8               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000702  | 0                  | 0.20440E-06               | 474205.0   | 3770799.4  | 307.9               | 0.00                    | 3.23              | 0.85              | YES          |               |         |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000703 | 0 | 0.20440E-06 | 474211.9 | 3770799.5 | 307.9 | 0.00 | 3.23 | 0.85 | YES |
| L0000704 | 0 | 0.20440E-06 | 474218.8 | 3770799.5 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000705 | 0 | 0.20440E-06 | 474225.8 | 3770799.6 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000706 | 0 | 0.20440E-06 | 474232.7 | 3770799.7 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000707 | 0 | 0.20440E-06 | 474239.7 | 3770799.7 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000708 | 0 | 0.20440E-06 | 474246.6 | 3770799.8 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000709 | 0 | 0.20440E-06 | 474253.5 | 3770799.8 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000710 | 0 | 0.20440E-06 | 474260.5 | 3770799.9 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000711 | 0 | 0.20440E-06 | 474267.4 | 3770800.0 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000712 | 0 | 0.56570E-07 | 473899.5 | 3770798.0 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000713 | 0 | 0.56570E-07 | 473906.8 | 3770798.0 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000714 | 0 | 0.56570E-07 | 473914.1 | 3770798.1 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000715 | 0 | 0.56570E-07 | 473921.3 | 3770798.1 | 306.0 | 0.00 | 3.38 | 0.85 | YES |

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 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000716  | 0                  | 0.56570E-07               | 473928.6   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000717  | 0                  | 0.56570E-07               | 473935.9   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000718  | 0                  | 0.56570E-07               | 473943.1   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000719  | 0                  | 0.56570E-07               | 473950.4   | 3770798.3  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000720  | 0                  | 0.56570E-07               | 473957.7   | 3770798.3  | 306.2               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000721  | 0                  | 0.56570E-07               | 473964.9   | 3770798.4  | 306.4               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000722  | 0                  | 0.56570E-07               | 473972.2   | 3770798.4  | 306.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000723  | 0                  | 0.56570E-07               | 473979.5   | 3770798.4  | 306.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000724  | 0                  | 0.56570E-07               | 473986.7   | 3770798.5  | 306.8               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000725  | 0                  | 0.56570E-07               | 473994.0   | 3770798.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000726  | 0                  | 0.56570E-07               | 474001.3   | 3770798.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000727  | 0                  | 0.56570E-07               | 474008.5   | 3770798.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000728  | 0                  | 0.56570E-07               | 474015.8   | 3770798.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000729  | 0                  | 0.56570E-07               | 474023.1   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000730  | 0                  | 0.56570E-07               | 474030.4   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000731  | 0                  | 0.56570E-07               | 474037.6   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000732  | 0                  | 0.56570E-07               | 474044.9   | 3770798.8  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000733  | 0                  | 0.56570E-07               | 474052.2   | 3770798.8  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000734  | 0                  | 0.56570E-07               | 474059.4   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000735  | 0                  | 0.56570E-07               | 474066.7   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000736  | 0                  | 0.56570E-07               | 474074.0   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000737  | 0                  | 0.56570E-07               | 474081.2   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000738  | 0                  | 0.56570E-07               | 474088.5   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000739  | 0                  | 0.56570E-07               | 474095.8   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000740 | 0 | 0.56570E-07 | 474103.0 | 3770799.1 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000741 | 0 | 0.56570E-07 | 474110.3 | 3770799.1 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000742 | 0 | 0.56570E-07 | 474117.6 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000743 | 0 | 0.56570E-07 | 474124.8 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000744 | 0 | 0.56570E-07 | 474132.1 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000745 | 0 | 0.56570E-07 | 474139.4 | 3770799.3 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000746 | 0 | 0.56570E-07 | 474146.6 | 3770799.3 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000747 | 0 | 0.26250E-06 | 474284.2 | 3770675.5 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000748 | 0 | 0.26250E-06 | 474284.2 | 3770682.8 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000749 | 0 | 0.26250E-06 | 474284.3 | 3770690.1 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000750 | 0 | 0.26250E-06 | 474284.3 | 3770697.3 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000751 | 0 | 0.26250E-06 | 474284.4 | 3770704.6 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000752 | 0 | 0.26250E-06 | 474284.4 | 3770711.9 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000753 | 0 | 0.26250E-06 | 474284.5 | 3770719.2 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000754 | 0 | 0.26250E-06 | 474284.5 | 3770726.5 | 307.4 | 0.00 | 3.39 | 0.85 | YES |
| L0000755 | 0 | 0.26250E-06 | 474284.6 | 3770733.8 | 307.7 | 0.00 | 3.39 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | PART. CATS. | NUMBER EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|-------------|----------------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000756  | 0           | 0.26250E-06                      | 474284.6   | 3770741.0  | 307.9               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000757  | 0           | 0.26250E-06                      | 474284.7   | 3770748.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000758  | 0           | 0.26250E-06                      | 474284.7   | 3770755.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000759  | 0           | 0.26250E-06                      | 474284.8   | 3770762.9  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000760  | 0           | 0.26250E-06                      | 474284.8   | 3770770.2  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000761  | 0           | 0.26250E-06                      | 474284.9   | 3770777.5  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000762  | 0           | 0.26250E-06                      | 474284.9   | 3770784.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000763  | 0           | 0.26250E-06                      | 474285.0   | 3770792.0  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000764  | 0           | 0.26250E-06                      | 474285.0   | 3770799.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000765  | 0           | 0.26250E-06                      | 474285.1   | 3770806.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000766  | 0           | 0.26250E-06                      | 474285.1   | 3770813.9  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000767  | 0           | 0.26250E-06                      | 474285.2   | 3770821.1  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000768  | 0           | 0.26250E-06                      | 474285.2   | 3770828.4  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000769  | 0           | 0.26250E-06                      | 474285.3   | 3770835.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000770  | 0           | 0.26250E-06                      | 474285.3   | 3770843.0  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000771  | 0           | 0.26250E-06                      | 474285.4   | 3770850.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000772  | 0           | 0.26250E-06                      | 474285.5   | 3770857.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000773  | 0           | 0.26250E-06                      | 474285.5   | 3770864.8  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000774  | 0           | 0.26250E-06                      | 474285.6   | 3770872.1  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000775  | 0           | 0.26250E-06                      | 474285.6   | 3770879.4  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000776  | 0           | 0.26250E-06                      | 474285.7   | 3770886.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000777 | 0 | 0.26250E-06 | 474285.7 | 3770894.0 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000778 | 0 | 0.26250E-06 | 474285.8 | 3770901.2 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000779 | 0 | 0.26250E-06 | 474285.8 | 3770908.5 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000780 | 0 | 0.26250E-06 | 474285.9 | 3770915.8 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000781 | 0 | 0.26250E-06 | 474285.9 | 3770923.1 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000782 | 0 | 0.26250E-06 | 474286.0 | 3770930.4 | 308.1 | 0.00 | 3.39 | 0.85 | YES |
| L0000783 | 0 | 0.26250E-06 | 474286.0 | 3770937.7 | 308.4 | 0.00 | 3.39 | 0.85 | YES |
| L0000784 | 0 | 0.26250E-06 | 474286.1 | 3770944.9 | 308.6 | 0.00 | 3.39 | 0.85 | YES |
| L0000785 | 0 | 0.26250E-06 | 474286.1 | 3770952.2 | 308.9 | 0.00 | 3.39 | 0.85 | YES |
| L0000786 | 0 | 0.26250E-06 | 474286.2 | 3770959.5 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000787 | 0 | 0.26250E-06 | 474286.2 | 3770966.8 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000788 | 0 | 0.26250E-06 | 474286.3 | 3770974.1 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000789 | 0 | 0.26250E-06 | 474286.3 | 3770981.3 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000790 | 0 | 0.26250E-06 | 474286.4 | 3770988.6 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000791 | 0 | 0.26250E-06 | 474286.4 | 3770995.9 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000792 | 0 | 0.26250E-06 | 474286.5 | 3771003.2 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000793 | 0 | 0.26250E-06 | 474286.5 | 3771010.5 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000794 | 0 | 0.26250E-06 | 474286.6 | 3771017.8 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000795 | 0 | 0.17550E-06 | 473273.0 | 3771027.2 | 302.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000796  | 0                  | 0.17550E-06               | 473280.2   | 3771027.2  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000797  | 0                  | 0.17550E-06               | 473287.5   | 3771027.2  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000798  | 0                  | 0.17550E-06               | 473294.8   | 3771027.2  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000799  | 0                  | 0.17550E-06               | 473302.1   | 3771027.2  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000800  | 0                  | 0.17550E-06               | 473309.3   | 3771027.2  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000801  | 0                  | 0.17550E-06               | 473316.6   | 3771027.3  | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000802  | 0                  | 0.17550E-06               | 473323.9   | 3771027.3  | 302.1               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000803  | 0                  | 0.17550E-06               | 473331.2   | 3771027.3  | 302.1               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000804  | 0                  | 0.17550E-06               | 473338.4   | 3771027.3  | 302.2               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000805  | 0                  | 0.17550E-06               | 473345.7   | 3771027.3  | 302.3               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000806  | 0                  | 0.17550E-06               | 473353.0   | 3771027.3  | 302.4               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000807  | 0                  | 0.17550E-06               | 473360.3   | 3771027.4  | 302.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000808  | 0                  | 0.17550E-06               | 473367.5   | 3771027.4  | 302.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000809  | 0                  | 0.17550E-06               | 473374.8   | 3771027.4  | 302.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000810  | 0                  | 0.17550E-06               | 473382.1   | 3771027.4  | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000811  | 0                  | 0.17550E-06               | 473389.4   | 3771027.4  | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000812  | 0                  | 0.17550E-06               | 473396.6   | 3771027.4  | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000813  | 0                  | 0.17550E-06               | 473403.9   | 3771027.5  | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000814 | 0 | 0.17550E-06 | 473411.2 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000815 | 0 | 0.17550E-06 | 473418.5 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000816 | 0 | 0.17550E-06 | 473425.7 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000817 | 0 | 0.17550E-06 | 473433.0 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000818 | 0 | 0.17550E-06 | 473440.3 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000819 | 0 | 0.17550E-06 | 473447.5 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000820 | 0 | 0.17550E-06 | 473454.8 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000821 | 0 | 0.17550E-06 | 473462.1 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000822 | 0 | 0.17550E-06 | 473469.4 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000823 | 0 | 0.17550E-06 | 473476.6 | 3771027.6 | 303.1 | 0.00 | 3.38 | 0.85 | YES |
| L0000824 | 0 | 0.17550E-06 | 473483.9 | 3771027.6 | 303.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000825 | 0 | 0.17550E-06 | 473491.2 | 3771027.7 | 303.3 | 0.00 | 3.38 | 0.85 | YES |
| L0000826 | 0 | 0.17550E-06 | 473498.5 | 3771027.7 | 303.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000827 | 0 | 0.17550E-06 | 473505.7 | 3771027.7 | 303.5 | 0.00 | 3.38 | 0.85 | YES |
| L0000828 | 0 | 0.17550E-06 | 473513.0 | 3771027.7 | 303.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000829 | 0 | 0.17550E-06 | 473520.3 | 3771027.7 | 303.8 | 0.00 | 3.38 | 0.85 | YES |
| L0000830 | 0 | 0.17550E-06 | 473527.6 | 3771027.7 | 303.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000831 | 0 | 0.17550E-06 | 473534.8 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000832 | 0 | 0.17550E-06 | 473542.1 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000833 | 0 | 0.17550E-06 | 473549.4 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000834 | 0 | 0.17550E-06 | 473556.7 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000835 | 0 | 0.17550E-06 | 473563.9 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

\*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
 \*\*\* DPM concentrations onsite, offsite and idling

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 \*\*\* 17:22:52  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X Y      |           | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|----------|-----------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|           |                    |                           | (METERS) | (METERS)  |                     |                         |                   |                   |              |                              |
| L0000836  | 0                  | 0.17550E-06               | 473571.2 | 3771027.8 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000837  | 0                  | 0.17550E-06               | 473578.5 | 3771027.8 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000838  | 0                  | 0.17550E-06               | 473585.8 | 3771027.9 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000839  | 0                  | 0.17550E-06               | 473593.0 | 3771027.9 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000840  | 0                  | 0.17550E-06               | 473600.3 | 3771027.9 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000841  | 0                  | 0.17550E-06               | 473607.6 | 3771027.9 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000842  | 0                  | 0.17550E-06               | 473614.9 | 3771027.9 | 304.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000843  | 0                  | 0.17550E-06               | 473622.1 | 3771027.9 | 304.1               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000844  | 0                  | 0.17550E-06               | 473629.4 | 3771028.0 | 304.3               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000845  | 0                  | 0.17550E-06               | 473636.7 | 3771028.0 | 304.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000846  | 0                  | 0.17550E-06               | 473644.0 | 3771028.0 | 304.8               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000847  | 0                  | 0.17550E-06               | 473651.2 | 3771028.0 | 305.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000848  | 0                  | 0.17550E-06               | 473658.5 | 3771028.0 | 305.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000849  | 0                  | 0.17550E-06               | 473665.8 | 3771028.0 | 305.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000850  | 0                  | 0.17550E-06               | 473673.1 | 3771028.1 | 305.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000851 | 0 | 0.17550E-06 | 473680.3 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000852 | 0 | 0.17550E-06 | 473687.6 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000853 | 0 | 0.17550E-06 | 473694.9 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000854 | 0 | 0.17550E-06 | 473702.2 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000855 | 0 | 0.17550E-06 | 473709.4 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000856 | 0 | 0.17550E-06 | 473716.7 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000857 | 0 | 0.17550E-06 | 473724.0 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000858 | 0 | 0.17550E-06 | 473731.3 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000859 | 0 | 0.17550E-06 | 473738.5 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000860 | 0 | 0.17550E-06 | 473745.8 | 3771028.2 | 305.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000861 | 0 | 0.17550E-06 | 473753.1 | 3771028.2 | 305.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000862 | 0 | 0.17550E-06 | 473760.4 | 3771028.3 | 305.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000863 | 0 | 0.17550E-06 | 473767.6 | 3771028.3 | 305.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000864 | 0 | 0.17550E-06 | 473774.9 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000865 | 0 | 0.17550E-06 | 473782.2 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000866 | 0 | 0.17550E-06 | 473789.5 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000867 | 0 | 0.17550E-06 | 473796.7 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000868 | 0 | 0.17550E-06 | 473804.0 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000869 | 0 | 0.17550E-06 | 473811.3 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000870 | 0 | 0.17550E-06 | 473818.6 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000871 | 0 | 0.17550E-06 | 473825.8 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000872 | 0 | 0.17550E-06 | 473833.1 | 3771028.4 | 306.1 | 0.00 | 3.38 | 0.85 | YES |
| L0000873 | 0 | 0.17550E-06 | 473840.4 | 3771028.4 | 306.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000874 | 0 | 0.17550E-06 | 473847.7 | 3771028.5 | 306.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000875 | 0 | 0.17550E-06 | 473854.9 | 3771028.5 | 306.5 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000876  | 0                  | 0.17550E-06               | 473862.2   | 3771028.5  | 306.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000877  | 0                  | 0.17550E-06               | 473869.5   | 3771028.5  | 306.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000878  | 0                  | 0.17550E-06               | 473876.8   | 3771028.5  | 306.8               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000879  | 0                  | 0.17550E-06               | 473884.0   | 3771028.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000880  | 0                  | 0.17550E-06               | 473891.3   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000881  | 0                  | 0.17550E-06               | 473898.6   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000882  | 0                  | 0.17550E-06               | 473905.9   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000883  | 0                  | 0.17550E-06               | 473913.1   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000884  | 0                  | 0.17550E-06               | 473920.4   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000885  | 0                  | 0.17550E-06               | 473927.7   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000886  | 0                  | 0.17550E-06               | 473935.0   | 3771028.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000887  | 0                  | 0.17550E-06               | 473942.2   | 3771028.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000888 | 0 | 0.17550E-06 | 473949.5 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000889 | 0 | 0.17550E-06 | 473956.8 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000890 | 0 | 0.17550E-06 | 473964.1 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000891 | 0 | 0.17550E-06 | 473971.3 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000892 | 0 | 0.17550E-06 | 473978.6 | 3771028.8 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000893 | 0 | 0.17550E-06 | 473985.9 | 3771028.8 | 307.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000894 | 0 | 0.17550E-06 | 473993.2 | 3771028.8 | 307.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000895 | 0 | 0.17550E-06 | 474000.4 | 3771028.8 | 307.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000896 | 0 | 0.17550E-06 | 474007.7 | 3771028.8 | 307.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000897 | 0 | 0.17550E-06 | 474015.0 | 3771028.8 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000898 | 0 | 0.17550E-06 | 474022.2 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000899 | 0 | 0.17550E-06 | 474029.5 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000900 | 0 | 0.17550E-06 | 474036.8 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000901 | 0 | 0.17550E-06 | 474044.1 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000902 | 0 | 0.17550E-06 | 474051.3 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000903 | 0 | 0.17550E-06 | 474058.6 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000904 | 0 | 0.17550E-06 | 474065.9 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000905 | 0 | 0.17550E-06 | 474073.2 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000906 | 0 | 0.17550E-06 | 474080.4 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000907 | 0 | 0.17550E-06 | 474087.7 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000908 | 0 | 0.17550E-06 | 474095.0 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000909 | 0 | 0.17550E-06 | 474102.3 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000910 | 0 | 0.17550E-06 | 474109.5 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000911 | 0 | 0.17550E-06 | 474116.8 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000912 | 0 | 0.17550E-06 | 474124.1 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000913 | 0 | 0.17550E-06 | 474131.4 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000914 | 0 | 0.17550E-06 | 474138.6 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000915 | 0 | 0.17550E-06 | 474145.9 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X Y      |           | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|----------|-----------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|           |                    |                           | (METERS) | (METERS)  |                     |                         |                   |                   |              |                              |
| L0000916  | 0                  | 0.17550E-06               | 474153.2 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000917  | 0                  | 0.17550E-06               | 474160.5 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000918  | 0                  | 0.17550E-06               | 474167.7 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000919  | 0                  | 0.17550E-06               | 474175.0 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000920  | 0                  | 0.17550E-06               | 474182.3 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000921  | 0                  | 0.17550E-06               | 474189.6 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000922  | 0                  | 0.17550E-06               | 474196.8 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000923  | 0                  | 0.17550E-06               | 474204.1 | 3771029.3 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000924  | 0                  | 0.17550E-06               | 474211.4 | 3771029.3 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000925 | 0 | 0.17550E-06 | 474218.7 | 3771029.3 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000926 | 0 | 0.17550E-06 | 474225.9 | 3771029.3 | 308.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000927 | 0 | 0.17550E-06 | 474233.2 | 3771029.3 | 308.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000928 | 0 | 0.17550E-06 | 474240.5 | 3771029.3 | 308.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000929 | 0 | 0.17550E-06 | 474247.8 | 3771029.4 | 308.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000930 | 0 | 0.17550E-06 | 474255.0 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000931 | 0 | 0.17550E-06 | 474262.3 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000932 | 0 | 0.17550E-06 | 474269.6 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000933 | 0 | 0.17550E-06 | 474276.9 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000934 | 0 | 0.43720E-07 | 474294.3 | 3771029.8 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000935 | 0 | 0.43720E-07 | 474301.5 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000936 | 0 | 0.43720E-07 | 474308.7 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000937 | 0 | 0.43720E-07 | 474316.0 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000938 | 0 | 0.43720E-07 | 474323.2 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000939 | 0 | 0.43720E-07 | 474330.5 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000940 | 0 | 0.43720E-07 | 474337.7 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000941 | 0 | 0.43720E-07 | 474345.0 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000942 | 0 | 0.43720E-07 | 474352.2 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000943 | 0 | 0.43720E-07 | 474359.5 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000944 | 0 | 0.43720E-07 | 474366.7 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000945 | 0 | 0.43720E-07 | 474373.9 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000946 | 0 | 0.43720E-07 | 474381.2 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000947 | 0 | 0.43720E-07 | 474388.4 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000948 | 0 | 0.43720E-07 | 474395.7 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000949 | 0 | 0.43720E-07 | 474402.9 | 3771029.3 | 309.1 | 0.00 | 3.37 | 0.85 | YES |
| L0000950 | 0 | 0.43720E-07 | 474410.2 | 3771029.3 | 309.4 | 0.00 | 3.37 | 0.85 | YES |
| L0000951 | 0 | 0.43720E-07 | 474417.4 | 3771029.3 | 309.6 | 0.00 | 3.37 | 0.85 | YES |
| L0000952 | 0 | 0.43720E-07 | 474424.7 | 3771029.2 | 309.8 | 0.00 | 3.37 | 0.85 | YES |
| L0000953 | 0 | 0.43720E-07 | 474431.9 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000954 | 0 | 0.43720E-07 | 474439.2 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000955 | 0 | 0.43720E-07 | 474446.4 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE |         |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|---------------|---------|
|           |                    |                           |            |            |                     |                         |                   |                   |              | SCALAR        | VARY BY |
| L0000956  | 0                  | 0.43720E-07               | 474453.6   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |
| L0000957  | 0                  | 0.43720E-07               | 474460.9   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |
| L0000958  | 0                  | 0.43720E-07               | 474468.1   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |
| L0000959  | 0                  | 0.43720E-07               | 474475.4   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |
| L0000960  | 0                  | 0.43720E-07               | 474482.6   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |
| L0000961  | 0                  | 0.43720E-07               | 474489.9   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |               |         |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000962 | 0 | 0.43720E-07 | 474497.1 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000963 | 0 | 0.43720E-07 | 474504.4 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000964 | 0 | 0.43720E-07 | 474511.6 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000965 | 0 | 0.43720E-07 | 474518.8 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000966 | 0 | 0.43720E-07 | 474526.1 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000967 | 0 | 0.43720E-07 | 474533.3 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000968 | 0 | 0.43720E-07 | 474540.6 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000969 | 0 | 0.43720E-07 | 474547.8 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000970 | 0 | 0.43720E-07 | 474555.1 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000971 | 0 | 0.43720E-07 | 474562.3 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000972 | 0 | 0.43720E-07 | 474569.6 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000973 | 0 | 0.43720E-07 | 474576.8 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000974 | 0 | 0.43720E-07 | 474584.1 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000975 | 0 | 0.43720E-07 | 474591.3 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000976 | 0 | 0.43720E-07 | 474598.5 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000977 | 0 | 0.43720E-07 | 474605.8 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000978 | 0 | 0.43720E-07 | 474613.0 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000979 | 0 | 0.43720E-07 | 474620.3 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000980 | 0 | 0.43720E-07 | 474627.5 | 3771028.4 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000981 | 0 | 0.43720E-07 | 474634.8 | 3771028.4 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000982 | 0 | 0.43720E-07 | 474642.0 | 3771028.4 | 310.1 | 0.00 | 3.37 | 0.85 | YES |
| L0000983 | 0 | 0.43720E-07 | 474649.3 | 3771028.3 | 310.3 | 0.00 | 3.37 | 0.85 | YES |
| L0000984 | 0 | 0.43720E-07 | 474656.5 | 3771028.3 | 310.6 | 0.00 | 3.37 | 0.85 | YES |
| L0000985 | 0 | 0.43720E-07 | 474663.7 | 3771028.3 | 310.8 | 0.00 | 3.37 | 0.85 | YES |
| L0000986 | 0 | 0.43720E-07 | 474671.0 | 3771028.3 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000987 | 0 | 0.43720E-07 | 474678.2 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000988 | 0 | 0.43720E-07 | 474685.5 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000989 | 0 | 0.43720E-07 | 474692.7 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000990 | 0 | 0.43720E-07 | 474700.0 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000991 | 0 | 0.43720E-07 | 474707.2 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000992 | 0 | 0.43720E-07 | 474714.5 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000993 | 0 | 0.43720E-07 | 474721.7 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000994 | 0 | 0.43720E-07 | 474729.0 | 3771028.0 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000995 | 0 | 0.43720E-07 | 474736.2 | 3771028.0 | 311.0 | 0.00 | 3.37 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000996  | 0                  | 0.43720E-07               | 474743.4   | 3771028.0  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |
| L0000997  | 0                  | 0.43720E-07               | 474750.7   | 3771027.9  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |
| L0000998  | 0                  | 0.43720E-07               | 474757.9   | 3771027.9  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000999 | 0 | 0.43720E-07 | 474765.2 | 3771027.9 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001000 | 0 | 0.43720E-07 | 474772.4 | 3771027.9 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001001 | 0 | 0.43720E-07 | 474779.7 | 3771027.8 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001002 | 0 | 0.43720E-07 | 474786.9 | 3771027.8 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001003 | 0 | 0.43720E-07 | 474794.2 | 3771027.8 | 311.2 | 0.00 | 3.37 | 0.85 | YES |
| L0001004 | 0 | 0.43720E-07 | 474801.4 | 3771027.7 | 311.4 | 0.00 | 3.37 | 0.85 | YES |
| L0001005 | 0 | 0.43720E-07 | 474808.6 | 3771027.7 | 311.6 | 0.00 | 3.37 | 0.85 | YES |
| L0001006 | 0 | 0.43720E-07 | 474815.9 | 3771027.7 | 311.9 | 0.00 | 3.37 | 0.85 | YES |
| L0001007 | 0 | 0.43720E-07 | 474823.1 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001008 | 0 | 0.43720E-07 | 474830.4 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001009 | 0 | 0.43720E-07 | 474837.6 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001010 | 0 | 0.43720E-07 | 474844.9 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001011 | 0 | 0.43720E-07 | 474852.1 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001012 | 0 | 0.43720E-07 | 474859.4 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001013 | 0 | 0.43720E-07 | 474866.6 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001014 | 0 | 0.43720E-07 | 474873.9 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001015 | 0 | 0.43720E-07 | 474881.1 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001016 | 0 | 0.43720E-07 | 474888.3 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001017 | 0 | 0.43720E-07 | 474895.6 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001018 | 0 | 0.43720E-07 | 474902.8 | 3771027.3 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001019 | 0 | 0.43720E-07 | 474910.1 | 3771027.3 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001020 | 0 | 0.43890E-07 | 474286.5 | 3771039.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001021 | 0 | 0.43890E-07 | 474286.4 | 3771046.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001022 | 0 | 0.43890E-07 | 474286.4 | 3771053.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001023 | 0 | 0.43890E-07 | 474286.3 | 3771061.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001024 | 0 | 0.43890E-07 | 474286.3 | 3771068.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001025 | 0 | 0.43890E-07 | 474286.3 | 3771075.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001026 | 0 | 0.43890E-07 | 474286.2 | 3771083.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001027 | 0 | 0.43890E-07 | 474286.2 | 3771090.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001028 | 0 | 0.43890E-07 | 474286.1 | 3771097.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001029 | 0 | 0.43890E-07 | 474286.1 | 3771104.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001030 | 0 | 0.43890E-07 | 474286.1 | 3771112.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001031 | 0 | 0.43890E-07 | 474286.0 | 3771119.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001032 | 0 | 0.43890E-07 | 474286.0 | 3771126.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001033 | 0 | 0.43890E-07 | 474285.9 | 3771134.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001034 | 0 | 0.43890E-07 | 474285.9 | 3771141.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001035 | 0 | 0.43890E-07 | 474285.9 | 3771148.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*

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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | PART. CATS. | NUMBER EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|-------------|----------------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|-----------|-------------|----------------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0001036 | 0 | 0.43890E-07 | 474285.8 | 3771156.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001037 | 0 | 0.43890E-07 | 474285.8 | 3771163.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001038 | 0 | 0.43890E-07 | 474285.7 | 3771170.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001039 | 0 | 0.43890E-07 | 474285.7 | 3771177.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001040 | 0 | 0.43890E-07 | 474285.7 | 3771185.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001041 | 0 | 0.43890E-07 | 474285.6 | 3771192.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001042 | 0 | 0.43890E-07 | 474285.6 | 3771199.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001043 | 0 | 0.43890E-07 | 474285.5 | 3771207.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001044 | 0 | 0.43890E-07 | 474285.5 | 3771214.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001045 | 0 | 0.43890E-07 | 474285.4 | 3771221.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001046 | 0 | 0.43890E-07 | 474285.4 | 3771229.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001047 | 0 | 0.43890E-07 | 474285.4 | 3771236.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001048 | 0 | 0.43890E-07 | 474285.3 | 3771243.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001049 | 0 | 0.43890E-07 | 474285.3 | 3771250.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001050 | 0 | 0.43890E-07 | 474285.2 | 3771258.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001051 | 0 | 0.43890E-07 | 474285.2 | 3771265.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001052 | 0 | 0.43890E-07 | 474285.2 | 3771272.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001053 | 0 | 0.43890E-07 | 474285.1 | 3771280.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001054 | 0 | 0.43890E-07 | 474285.1 | 3771287.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001055 | 0 | 0.43890E-07 | 474285.0 | 3771294.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001056 | 0 | 0.43890E-07 | 474285.0 | 3771302.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001057 | 0 | 0.43890E-07 | 474285.0 | 3771309.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001058 | 0 | 0.43890E-07 | 474284.9 | 3771316.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001059 | 0 | 0.43890E-07 | 474284.9 | 3771323.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001060 | 0 | 0.43890E-07 | 474284.8 | 3771331.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001061 | 0 | 0.43890E-07 | 474284.8 | 3771338.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001062 | 0 | 0.43890E-07 | 474284.8 | 3771345.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001063 | 0 | 0.43890E-07 | 474284.7 | 3771353.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001064 | 0 | 0.43890E-07 | 474284.7 | 3771360.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001065 | 0 | 0.43890E-07 | 474284.6 | 3771367.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001066 | 0 | 0.43890E-07 | 474284.6 | 3771375.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001067 | 0 | 0.43890E-07 | 474284.6 | 3771382.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001068 | 0 | 0.43890E-07 | 474284.5 | 3771389.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001069 | 0 | 0.43890E-07 | 474284.5 | 3771396.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001070 | 0 | 0.43890E-07 | 474284.4 | 3771404.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001071 | 0 | 0.43890E-07 | 474284.4 | 3771411.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001072 | 0 | 0.43890E-07 | 474284.4 | 3771418.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001073 | 0 | 0.43890E-07 | 474284.3 | 3771426.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001074 | 0 | 0.17570E-06 | 474283.6 | 3770665.8 | 307.1 | 0.00 | 3.39 | 0.85 | YES |
| L0001075 | 0 | 0.17570E-06 | 474283.6 | 3770658.5 | 307.1 | 0.00 | 3.39 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE | NUMBER PART. | EMISSION RATE (GRAMS/SEC) | X | Y | BASE ELEV. | RELEASE HEIGHT | INIT. SY | INIT. SZ | URBAN SOURCE | EMISSION RATE SCALAR | EMISSION RATE VARY |
|--------|--------------|---------------------------|---|---|------------|----------------|----------|----------|--------------|----------------------|--------------------|
|--------|--------------|---------------------------|---|---|------------|----------------|----------|----------|--------------|----------------------|--------------------|

| ID       | CATS. | (METERS)    | (METERS) | (METERS)  | (METERS) | (METERS) | (METERS) | (METERS) | BY  |
|----------|-------|-------------|----------|-----------|----------|----------|----------|----------|-----|
| L0001076 | 0     | 0.17570E-06 | 474283.6 | 3770651.2 | 307.1    | 0.00     | 3.39     | 0.85     | YES |
| L0001077 | 0     | 0.17570E-06 | 474283.5 | 3770643.9 | 307.1    | 0.00     | 3.39     | 0.85     | YES |
| L0001078 | 0     | 0.17570E-06 | 474283.5 | 3770636.7 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001079 | 0     | 0.17570E-06 | 474283.5 | 3770629.4 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001080 | 0     | 0.17570E-06 | 474283.5 | 3770622.1 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001081 | 0     | 0.17570E-06 | 474283.4 | 3770614.8 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001082 | 0     | 0.17570E-06 | 474283.4 | 3770607.5 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001083 | 0     | 0.17570E-06 | 474283.4 | 3770600.3 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001084 | 0     | 0.17570E-06 | 474283.4 | 3770593.0 | 306.9    | 0.00     | 3.39     | 0.85     | YES |
| L0001085 | 0     | 0.17570E-06 | 474283.4 | 3770585.7 | 306.6    | 0.00     | 3.39     | 0.85     | YES |
| L0001086 | 0     | 0.17570E-06 | 474283.3 | 3770578.4 | 306.4    | 0.00     | 3.39     | 0.85     | YES |
| L0001087 | 0     | 0.17570E-06 | 474283.3 | 3770571.1 | 306.2    | 0.00     | 3.39     | 0.85     | YES |
| L0001088 | 0     | 0.17570E-06 | 474283.3 | 3770563.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001089 | 0     | 0.17570E-06 | 474283.3 | 3770556.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001090 | 0     | 0.17570E-06 | 474283.2 | 3770549.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001091 | 0     | 0.17570E-06 | 474283.2 | 3770542.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001092 | 0     | 0.17570E-06 | 474283.2 | 3770534.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001093 | 0     | 0.17570E-06 | 474283.2 | 3770527.5 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001094 | 0     | 0.17570E-06 | 474283.2 | 3770520.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001095 | 0     | 0.17570E-06 | 474283.1 | 3770512.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001096 | 0     | 0.17570E-06 | 474283.1 | 3770505.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001097 | 0     | 0.17570E-06 | 474283.1 | 3770498.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001098 | 0     | 0.17570E-06 | 474283.1 | 3770491.1 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001099 | 0     | 0.17570E-06 | 474283.0 | 3770483.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001100 | 0     | 0.17570E-06 | 474283.0 | 3770476.5 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001101 | 0     | 0.17570E-06 | 474283.0 | 3770469.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001102 | 0     | 0.17570E-06 | 474283.0 | 3770462.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001103 | 0     | 0.17570E-06 | 474283.0 | 3770454.7 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001104 | 0     | 0.17570E-06 | 474282.9 | 3770447.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001105 | 0     | 0.17570E-06 | 474282.9 | 3770440.1 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001106 | 0     | 0.17570E-06 | 474282.9 | 3770432.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001107 | 0     | 0.17570E-06 | 474282.9 | 3770425.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001108 | 0     | 0.17570E-06 | 474282.8 | 3770418.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001109 | 0     | 0.17570E-06 | 474282.8 | 3770411.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001110 | 0     | 0.17570E-06 | 474282.8 | 3770403.7 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001111 | 0     | 0.17570E-06 | 474282.8 | 3770396.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001112 | 0     | 0.17570E-06 | 474282.7 | 3770389.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001113 | 0     | 0.17570E-06 | 474282.7 | 3770381.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001114 | 0     | 0.17570E-06 | 474282.7 | 3770374.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001115 | 0     | 0.17570E-06 | 474282.7 | 3770367.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0001116  | 0                  | 0.17570E-06               | 474282.7   | 3770360.1  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001117  | 0                  | 0.17570E-06               | 474282.6   | 3770352.8  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001118  | 0                  | 0.17570E-06               | 474282.6   | 3770345.5  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001119  | 0                  | 0.17570E-06               | 474282.6   | 3770338.2  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001120  | 0                  | 0.17570E-06               | 474282.6   | 3770330.9  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001121  | 0                  | 0.17570E-06               | 474282.5   | 3770323.7  | 305.9               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001122  | 0                  | 0.17570E-06               | 474282.5   | 3770316.4  | 305.7               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001123  | 0                  | 0.17570E-06               | 474282.5   | 3770309.1  | 305.5               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001124  | 0                  | 0.17570E-06               | 474282.5   | 3770301.8  | 305.3               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001125  | 0                  | 0.17570E-06               | 474282.5   | 3770294.5  | 305.1               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001126  | 0                  | 0.17570E-06               | 474282.4   | 3770287.3  | 305.1               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001127  | 0                  | 0.17570E-06               | 474282.4   | 3770280.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001128  | 0                  | 0.17570E-06               | 474282.4   | 3770272.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001129  | 0                  | 0.17570E-06               | 474282.4   | 3770265.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001130  | 0                  | 0.17570E-06               | 474282.3   | 3770258.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001131  | 0                  | 0.17570E-06               | 474282.3   | 3770250.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001132  | 0                  | 0.17570E-06               | 474282.3   | 3770243.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001133  | 0                  | 0.17570E-06               | 474282.3   | 3770236.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001134  | 0                  | 0.17570E-06               | 474282.3   | 3770229.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001135  | 0                  | 0.17570E-06               | 474282.2   | 3770221.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001136  | 0                  | 0.17570E-06               | 474282.2   | 3770214.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001137  | 0                  | 0.17570E-06               | 474282.2   | 3770207.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001138  | 0                  | 0.17570E-06               | 474282.2   | 3770199.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001139  | 0                  | 0.17570E-06               | 474282.1   | 3770192.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001140  | 0                  | 0.17570E-06               | 474282.1   | 3770185.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001141  | 0                  | 0.17570E-06               | 474282.1   | 3770178.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001142  | 0                  | 0.17570E-06               | 474282.1   | 3770170.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001143  | 0                  | 0.17570E-06               | 474282.1   | 3770163.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001144  | 0                  | 0.17570E-06               | 474282.0   | 3770156.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001145  | 0                  | 0.17570E-06               | 474282.0   | 3770149.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001146  | 0                  | 0.17570E-06               | 474282.0   | 3770141.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001147  | 0                  | 0.17570E-06               | 474282.0   | 3770134.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001148  | 0                  | 0.17570E-06               | 474281.9   | 3770127.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001149  | 0                  | 0.17570E-06               | 474281.9   | 3770119.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001150  | 0                  | 0.17570E-06               | 474281.9   | 3770112.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001151  | 0                  | 0.17570E-06               | 474281.9   | 3770105.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001152  | 0                  | 0.17570E-06               | 474281.8   | 3770098.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001153  | 0                  | 0.17570E-06               | 474281.8   | 3770090.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001154  | 0                  | 0.17570E-06               | 474281.8   | 3770083.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001155  | 0                  | 0.17570E-06               | 474281.8   | 3770076.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

\*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0001156  | 0                  | 0.17570E-06               | 474281.8   | 3770068.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001157  | 0                  | 0.17570E-06               | 474281.7   | 3770061.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001158  | 0                  | 0.17570E-06               | 474281.7   | 3770054.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001159  | 0                  | 0.17570E-06               | 474281.7   | 3770047.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001160  | 0                  | 0.17570E-06               | 474281.7   | 3770039.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001161  | 0                  | 0.17570E-06               | 474281.6   | 3770032.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001162  | 0                  | 0.17570E-06               | 474281.6   | 3770025.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001163  | 0                  | 0.17570E-06               | 474281.6   | 3770017.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001164  | 0                  | 0.17570E-06               | 474281.6   | 3770010.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001165  | 0                  | 0.17570E-06               | 474281.6   | 3770003.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001166  | 0                  | 0.17570E-06               | 474281.5   | 3769996.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001167  | 0                  | 0.17570E-06               | 474281.5   | 3769988.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001168  | 0                  | 0.17570E-06               | 474281.5   | 3769981.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001169  | 0                  | 0.17570E-06               | 474281.5   | 3769974.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001170  | 0                  | 0.17570E-06               | 474281.4   | 3769967.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001171  | 0                  | 0.17570E-06               | 474281.4   | 3769959.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001172  | 0                  | 0.17570E-06               | 474281.4   | 3769952.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001173  | 0                  | 0.17570E-06               | 474281.4   | 3769945.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001174  | 0                  | 0.17570E-06               | 474281.4   | 3769937.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001175  | 0                  | 0.17570E-06               | 474281.3   | 3769930.6  | 305.2               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001176  | 0                  | 0.17570E-06               | 474281.3   | 3769923.3  | 305.4               | 0.00                    | 3.39              | 0.85              | YES          |                              |

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\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

| SRCGROUP ID | SOURCE IDs  |
|-------------|---|
| ALL         | STCK1 , STCK2 , STCK3 , STCK4 , STCK5 , STCK6 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , |



L0000782 , L0000783 , L0000784 , L0000785 , L0000786 , L0000787 , L0000788 , L0000789 ,  
 L0000790 , L0000791 , L0000792 , L0000793 , L0000794 , L0000795 , L0000796 , L0000797 ,  
 L0000798 , L0000799 , L0000800 , L0000801 , L0000802 , L0000803 , L0000804 , L0000805 ,  
 L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 , L0000813 ,  
 L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 , L0000821 ,  
 L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 , L0000829 ,  
 L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 , L0000837 ,  
 L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 , L0000845 ,  
 L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 , L0000853 ,  
 L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 , L0000861 ,  
 L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 , L0000869 ,  
 L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 , L0000877 ,  
 L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 , L0000885 ,  
 L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 , L0000893 ,  
 L0000894 , L0000895 , L0000896 , L0000897 , L0000898 , L0000899 , L0000900 , L0000901 ,  
 L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 , L0000908 , L0000909 ,

\*\*\* AERMOD - VERSION 15181 \*\*\*    \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL            URBAN

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

SRCGROUP ID  
-----

SOURCE IDs  
-----

L0000910 , L0000911 , L0000912 , L0000913 , L0000914 , L0000915 , L0000916 , L0000917 ,  
 L0000918 , L0000919 , L0000920 , L0000921 , L0000922 , L0000923 , L0000924 , L0000925 ,  
 L0000926 , L0000927 , L0000928 , L0000929 , L0000930 , L0000931 , L0000932 , L0000933 ,

L0000934 , L0000935 , L0000936 , L0000937 , L0000938 , L0000939 , L0000940 , L0000941 ,  
 L0000942 , L0000943 , L0000944 , L0000945 , L0000946 , L0000947 , L0000948 , L0000949 ,  
 L0000950 , L0000951 , L0000952 , L0000953 , L0000954 , L0000955 , L0000956 , L0000957 ,  
 L0000958 , L0000959 , L0000960 , L0000961 , L0000962 , L0000963 , L0000964 , L0000965 ,  
 L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 , L0000972 , L0000973 ,  
 L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 , L0000980 , L0000981 ,  
 L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 , L0000988 , L0000989 ,  
 L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 , L0000996 , L0000997 ,  
 L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 , L0001004 , L0001005 ,  
 L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 , L0001012 , L0001013 ,  
 L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 , L0001020 , L0001021 ,  
 L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 , L0001028 , L0001029 ,  
 L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 , L0001036 , L0001037 ,  
 L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 , L0001044 , L0001045 ,  
 L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 , L0001052 , L0001053 ,  
 L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 , L0001060 , L0001061 ,  
 L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 , L0001068 , L0001069 ,

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

SRCGROUP ID  
-----

SOURCE IDs  
-----

L0001070 , L0001071 , L0001072 , L0001073 , L0001074 , L0001075 , L0001076 , L0001077 ,  
 L0001078 , L0001079 , L0001080 , L0001081 , L0001082 , L0001083 , L0001084 , L0001085 ,  
 L0001086 , L0001087 , L0001088 , L0001089 , L0001090 , L0001091 , L0001092 , L0001093 ,





L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 , L0000813 ,  
 L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 , L0000821 ,  
 L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 , L0000829 ,  
 L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 , L0000837 ,  
 L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 , L0000845 ,  
 L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 , L0000853 ,  
 L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 , L0000861 ,  
 L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 , L0000869 ,  
 L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 , L0000877 ,  
 L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 , L0000885 ,  
 L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 , L0000893 ,  
 L0000894 , L0000895 , L0000896 , L0000897 , L0000898 , L0000899 , L0000900 , L0000901 ,  
 L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 , L0000908 , L0000909 ,

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* SOURCE IDs DEFINED AS URBAN SOURCES \*\*\*

| URBAN ID | URBAN POP | SOURCE IDs |            |            |            |            |            |            |       |
|----------|-----------|------------|------------|------------|------------|------------|------------|------------|-------|
| -----    | -----     | -----      | -----      | -----      | -----      | -----      | -----      | -----      | ----- |
| L0000910 |           | , L0000911 | , L0000912 | , L0000913 | , L0000914 | , L0000915 | , L0000916 | , L0000917 | ,     |
| L0000918 |           | , L0000919 | , L0000920 | , L0000921 | , L0000922 | , L0000923 | , L0000924 | , L0000925 | ,     |
| L0000926 |           | , L0000927 | , L0000928 | , L0000929 | , L0000930 | , L0000931 | , L0000932 | , L0000933 | ,     |
| L0000934 |           | , L0000935 | , L0000936 | , L0000937 | , L0000938 | , L0000939 | , L0000940 | , L0000941 | ,     |
| L0000942 |           | , L0000943 | , L0000944 | , L0000945 | , L0000946 | , L0000947 | , L0000948 | , L0000949 | ,     |
| L0000950 |           | , L0000951 | , L0000952 | , L0000953 | , L0000954 | , L0000955 | , L0000956 | , L0000957 | ,     |
| L0000958 |           | , L0000959 | , L0000960 | , L0000961 | , L0000962 | , L0000963 | , L0000964 | , L0000965 | ,     |

L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 , L0000972 , L0000973 ,  
 L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 , L0000980 , L0000981 ,  
 L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 , L0000988 , L0000989 ,  
 L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 , L0000996 , L0000997 ,  
 L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 , L0001004 , L0001005 ,  
 L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 , L0001012 , L0001013 ,  
 L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 , L0001020 , L0001021 ,  
 L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 , L0001028 , L0001029 ,  
 L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 , L0001036 , L0001037 ,  
 L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 , L0001044 , L0001045 ,  
 L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 , L0001052 , L0001053 ,  
 L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 , L0001060 , L0001061 ,  
 L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 , L0001068 , L0001069 ,

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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* SOURCE IDs DEFINED AS URBAN SOURCES \*\*\*

| URBAN ID | URBAN POP | SOURCE IDs |            |            |            |            |            |            |
|----------|-----------|------------|------------|------------|------------|------------|------------|------------|
| -----    | -----     | -----      | -----      | -----      | -----      | -----      | -----      | -----      |
| L0001070 |           | , L0001071 | , L0001072 | , L0001073 | , L0001074 | , L0001075 | , L0001076 | , L0001077 |
| L0001078 |           | , L0001079 | , L0001080 | , L0001081 | , L0001082 | , L0001083 | , L0001084 | , L0001085 |
| L0001086 |           | , L0001087 | , L0001088 | , L0001089 | , L0001090 | , L0001091 | , L0001092 | , L0001093 |
| L0001094 |           | , L0001095 | , L0001096 | , L0001097 | , L0001098 | , L0001099 | , L0001100 | , L0001101 |
| L0001102 |           | , L0001103 | , L0001104 | , L0001105 | , L0001106 | , L0001107 | , L0001108 | , L0001109 |
| L0001110 |           | , L0001111 | , L0001112 | , L0001113 | , L0001114 | , L0001115 | , L0001116 | , L0001117 |



|    |       |        |        |         |         |    |       |        |        |         |        |
|----|-------|--------|--------|---------|---------|----|-------|--------|--------|---------|--------|
| 7  | 13.1, | 275.8, | 372.7, | -131.5, | -100.1, | 8  | 13.1, | 227.2, | 358.9, | -108.0, | -89.1, |
| 9  | 13.1, | 172.2, | 334.6, | -81.5,  | -75.5,  | 10 | 13.1, | 226.9, | 359.0, | -82.1,  | -59.8, |
| 11 | 13.1, | 275.4, | 372.9, | -80.2,  | -41.9,  | 12 | 13.1, | 315.6, | 375.4, | -75.9,  | -22.8, |
| 13 | 13.1, | 346.2, | 366.5, | -69.2,  | -2.9,   | 14 | 13.1, | 366.2, | 346.5, | -60.5,  | 17.1,  |
| 15 | 13.1, | 375.2, | 315.9, | -49.9,  | 36.5,   | 16 | 13.1, | 372.7, | 275.8, | -37.8,  | 54.8,  |
| 17 | 13.1, | 358.9, | 227.2, | -24.6,  | 71.5,   | 18 | 13.1, | 334.6, | 172.2, | -10.6,  | 85.8,  |
| 19 | 13.1, | 359.0, | 226.9, | -53.6,  | 97.4,   | 20 | 13.1, | 372.9, | 275.4, | -95.8,  | 106.2, |
| 21 | 13.1, | 375.4, | 315.6, | -135.1, | 111.8,  | 22 | 13.1, | 366.5, | 346.2, | -170.2, | 114.0, |
| 23 | 13.1, | 346.5, | 366.2, | -200.2, | 112.8,  | 24 | 13.1, | 315.9, | 375.2, | -224.1, | 108.1, |
| 25 | 13.1, | 275.8, | 372.7, | -241.2, | 100.1,  | 26 | 13.1, | 227.2, | 358.9, | -250.9, | 89.1,  |
| 27 | 13.1, | 172.2, | 334.6, | -253.1, | 75.5,   | 28 | 13.1, | 226.9, | 359.0, | -276.9, | 59.8,  |
| 29 | 13.1, | 275.4, | 372.9, | -292.6, | 41.9,   | 30 | 13.1, | 315.6, | 375.4, | -299.5, | 22.8,  |
| 31 | 13.1, | 346.2, | 366.5, | -297.2, | 2.9,    | 32 | 13.1, | 366.2, | 346.5, | -286.0, | -17.1, |
| 33 | 13.1, | 375.2, | 315.9, | -266.0, | -36.5,  | 34 | 13.1, | 372.7, | 275.8, | -238.0, | -54.8, |
| 35 | 13.1, | 358.9, | 227.2, | -202.7, | -71.5,  | 36 | 13.1, | 334.6, | 172.2, | -161.6, | -85.8, |

SOURCE ID: STCK3

| IFV | BH    | BW     | BL     | XADJ    | YADJ    | IFV | BH    | BW     | BL     | XADJ    | YADJ    |
|-----|-------|--------|--------|---------|---------|-----|-------|--------|--------|---------|---------|
| 1   | 13.1, | 359.0, | 226.9, | -202.0, | 70.9,   | 2   | 13.1, | 372.9, | 275.4, | -237.2, | 54.5,   |
| 3   | 13.1, | 375.4, | 315.6, | -265.1, | 36.5,   | 4   | 13.1, | 366.5, | 346.2, | -285.0, | 17.3,   |
| 5   | 13.1, | 346.5, | 366.2, | -296.3, | -2.3,   | 6   | 13.1, | 315.9, | 375.2, | -298.5, | -21.9,  |
| 7   | 13.1, | 275.8, | 372.7, | -291.7, | -40.9,  | 8   | 13.1, | 227.2, | 358.9, | -275.9, | -58.6,  |
| 9   | 13.1, | 172.2, | 334.6, | -252.2, | -74.7,  | 10  | 13.1, | 226.9, | 359.0, | -250.4, | -88.6,  |
| 11  | 13.1, | 275.4, | 372.9, | -240.9, | -99.5,  | 12  | 13.1, | 315.6, | 375.4, | -224.1, | -107.3, |
| 13  | 13.1, | 346.2, | 366.5, | -200.6, | -111.9, | 14  | 13.1, | 366.2, | 346.5, | -170.9, | -113.1, |
| 15  | 13.1, | 375.2, | 315.9, | -136.0, | -110.9, | 16  | 13.1, | 372.7, | 275.8, | -97.0,  | -105.3, |
| 17  | 13.1, | 358.9, | 227.2, | -55.0,  | -96.5,  | 18  | 13.1, | 334.6, | 172.2, | -11.4,  | -84.9,  |
| 19  | 13.1, | 359.0, | 226.9, | -24.9,  | -70.9,  | 20  | 13.1, | 372.9, | 275.4, | -38.2,  | -54.5,  |
| 21  | 13.1, | 375.4, | 315.6, | -50.5,  | -36.5,  | 22  | 13.1, | 366.5, | 346.2, | -61.2,  | -17.3,  |
| 23  | 13.1, | 346.5, | 366.2, | -70.0,  | 2.3,    | 24  | 13.1, | 315.9, | 375.2, | -76.7,  | 21.9,   |
| 25  | 13.1, | 275.8, | 372.7, | -81.1,  | 40.9,   | 26  | 13.1, | 227.2, | 358.9, | -83.0,  | 58.6,   |
| 27  | 13.1, | 172.2, | 334.6, | -82.4,  | 74.7,   | 28  | 13.1, | 226.9, | 359.0, | -108.6, | 88.6,   |
| 29  | 13.1, | 275.4, | 372.9, | -131.9, | 99.5,   | 30  | 13.1, | 315.6, | 375.4, | -151.2, | 107.3,  |
| 31  | 13.1, | 346.2, | 366.5, | -165.9, | 111.9,  | 32  | 13.1, | 366.2, | 346.5, | -175.6, | 113.1,  |
| 33  | 13.1, | 375.2, | 315.9, | -179.9, | 110.9,  | 34  | 13.1, | 372.7, | 275.8, | -178.8, | 105.3,  |
| 35  | 13.1, | 358.9, | 227.2, | -172.2, | 96.5,   | 36  | 13.1, | 334.6, | 172.2, | -160.7, | 84.9,   |

SOURCE ID: STCK4

| IFV | BH    | BW     | BL     | XADJ    | YADJ   | IFV | BH    | BW     | BL     | XADJ    | YADJ   |
|-----|-------|--------|--------|---------|--------|-----|-------|--------|--------|---------|--------|
| 1   | 13.1, | 359.0, | 226.9, | -41.8,  | 18.0,  | 2   | 13.1, | 372.9, | 275.4, | -70.2,  | 30.3,  |
| 3   | 13.1, | 375.4, | 315.6, | -96.4,  | 41.6,  | 4   | 13.1, | 366.5, | 346.2, | -119.8, | 51.7,  |
| 5   | 13.1, | 346.5, | 366.2, | -139.5, | 60.2,  | 6   | 13.1, | 315.9, | 375.2, | -155.0, | 66.9,  |
| 7   | 13.1, | 275.8, | 372.7, | -165.7, | 71.5,  | 8   | 13.1, | 227.2, | 358.9, | -171.5, | 74.0,  |
| 9   | 13.1, | 172.2, | 334.6, | -172.3, | 74.0,  | 10  | 13.1, | 226.9, | 359.0, | -197.5, | 71.7,  |
| 11  | 13.1, | 275.4, | 372.9, | -216.7, | 67.5,  | 12  | 13.1, | 315.6, | 375.4, | -229.3, | 61.4,  |
| 13  | 13.1, | 346.2, | 366.5, | -234.9, | 53.3,  | 14  | 13.1, | 366.2, | 346.5, | -233.4, | 43.6,  |
| 15  | 13.1, | 375.2, | 315.9, | -224.8, | 32.6,  | 16  | 13.1, | 372.7, | 275.8, | -209.4, | 20.6,  |
| 17  | 13.1, | 358.9, | 227.2, | -187.6, | 8.0,   | 18  | 13.1, | 334.6, | 172.2, | -160.1, | -5.0,  |
| 19  | 13.1, | 359.0, | 226.9, | -185.1, | -18.0, | 20  | 13.1, | 372.9, | 275.4, | -205.3, | -30.3, |

|    |       |        |        |         |        |    |       |        |        |         |        |
|----|-------|--------|--------|---------|--------|----|-------|--------|--------|---------|--------|
| 21 | 13.1, | 375.4, | 315.6, | -219.2, | -41.6, | 22 | 13.1, | 366.5, | 346.2, | -226.4, | -51.7, |
| 23 | 13.1, | 346.5, | 366.2, | -226.8, | -60.2, | 24 | 13.1, | 315.9, | 375.2, | -220.2, | -66.9, |
| 25 | 13.1, | 275.8, | 372.7, | -207.0, | -71.5, | 26 | 13.1, | 227.2, | 358.9, | -187.5, | -74.0, |
| 27 | 13.1, | 172.2, | 334.6, | -162.3, | -74.0, | 28 | 13.1, | 226.9, | 359.0, | -161.5, | -71.7, |
| 29 | 13.1, | 275.4, | 372.9, | -156.2, | -67.5, | 30 | 13.1, | 315.6, | 375.4, | -146.1, | -61.4, |
| 31 | 13.1, | 346.2, | 366.5, | -131.6, | -53.3, | 32 | 13.1, | 366.2, | 346.5, | -113.0, | -43.6, |
| 33 | 13.1, | 375.2, | 315.9, | -91.1,  | -32.6, | 34 | 13.1, | 372.7, | 275.8, | -66.4,  | -20.6, |
| 35 | 13.1, | 358.9, | 227.2, | -39.6,  | -8.0,  | 36 | 13.1, | 334.6, | 172.2, | -12.1,  | 5.0,   |

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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* DIRECTION SPECIFIC BUILDING DIMENSIONS \*\*\*

SOURCE ID: STCK5

| IFV | BH    | BW     | BL     | XADJ    | YADJ    | IFV | BH    | BW     | BL     | XADJ    | YADJ    |
|-----|-------|--------|--------|---------|---------|-----|-------|--------|--------|---------|---------|
| 1   | 13.1, | 359.0, | 226.9, | -25.1,  | -73.6,  | 2   | 13.1, | 372.9, | 275.4, | -37.8,  | -57.1,  |
| 3   | 13.1, | 375.4, | 315.6, | -49.4,  | -38.8,  | 4   | 13.1, | 366.5, | 346.2, | -59.5,  | -19.4,  |
| 5   | 13.1, | 346.5, | 366.2, | -67.8,  | 0.7,    | 6   | 13.1, | 315.9, | 375.2, | -74.0,  | 20.7,   |
| 7   | 13.1, | 275.8, | 372.7, | -78.0,  | 40.1,   | 8   | 13.1, | 227.2, | 358.9, | -79.6,  | 58.3,   |
| 9   | 13.1, | 172.2, | 334.6, | -79.2,  | 74.5,   | 10  | 13.1, | 226.9, | 359.0, | -105.8, | 88.4,   |
| 11  | 13.1, | 275.4, | 372.9, | -129.3, | 99.9,   | 12  | 13.1, | 315.6, | 375.4, | -148.9, | 108.4,  |
| 13  | 13.1, | 346.2, | 366.5, | -163.9, | 113.6,  | 14  | 13.1, | 366.2, | 346.5, | -173.9, | 115.3,  |
| 15  | 13.1, | 375.2, | 315.9, | -178.7, | 113.6,  | 16  | 13.1, | 372.7, | 275.8, | -178.0, | 108.4,  |
| 17  | 13.1, | 358.9, | 227.2, | -171.9, | 99.9,   | 18  | 13.1, | 334.6, | 172.2, | -160.6, | 88.1,   |
| 19  | 13.1, | 359.0, | 226.9, | -201.8, | 73.6,   | 20  | 13.1, | 372.9, | 275.4, | -237.6, | 57.1,   |
| 21  | 13.1, | 375.4, | 315.6, | -266.2, | 38.8,   | 22  | 13.1, | 366.5, | 346.2, | -286.7, | 19.4,   |
| 23  | 13.1, | 346.5, | 366.2, | -298.5, | -0.7,   | 24  | 13.1, | 315.9, | 375.2, | -301.2, | -20.7,  |
| 25  | 13.1, | 275.8, | 372.7, | -294.7, | -40.1,  | 26  | 13.1, | 227.2, | 358.9, | -279.3, | -58.3,  |
| 27  | 13.1, | 172.2, | 334.6, | -255.4, | -74.5,  | 28  | 13.1, | 226.9, | 359.0, | -253.2, | -88.4,  |
| 29  | 13.1, | 275.4, | 372.9, | -243.5, | -99.9,  | 30  | 13.1, | 315.6, | 375.4, | -226.5, | -108.4, |
| 31  | 13.1, | 346.2, | 366.5, | -202.6, | -113.6, | 32  | 13.1, | 366.2, | 346.5, | -172.5, | -115.3, |
| 33  | 13.1, | 375.2, | 315.9, | -137.2, | -113.6, | 34  | 13.1, | 372.7, | 275.8, | -97.8,  | -108.4, |
| 35  | 13.1, | 358.9, | 227.2, | -55.3,  | -99.9,  | 36  | 13.1, | 334.6, | 172.2, | -11.6,  | -88.1,  |

SOURCE ID: STCK6

| IFV | BH    | BW     | BL     | XADJ    | YADJ   | IFV | BH    | BW     | BL     | XADJ    | YADJ   |
|-----|-------|--------|--------|---------|--------|-----|-------|--------|--------|---------|--------|
| 1   | 13.1, | 359.0, | 226.9, | -55.0,  | 96.1,  | 2   | 13.1, | 372.9, | 275.4, | -96.8,  | 104.9, |
| 3   | 13.1, | 375.4, | 315.6, | -135.6, | 110.5, | 4   | 13.1, | 366.5, | 346.2, | -170.3, | 112.7, |
| 5   | 13.1, | 346.5, | 366.2, | -199.8, | 111.5, | 6   | 13.1, | 315.9, | 375.2, | -223.3, | 106.9, |
| 7   | 13.1, | 275.8, | 372.7, | -240.0, | 99.1,  | 8   | 13.1, | 227.2, | 358.9, | -249.4, | 88.2,  |
| 9   | 13.1, | 172.2, | 334.6, | -251.5, | 74.5,  | 10  | 13.1, | 226.9, | 359.0, | -275.6, | 58.4,  |
| 11  | 13.1, | 275.4, | 372.9, | -291.3, | 41.0,  | 12  | 13.1, | 315.6, | 375.4, | -298.1, | 22.2,  |
| 13  | 13.1, | 346.2, | 366.5, | -295.9, | 2.8,   | 14  | 13.1, | 366.2, | 346.5, | -284.7, | -16.7, |
| 15  | 13.1, | 375.2, | 315.9, | -264.9, | -35.7, | 16  | 13.1, | 372.7, | 275.8, | -237.0, | -53.6, |
| 17  | 13.1, | 358.9, | 227.2, | -201.9, | -69.9, | 18  | 13.1, | 334.6, | 172.2, | -160.6, | -84.2, |

|    |       |        |        |         |         |    |       |        |        |         |         |
|----|-------|--------|--------|---------|---------|----|-------|--------|--------|---------|---------|
| 19 | 13.1, | 359.0, | 226.9, | -171.9, | -96.1,  | 20 | 13.1, | 372.9, | 275.4, | -178.7, | -104.9, |
| 21 | 13.1, | 375.4, | 315.6, | -180.0, | -110.5, | 22 | 13.1, | 366.5, | 346.2, | -175.9, | -112.7, |
| 23 | 13.1, | 346.5, | 366.2, | -166.4, | -111.5, | 24 | 13.1, | 315.9, | 375.2, | -151.9, | -106.9, |
| 25 | 13.1, | 275.8, | 372.7, | -132.8, | -99.1,  | 26 | 13.1, | 227.2, | 358.9, | -109.6, | -88.2,  |
| 27 | 13.1, | 172.2, | 334.6, | -83.1,  | -74.5,  | 28 | 13.1, | 226.9, | 359.0, | -83.4,  | -58.4,  |
| 29 | 13.1, | 275.4, | 372.9, | -81.6,  | -41.0,  | 30 | 13.1, | 315.6, | 375.4, | -77.2,  | -22.2,  |
| 31 | 13.1, | 346.2, | 366.5, | -70.6,  | -2.8,   | 32 | 13.1, | 366.2, | 346.5, | -61.7,  | 16.7,   |
| 33 | 13.1, | 375.2, | 315.9, | -51.0,  | 35.7,   | 34 | 13.1, | 372.7, | 275.8, | -38.8,  | 53.6,   |
| 35 | 13.1, | 358.9, | 227.2, | -25.4,  | 69.9,   | 36 | 13.1, | 334.6, | 172.2, | -11.6,  | 84.2,   |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
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**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL  URBAN
```

```
*** GRIDDED RECEPTOR NETWORK SUMMARY ***
```

```
*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***
```

```
*** X-COORDINATES OF GRID ***
(METERS)
```

```
473592.7, 473642.7, 473692.7, 473742.7, 473792.7, 473842.7, 473892.7, 473942.7, 473992.7, 474042.7,
474092.7, 474142.7, 474192.7, 474242.7, 474292.7, 474342.7, 474392.7, 474442.7, 474492.7, 474542.7,
474592.7,
```

```
*** Y-COORDINATES OF GRID ***
(METERS)
```

```
3770290.4, 3770340.4, 3770390.4, 3770440.4, 3770490.4, 3770540.4, 3770590.4, 3770640.4, 3770690.4, 3770740.4,
3770790.4, 3770840.4, 3770890.4, 3770940.4, 3770990.4, 3771040.4, 3771090.4, 3771140.4, 3771190.4, 3771240.4,
3771290.4,
```

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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```

```
**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL  URBAN
```

```
*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***
```

```
* ELEVATION HEIGHTS IN METERS *
```

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 304.00           | 304.00    | 304.40    | 305.00    | 305.00    | 305.00    | 306.00    | 306.00    | 306.40    |
| 3771240.45          | 304.00           | 304.00    | 305.00    | 305.00    | 305.00    | 305.70    | 306.00    | 306.00    | 306.40    |
| 3771190.45          | 304.00           | 304.00    | 305.00    | 305.00    | 305.20    | 306.00    | 306.00    | 306.20    | 307.00    |
| 3771140.45          | 304.00           | 304.70    | 305.00    | 305.00    | 305.80    | 306.00    | 306.00    | 306.80    | 307.00    |



3770290.45 | 305.00 305.00 305.00 305.00 305.00 305.30 306.00 306.00 307.10

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\* ELEVATION HEIGHTS IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 310.00           | 310.00    | 310.40    |
| 3771240.45          | 310.00           | 310.00    | 310.20    |
| 3771190.45          | 310.00           | 310.00    | 310.00    |
| 3771140.45          | 310.00           | 310.00    | 310.00    |
| 3771090.45          | 310.00           | 310.00    | 310.00    |
| 3771040.45          | 310.00           | 310.00    | 310.00    |
| 3770990.45          | 310.00           | 310.00    | 310.00    |
| 3770940.45          | 309.50           | 310.00    | 310.00    |
| 3770890.45          | 309.00           | 309.60    | 310.00    |
| 3770840.45          | 309.00           | 309.00    | 310.00    |
| 3770790.45          | 309.00           | 309.00    | 309.70    |
| 3770740.45          | 309.20           | 309.80    | 310.00    |
| 3770690.45          | 309.20           | 310.00    | 310.40    |
| 3770640.45          | 310.00           | 310.00    | 311.00    |
| 3770590.45          | 310.00           | 310.00    | 310.30    |
| 3770540.45          | 310.00           | 310.00    | 310.00    |
| 3770490.45          | 308.50           | 309.40    | 309.70    |
| 3770440.45          | 307.80           | 308.60    | 309.00    |
| 3770390.45          | 307.10           | 308.00    | 308.50    |
| 3770340.45          | 307.50           | 307.40    | 308.00    |
| 3770290.45          | 307.10           | 307.20    | 307.30    |

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\* HILL HEIGHT SCALES IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 304.00           | 304.00    | 304.40    | 305.00    | 305.00    | 305.00    | 306.00    | 306.00    | 306.40    |



|            |        |        |        |        |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3770440.45 | 305.80 | 305.80 | 305.80 | 305.80 | 306.00 | 306.00 | 306.00 | 306.00 | 307.00 |
| 3770390.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.80 | 306.00 | 306.00 | 306.00 | 307.00 |
| 3770340.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.40 | 306.00 | 306.00 | 306.00 | 307.40 |
| 3770290.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.00 | 305.30 | 306.00 | 306.00 | 307.10 |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\* HILL HEIGHT SCALES IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 310.00           | 310.00    | 310.40    |
| 3771240.45          | 310.00           | 310.00    | 310.20    |
| 3771190.45          | 310.00           | 310.00    | 310.00    |
| 3771140.45          | 310.00           | 310.00    | 310.00    |
| 3771090.45          | 310.00           | 310.00    | 310.00    |
| 3771040.45          | 310.00           | 310.00    | 310.00    |
| 3770990.45          | 310.00           | 310.00    | 310.00    |
| 3770940.45          | 309.50           | 310.00    | 310.00    |
| 3770890.45          | 309.00           | 309.60    | 310.00    |
| 3770840.45          | 309.00           | 309.00    | 310.00    |
| 3770790.45          | 309.00           | 309.00    | 309.70    |
| 3770740.45          | 309.20           | 309.80    | 310.00    |
| 3770690.45          | 309.20           | 310.00    | 310.40    |
| 3770640.45          | 310.00           | 310.00    | 311.00    |
| 3770590.45          | 310.00           | 310.00    | 310.30    |
| 3770540.45          | 310.00           | 310.00    | 310.00    |
| 3770490.45          | 308.50           | 309.40    | 309.70    |
| 3770440.45          | 307.80           | 308.60    | 309.00    |
| 3770390.45          | 307.10           | 308.00    | 308.50    |
| 3770340.45          | 307.50           | 307.40    | 308.00    |
| 3770290.45          | 307.10           | 307.20    | 307.30    |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* DISCRETE CARTESIAN RECEPTORS \*\*\*  
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)  
(METERS)

```

( 473821.8, 3770780.8, 305.8, 305.8, 0.0); ( 473841.7, 3770856.2, 306.0, 306.0, 0.0);
( 473872.5, 3770817.8, 306.0, 306.0, 0.0); ( 473896.4, 3770814.3, 306.0, 306.0, 0.0);

```





|          |      |      |       |        |        |       |     |      |      |      |      |      |      |     |       |     |
|----------|------|------|-------|--------|--------|-------|-----|------|------|------|------|------|------|-----|-------|-----|
| 07 01 01 | 1 21 | -4.9 | 0.077 | -9.000 | -9.000 | -999. | 52. | 8.1  | 0.32 | 1.00 | 1.00 | 1.30 | 190. | 9.1 | 289.9 | 5.5 |
| 07 01 01 | 1 22 | -2.4 | 0.054 | -9.000 | -9.000 | -999. | 30. | 5.6  | 0.32 | 1.00 | 1.00 | 0.90 | 188. | 9.1 | 289.2 | 5.5 |
| 07 01 01 | 1 23 | -9.5 | 0.107 | -9.000 | -9.000 | -999. | 84. | 11.3 | 0.32 | 1.00 | 1.00 | 1.80 | 162. | 9.1 | 289.9 | 5.5 |
| 07 01 01 | 1 24 | -9.5 | 0.107 | -9.000 | -9.000 | -999. | 84. | 11.3 | 0.32 | 1.00 | 1.00 | 1.80 | 42.  | 9.1 | 289.2 | 5.5 |

First hour of profile data

| YR | MO | DY | HR | HEIGHT | F | WDIR  | WSPD   | AMB_TMP | sigmaA | sigmaW | sigmaV |
|----|----|----|----|--------|---|-------|--------|---------|--------|--------|--------|
| 07 | 01 | 01 | 01 | 5.5    | 0 | -999. | -99.00 | 279.9   | 99.0   | -99.00 | -99.00 |
| 07 | 01 | 01 | 01 | 9.1    | 1 | 27.   | 0.50   | -999.0  | 99.0   | -99.00 | -99.00 |

F indicates top of profile (=1) or below (=0)

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL        URBAN

\*\*\* THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER    5 YEARS FOR SOURCE GROUP: ALL            \*\*\*  
 INCLUDING SOURCE(S):            STCK1            , STCK2            , STCK3            , STCK4            , STCK5            ,  
 STCK6            , L0000001            , L0000002            , L0000003            , L0000004            , L0000005            , L0000006            , L0000007            ,  
 L0000008            , L0000009            , L0000010            , L0000011            , L0000012            , L0000013            , L0000014            , L0000015            ,  
 L0000016            , L0000017            , L0000018            , L0000019            , L0000020            , L0000021            , L0000022            , . . .            ,

\*\*\* NETWORK ID: UCART1    ;    NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM            IN MICROGRAMS/M\*\*3            \*\*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 0.00057          | 0.00060   | 0.00063   | 0.00066   | 0.00068   | 0.00071   | 0.00075   | 0.00079   | 0.00084   |
| 3771240.45          | 0.00068          | 0.00071   | 0.00075   | 0.00078   | 0.00081   | 0.00084   | 0.00088   | 0.00093   | 0.00100   |
| 3771190.45          | 0.00084          | 0.00088   | 0.00092   | 0.00095   | 0.00099   | 0.00103   | 0.00108   | 0.00113   | 0.00121   |
| 3771140.45          | 0.00112          | 0.00116   | 0.00120   | 0.00124   | 0.00128   | 0.00133   | 0.00138   | 0.00146   | 0.00155   |
| 3771090.45          | 0.00170          | 0.00175   | 0.00180   | 0.00185   | 0.00190   | 0.00196   | 0.00202   | 0.00212   | 0.00224   |
| 3771040.45          | 0.00585          | 0.00593   | 0.00604   | 0.00610   | 0.00623   | 0.00632   | 0.00648   | 0.00664   | 0.00682   |
| 3770990.45          | 0.00196          | 0.00202   | 0.00208   | 0.00215   | 0.00223   | 0.00231   | 0.00242   | 0.00258   | 0.00279   |
| 3770940.45          | 0.00116          | 0.00123   | 0.00130   | 0.00139   | 0.00150   | 0.00163   | 0.00179   | 0.00202   | 0.00237   |
| 3770890.45          | 0.00095          | 0.00103   | 0.00111   | 0.00122   | 0.00137   | 0.00156   | 0.00184   | 0.00227   | 0.00289   |
| 3770840.45          | 0.00087          | 0.00095   | 0.00106   | 0.00119   | 0.00138   | 0.00168   | 0.00229   | 0.00309   | 0.00417   |
| 3770790.45          | 0.00083          | 0.00092   | 0.00104   | 0.00120   | 0.00144   | 0.00188   | 0.00350   | 0.00562   | 0.00817   |
| 3770740.45          | 0.00080          | 0.00091   | 0.00104   | 0.00123   | 0.00150   | 0.00204   | 0.00278   | 0.00457   | 0.00676   |
| 3770690.45          | 0.00079          | 0.00090   | 0.00104   | 0.00124   | 0.00156   | 0.00199   | 0.00233   | 0.00329   | 0.00447   |
| 3770640.45          | 0.00078          | 0.00089   | 0.00103   | 0.00124   | 0.00158   | 0.00201   | 0.00229   | 0.00326   | 0.00457   |
| 3770590.45          | 0.00077          | 0.00088   | 0.00102   | 0.00122   | 0.00153   | 0.00210   | 0.00241   | 0.00401   | 0.00664   |
| 3770540.45          | 0.00075          | 0.00086   | 0.00100   | 0.00119   | 0.00147   | 0.00198   | 0.00264   | 0.00435   | 0.00675   |
| 3770490.45          | 0.00074          | 0.00084   | 0.00098   | 0.00115   | 0.00140   | 0.00174   | 0.00233   | 0.00277   | 0.00328   |
| 3770440.45          | 0.00072          | 0.00082   | 0.00094   | 0.00109   | 0.00129   | 0.00154   | 0.00184   | 0.00220   | 0.00250   |
| 3770390.45          | 0.00069          | 0.00078   | 0.00089   | 0.00102   | 0.00118   | 0.00136   | 0.00155   | 0.00173   | 0.00190   |

|            |         |         |         |         |         |         |         |         |         |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3770340.45 | 0.00066 | 0.00074 | 0.00084 | 0.00094 | 0.00107 | 0.00121 | 0.00134 | 0.00145 | 0.00154 |
| 3770290.45 | 0.00063 | 0.00070 | 0.00078 | 0.00087 | 0.00097 | 0.00107 | 0.00117 | 0.00125 | 0.00130 |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
      INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
STCK6 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 ,
L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,
L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , . . .
  
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\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM IN MICROGRAMS/M\*\*3 \*\*

| Y-COORD<br>(METERS) | 474042.69 | 474092.69 | 474142.69 | 474192.69 | 474242.69 | 474292.69 | 474342.69 | 474392.69 | 474442.69 |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 3771290.45          | 0.00091   | 0.00098   | 0.00106   | 0.00117   | 0.00140   | 0.00245   | 0.00141   | 0.00126   | 0.00117   |
| 3771240.45          | 0.00107   | 0.00116   | 0.00125   | 0.00137   | 0.00161   | 0.00274   | 0.00161   | 0.00144   | 0.00132   |
| 3771190.45          | 0.00130   | 0.00141   | 0.00152   | 0.00165   | 0.00188   | 0.00298   | 0.00186   | 0.00165   | 0.00150   |
| 3771140.45          | 0.00167   | 0.00179   | 0.00193   | 0.00208   | 0.00230   | 0.00336   | 0.00220   | 0.00193   | 0.00172   |
| 3771090.45          | 0.00239   | 0.00255   | 0.00272   | 0.00290   | 0.00312   | 0.00406   | 0.00273   | 0.00232   | 0.00202   |
| 3771040.45          | 0.00709   | 0.00734   | 0.00760   | 0.00787   | 0.00822   | 0.00665   | 0.00448   | 0.00375   | 0.00331   |
| 3770990.45          | 0.00305   | 0.00332   | 0.00360   | 0.00391   | 0.00468   | 0.01067   | 0.00386   | 0.00284   | 0.00231   |
| 3770940.45          | 0.00274   | 0.00310   | 0.00343   | 0.00378   | 0.00473   | 0.00853   | 0.00399   | 0.00279   | 0.00218   |
| 3770890.45          | 0.00339   | 0.00390   | 0.00431   | 0.00457   | 0.00534   | 0.00881   | 0.00416   | 0.00283   | 0.00214   |
| 3770840.45          | 0.00479   | 0.00538   | 0.00584   | 0.00650   | 0.00689   | 0.01180   | 0.00427   | 0.00284   | 0.00211   |
| 3770790.45          | 0.00951   | 0.01026   | 0.01102   | 0.01244   | 0.01135   | 0.01172   | 0.00426   | 0.00280   | 0.00204   |
| 3770740.45          | 0.00763   | 0.00830   | 0.00831   | 0.00627   | 0.00612   | 0.01127   | 0.00427   | 0.00273   | 0.00195   |
| 3770690.45          | 0.00537   | 0.00594   | 0.00590   | 0.00544   | 0.00701   | 0.01429   | 0.00431   | 0.00263   | 0.00183   |
| 3770640.45          | 0.00552   | 0.00596   | 0.00586   | 0.00602   | 0.01131   | 0.01193   | 0.00408   | 0.00243   | 0.00168   |
| 3770590.45          | 0.00761   | 0.00795   | 0.00794   | 0.00804   | 0.01263   | 0.01117   | 0.00357   | 0.00216   | 0.00152   |
| 3770540.45          | 0.00752   | 0.00778   | 0.00776   | 0.00773   | 0.00708   | 0.00926   | 0.00299   | 0.00190   | 0.00137   |
| 3770490.45          | 0.00360   | 0.00372   | 0.00372   | 0.00361   | 0.00396   | 0.00819   | 0.00259   | 0.00172   | 0.00127   |
| 3770440.45          | 0.00268   | 0.00268   | 0.00258   | 0.00255   | 0.00309   | 0.00764   | 0.00234   | 0.00157   | 0.00118   |
| 3770390.45          | 0.00198   | 0.00198   | 0.00195   | 0.00201   | 0.00269   | 0.00728   | 0.00215   | 0.00146   | 0.00110   |
| 3770340.45          | 0.00158   | 0.00158   | 0.00159   | 0.00172   | 0.00245   | 0.00700   | 0.00201   | 0.00136   | 0.00103   |
| 3770290.45          | 0.00132   | 0.00133   | 0.00137   | 0.00153   | 0.00230   | 0.00676   | 0.00190   | 0.00127   | 0.00097   |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
      INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
  
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STCK6 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 ,  
 L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,  
 L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , . . . ,

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM IN MICROGRAMS/M\*\*3 \*\*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 0.00110          | 0.00103   | 0.00096   |
| 3771240.45          | 0.00123          | 0.00113   | 0.00104   |
| 3771190.45          | 0.00137          | 0.00125   | 0.00113   |
| 3771140.45          | 0.00154          | 0.00138   | 0.00123   |
| 3771090.45          | 0.00178          | 0.00158   | 0.00140   |
| 3771040.45          | 0.00298          | 0.00272   | 0.00251   |
| 3770990.45          | 0.00194          | 0.00167   | 0.00146   |
| 3770940.45          | 0.00177          | 0.00147   | 0.00124   |
| 3770890.45          | 0.00170          | 0.00138   | 0.00115   |
| 3770840.45          | 0.00164          | 0.00132   | 0.00108   |
| 3770790.45          | 0.00157          | 0.00125   | 0.00101   |
| 3770740.45          | 0.00148          | 0.00116   | 0.00095   |
| 3770690.45          | 0.00138          | 0.00108   | 0.00088   |
| 3770640.45          | 0.00126          | 0.00100   | 0.00082   |
| 3770590.45          | 0.00115          | 0.00092   | 0.00077   |
| 3770540.45          | 0.00106          | 0.00086   | 0.00071   |
| 3770490.45          | 0.00099          | 0.00081   | 0.00067   |
| 3770440.45          | 0.00093          | 0.00076   | 0.00064   |
| 3770390.45          | 0.00088          | 0.00072   | 0.00061   |
| 3770340.45          | 0.00083          | 0.00069   | 0.00058   |
| 3770290.45          | 0.00078          | 0.00065   | 0.00055   |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER    5 YEARS FOR SOURCE GROUP: ALL    \*\*\*  
 INCLUDING SOURCE(S):    STCK1    ,    STCK2    ,    STCK3    ,    STCK4    ,    STCK5    ,  
 STCK6    ,    L0000001    ,    L0000002    ,    L0000003    ,    L0000004    ,    L0000005    ,    L0000006    ,    L0000007    ,  
 L0000008    ,    L0000009    ,    L0000010    ,    L0000011    ,    L0000012    ,    L0000013    ,    L0000014    ,    L0000015    ,  
 L0000016    ,    L0000017    ,    L0000018    ,    L0000019    ,    L0000020    ,    L0000021    ,    L0000022    ,    . . .    ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

| ** CONC OF DPM |             |         | IN MICROGRAMS/M**3 |             |         | ** |
|----------------|-------------|---------|--------------------|-------------|---------|----|
| X-COORD (M)    | Y-COORD (M) | CONC    | X-COORD (M)        | Y-COORD (M) | CONC    |    |
| 473821.79      | 3770780.83  | 0.00167 | 473841.73          | 3770856.25  | 0.00162 |    |
| 473872.55      | 3770817.80  | 0.00224 | 473896.38          | 3770814.31  | 0.00306 |    |
| 473922.12      | 3770812.40  | 0.00415 | 473944.04          | 3770812.40  | 0.00480 |    |
| 473955.65      | 3770813.70  | 0.00501 | 473986.29          | 3770813.11  | 0.00604 |    |
| 474041.70      | 3770827.94  | 0.00545 | 474132.24          | 3770814.67  | 0.00786 |    |
| 474153.71      | 3770815.45  | 0.00849 | 474183.17          | 3770813.50  | 0.01070 |    |
| 473860.23      | 3770519.70  | 0.00214 | 474265.12          | 3770413.61  | 0.00450 |    |
| 474184.49      | 3771047.50  | 0.00575 | 474265.49          | 3771209.49  | 0.00215 |    |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

| ** CONC OF DPM |                       |              | IN MICROGRAMS/M**3            |                 |                 | **        |
|----------------|-----------------------|--------------|-------------------------------|-----------------|-----------------|-----------|
| GROUP ID       | AVERAGE CONC          | RECEPTOR     | (XR, YR, ZELEV, ZHILL, ZFLAG) | OF TYPE         | NETWORK GRID-ID |           |
| ALL            | 1ST HIGHEST VALUE IS  | 0.01429 AT ( | 474292.69, 3770690.45,        | 307.40, 307.40, | 0.00)           | GC UCART1 |
|                | 2ND HIGHEST VALUE IS  | 0.01263 AT ( | 474242.69, 3770590.45,        | 306.00, 306.00, | 0.00)           | GC UCART1 |
|                | 3RD HIGHEST VALUE IS  | 0.01244 AT ( | 474192.69, 3770790.45,        | 307.50, 307.50, | 0.00)           | GC UCART1 |
|                | 4TH HIGHEST VALUE IS  | 0.01193 AT ( | 474292.69, 3770640.45,        | 307.20, 307.20, | 0.00)           | GC UCART1 |
|                | 5TH HIGHEST VALUE IS  | 0.01180 AT ( | 474292.69, 3770840.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 6TH HIGHEST VALUE IS  | 0.01172 AT ( | 474292.69, 3770790.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 7TH HIGHEST VALUE IS  | 0.01135 AT ( | 474242.69, 3770790.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 8TH HIGHEST VALUE IS  | 0.01131 AT ( | 474242.69, 3770640.45,        | 307.00, 307.00, | 0.00)           | GC UCART1 |
|                | 9TH HIGHEST VALUE IS  | 0.01127 AT ( | 474292.69, 3770740.45,        | 307.90, 307.90, | 0.00)           | GC UCART1 |
|                | 10TH HIGHEST VALUE IS | 0.01117 AT ( | 474292.69, 3770590.45,        | 306.80, 306.80, | 0.00)           | GC UCART1 |

\*\*\* RECEPTOR TYPES:    GC = GRIDCART  
                               GP = GRIDPOLR  
                               DC = DISCCART  
                               DP = DISCPOLR

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 6 Warning Message(s)  
A Total of 1086 Informational Message(s)  
  
A Total of 43824 Hours Were Processed  
  
A Total of 37 Calm Hours Identified  
  
A Total of 1049 Missing Hours Identified ( 2.39 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

|         |     |  |    |
|---------|-----|--|----|
| SO W320 | 812 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 813 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 814 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 815 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 816 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 817 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |

\*\*\*\*\*  
\*\*\* AERMOD Finishes Successfully \*\*\*  
\*\*\*\*\*

| EMF/AC2011 for San Bernardino County (SC) |        | PM10 Running Exhaust |      |        |                  |            |             |             |            |            |            |            |            |            |             |             |             |             |            |              |             |             |             |             |             |             |             |
|---|--------|----------------------|------|--------|------------------|------------|-------------|-------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Area                                      | Season | Veh                  | Fuel | Mod/Yr | Speed (Miles/hr) | 2017       | 2018        | 2019        | 2020       | 2021       | 2022       | 2023       | 2024       | 2025       | 2026        | 2027        | 2028        | 2029        | 2030       | 2031         | 2032        | 2033        | 2034        | 2035        |             |             |             |
|   |        |                      |      |        |                  | (gms/mile) | (gms/mile)  | (gms/mile)  | (gms/mile) | (gms/mile) | (gms/mile) | (gms/mile) | (gms/mile) | (gms/mile) | (gms/mile)  | (gms/mile)  | (gms/mile)  | (gms/mile)  | (gms/mile) | (gms/mile)   | (gms/mile)  | (gms/mile)  | (gms/mile)  | (gms/mile)  |             |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 5                | 0.0103854  | 0.010502234 | 0.0107367   | 0.0110349  | 0.0113455  | 0.0116663  | 0.0119968  | 0.0122558  | 0.0125463  | 0.0128304   | 0.0131082   | 0.0132952   | 0.0134669   | 0.0136136  | 0.0137699    | 0.0139289   | 0.0137675   | 0.0138323   | 0.0138704   |             |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 5                | 0.06032564 | 0.051448577 | 0.0468606   | 0.0376328  | 0.0328179  | 0.028569   | 0.024792   | 0.021389   | 0.0190047  | 0.0169378   | 0.0151607   | 0.0138593   | 0.0130579   | 0.012485   | 0.012189441  | 0.0118801   | 0.01170079  | 0.01155272  | 0.01139999  |             |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 10               | 0.00661539 | 0.006671253 | 0.0068043   | 0.006988   | 0.0071779  | 0.007372   | 0.007558   | 0.007735   | 0.0079123  | 0.0080903   | 0.0082449   | 0.0083779   | 0.0084836   | 0.008565   | 0.00862525   | 0.0086672   | 0.008698491 | 0.00871548  | 0.00872776  | 0.00873914  |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 10               | 0.05035215 | 0.045192398 | 0.0380054   | 0.0329572  | 0.0286901  | 0.024925   | 0.021577   | 0.018561   | 0.0164473  | 0.01461442  | 0.01303979  | 0.0118588   | 0.010664    | 0.009511   | 0.0093985    | 0.0091124   | 0.009963724 | 0.00983185  | 0.00969659  | 0.0095695   |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 15               | 0.00442469 | 0.004469375 | 0.00455322  | 0.0046676  | 0.00479    | 0.004915   | 0.005035   | 0.005148   | 0.0052636  | 0.00537957  | 0.00548189  | 0.0055689   | 0.0056377   | 0.0056991  | 0.005752937  | 0.005796    | 0.005857385 | 0.00587134  | 0.00589179  | 0.0059091   |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 15               | 0.0418407  | 0.035655114 | 0.03009496  | 0.0256441  | 0.0223435  | 0.019442   | 0.016775   | 0.014372   | 0.0126861  | 0.0112237   | 0.0099964   | 0.0089493   | 0.0080636   | 0.00732    | 0.0067508    | 0.00627639  | 0.0058707   | 0.0055421   | 0.00529413  | 0.00504113  |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 20               | 0.00335611 | 0.00277438  | 0.002431802 | 0.00208603 | 0.0189664  | 0.015657   | 0.013489   | 0.011536   | 0.0101654  | 0.00897749  | 0.00795275  | 0.0072029   | 0.0064762   | 0.006414   | 0.00623906   | 0.0060582   | 0.00592791  | 0.00586657  | 0.0058134   | 0.0057908   |             |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 25               | 0.00234678 | 0.002350498 | 0.0023688   | 0.0024414  | 0.0025012  | 0.002563   | 0.002621   | 0.002675   | 0.0027328  | 0.00279172  | 0.002846    | 0.0028876   | 0.0029222   | 0.002948   | 0.00296712   | 0.002982    | 0.002986614 | 0.00299203  | 0.002998614 | 0.00299923  | 0.00299929  |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 25               | 0.02810041 | 0.023886584 | 0.0209135   | 0.0172444  | 0.0150328  | 0.01301    | 0.011213   | 0.0099953  | 0.0084573  | 0.00747238  | 0.00662652  | 0.0060062   | 0.0055626   | 0.005347   | 0.00520245   | 0.0050526   | 0.004965335 | 0.0048939   | 0.004821351 | 0.0047521   | 0.0046831   |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 30               | 0.00184475 | 0.001844611 | 0.00187104  | 0.0019116  | 0.0019565  | 0.002003   | 0.002047   | 0.002088   | 0.0021325  | 0.00217908  | 0.00221822  | 0.0022523   | 0.0022787   | 0.002299   | 0.00231359   | 0.0023232   | 0.00232935  | 0.00233215  | 0.00233452  | 0.0023361   | 0.00233784  |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 30               | 0.02329495 | 0.020358343 | 0.01723081  | 0.0148051  | 0.0128671  | 0.011157   | 0.009639   | 0.008267   | 0.0070364  | 0.006473    | 0.0057544   | 0.0052341   | 0.0049102   | 0.004678   | 0.00456885   | 0.0044306   | 0.004357341 | 0.00429718  | 0.004235786 | 0.0041731   | 0.0041133   |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 35               | 0.0015274  | 0.001524395 | 0.00154406  | 0.00157611 | 0.0016131  | 0.001661   | 0.001686   | 0.0017109  | 0.0017347  | 0.001757917 | 0.001782481 | 0.001808526 | 0.00182744  | 0.001842   | 0.0018526    | 0.0018572   | 0.00186104  | 0.00186482  | 0.00186859  | 0.00187236  | 0.00187613  | 0.0018799   |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 35               | 0.02090293 | 0.017822064 | 0.01512073  | 0.0130207  | 0.0113556  | 0.009881   | 0.00857    | 0.007388   | 0.0065604  | 0.00584268  | 0.0052598   | 0.0047742   | 0.0044958   | 0.004297   | 0.00419393   | 0.0040864   | 0.004024018 | 0.00397256  | 0.003919551 | 0.003866294 | 0.00381312  |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 40               | 0.00133179 | 0.001327363 | 0.00134321  | 0.0013707  | 0.0014018  | 0.001434   | 0.001463   | 0.001492   | 0.0015223  | 0.00155464  | 0.001582035 | 0.0016071   | 0.0016258   | 0.00164    | 0.001650194  | 0.0016571   | 0.001661564 | 0.00166327  | 0.00166526  | 0.00166726  | 0.00166924  |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 40               | 0.01875362 | 0.016038673 | 0.01365846  | 0.0118557  | 0.0103464  | 0.00905    | 0.00798    | 0.006859   | 0.0061323  | 0.00550197  | 0.00496013  | 0.00445636  | 0.00404233  | 0.0037109  | 0.00342803   | 0.0031943   | 0.00299142  | 0.002836379 | 0.00272149  | 0.00263132  | 0.002551362 |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 45               | 0.00122277 | 0.001217414 | 0.00123109  | 0.0012557  | 0.001288   | 0.001313   | 0.001339   | 0.001365   | 0.0013926  | 0.0014222   | 0.00144821  | 0.0014703   | 0.0014874   | 0.0015     | 0.001509806  | 0.0015152   | 0.001520281 | 0.00152187  | 0.00152316  | 0.00152407  | 0.00152462  |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 45               | 0.01729723 | 0.014857933 | 0.01215798  | 0.01007    | 0.0097521  | 0.009522   | 0.009561   | 0.009631   | 0.009814   | 0.00547191  | 0.00493326  | 0.0045791   | 0.0043632   | 0.00421    | 0.004135155  | 0.0040542   | 0.004007831 | 0.0039687   | 0.003926797 | 0.0038846   | 0.0038426   |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 50               | 0.00118213 | 0.00117608  | 0.00118875  | 0.00122729 | 0.001291   | 0.001267   | 0.001292   | 0.001313   | 0.0013428  | 0.00139123  | 0.00144185  | 0.00149352  | 0.0015448   | 0.00159738 | 0.0016448    | 0.00169243  | 0.0017398   | 0.00178737  | 0.00183492  | 0.00188246  | 0.00193001  |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 50               | 0.01642927 | 0.014197024 | 0.01224094  | 0.0107324  | 0.0093558  | 0.008481   | 0.007542   | 0.006695   | 0.006106   | 0.00559426  | 0.00515368  | 0.0048364   | 0.0045202   | 0.0042583  | 0.0040438593 | 0.00384379  | 0.003642326 | 0.003449534 | 0.003265057 | 0.00309114  | 0.00292613  |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 55               | 0.00120342 | 0.001196762 | 0.00120942  | 0.0012332  | 0.0012606  | 0.001288   | 0.001314   | 0.001338   | 0.0013663  | 0.0013956   | 0.0014214   | 0.0014433   | 0.0014605   | 0.0014774  | 0.001483164  | 0.0014897   | 0.001493926 | 0.0014965   | 0.001499302 | 0.001501932 | 0.001504502 |             |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 55               | 0.01610933 | 0.014032036 | 0.0122125   | 0.0108141  | 0.0097908  | 0.008771   | 0.007871   | 0.007088   | 0.0065465  | 0.00607564  | 0.00566961  | 0.0053247   | 0.0050199   | 0.0047577  | 0.004520583  | 0.0043064   | 0.0040965   | 0.0039065   | 0.0037344   | 0.0035781   | 0.0034364   |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 60               | 0.00129018 | 0.001282919 | 0.00129654  | 0.0013222  | 0.0013517  | 0.001382   | 0.001409   | 0.001435   | 0.0014655  | 0.00149179  | 0.00152512  | 0.0015489   | 0.0015676   | 0.001582   | 0.001592528  | 0.0015998   | 0.001604489 | 0.00160648  | 0.001606235 | 0.001606235 | 0.001606235 | 0.001606235 |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 60               | 0.01636286 | 0.014402265 | 0.01268003  | 0.0113739  | 0.0103447  | 0.009438   | 0.008632   | 0.007901   | 0.0073993  | 0.00696237  | 0.00659478  | 0.006312    | 0.0061531   | 0.00600937 | 0.0058948    | 0.005827363 | 0.00579102  | 0.0057643   | 0.0057469   | 0.0057296   | 0.0057123   |             |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 65               | 0.00145694 | 0.001444903 | 0.00146483  | 0.0014943  | 0.0015279  | 0.001562   | 0.001593   | 0.0016283  | 0.0016649  | 0.00170364  | 0.00174354  | 0.00178456  | 0.00182672  | 0.00186998 | 0.00191334   | 0.00195672  | 0.00199918  | 0.00204164  | 0.0020831   | 0.00212457  | 0.00216504  | 0.00220551  |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 65               | 0.00129292 | 0.015430828 | 0.01379692  | 0.0125579  | 0.0115962  | 0.010751   | 0.009997   | 0.009313   | 0.0088486  | 0.00844324  | 0.00809167  | 0.00784     | 0.0076987   | 0.007606   | 0.007583583  | 0.0075445   | 0.00752513  | 0.00750387  | 0.007472159 | 0.00744168  | 0.00741067  | 0.0073799   |
| San Bernardino (SC)                       | Annual | LDA                  | GAS  | AIIMYr | 70               | 0.00158802 | 0.0016203   | 0.00165699  | 0.001694   | 0.001728   | 0.001761   | 0.001793   | 0.001826   | 0.001859   | 0.001892    | 0.001925    | 0.001958    | 0.001991    | 0.002024   | 0.002057     | 0.00209     | 0.002123    | 0.002156    | 0.002189    | 0.002222    | 0.002255    | 0.002288    |
| San Bernardino (SC)                       | Annual | LDA                  | DSL  | AIIMYr | 70               | 0.01581523 | 0.0146501   | 0.0137619   | 0.012983   | 0.012287   | 0.011653   | 0.011231   | 0.01086123 | 0.01053848 | 0.010311    | 0.0101918   | 0.01012     | 0.010120874 | 0.0100985  | 0.01009058   | 0.0100758   | 0.0100611   | 0.0100464   | 0.0100317   | 0.010017    | 0.0100025   | 0.0099878   |
| San Bernardino (SC)                       | Annual | LDT1                 | GAS  | AIIMYr | 5                | 0.0212693  | 0.020295063 | 0.01953481  | 0.0188791  | 0.0182913  | 0.01774    | 0.01722    | 0.01674    | 0.0162423  | 0.01589312  | 0.0156279   | 0.0153918   | 0.0151225   | 0.014866   | 0.014589223  | 0.0143627   | 0.014163993 | 0.01397747  | 0.01380213  | 0.01363682  | 0.01347154  |             |
| San Bernardino (SC)                       | Annual | LDT1                 | DSL  | AIIMYr | 5                | 0.12185203 | 0.106504254 | 0.09864581  | 0.090387   | 0.0827555  | 0.076959   | 0.07237    | 0.06821    | 0.06427    | 0.06044     | 0.05681     | 0.05348     | 0.05034     | 0.04741    | 0.04466      | 0.04211     | 0.03976     | 0.03751     | 0.03546     | 0.03351     | 0.03166     |             |
| San Bernardino (SC)                       | Annual | LDT1                 | GAS  | AIIMYr | 10               | 0.01384732 | 0.013175696 | 0.01265158  | 0.0121982  | 0.0117916  | 0.011411   | 0.011051   | 0.010723   | 0.010431   | 0.0101946   | 0.00997939  | 0.0097841   | 0.0096396   | 0.0094918  | 0.0093402    | 0.0091856   | 0.0090282   | 0.0088712   | 0.0087146   | 0.0085584   | 0.0084027   |             |
| San Bernardino (SC)                       | Annual | LDT1                 | DSL  | AIIMYr | 10               | 0.10744688 | 0.093867582 | 0.07895441  | 0.0686834  | 0.0611084  | 0.0561255  | 0.052866   | 0.049167   | 0.0458638  | 0.042644    | 0.039523    | 0.036444    | 0.0334164   | 0.030448   | 0.0275209    | 0.0246931   | 0.0218653   | 0.0191483   | 0.0165317   | 0.0140151   | 0.0115985   |             |
| San Bernardino (SC)                       | Annual | LDT1                 | GAS  | AIIMYr | 15               | 0.00948816 | 0.009004332 | 0.0086708   | 0.0083     | 0.0080067  | 0.007732   | 0.007473   | 0.007236   | 0.0070249  | 0.00685411  | 0.00669871  | 0.006       |             |            |              |             |             |             |             |             |             |             |

|                     |        |      |     |       |    |            |             |             |            |            |           |           |            |            |            |            |           |              |            |              |            |              |            |              |            |             |
|---------------------|--------|------|-----|-------|----|------------|-------------|-------------|------------|------------|-----------|-----------|------------|------------|------------|------------|-----------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|-------------|
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 15 | 0.00357181 | 0.003236742 | 0.00291154  | 0.00262275 | 0.00238911 | 0.002172  | 0.001972  | 0.00191    | 0.0016285  | 0.00148688 | 0.00136314 | 0.0012542 | 0.0011525    | 0.001057   | 9.77E-04     | 9.06E-04   | 8.42E-04     | 7.73E-04   | 7.17E-04     |            |             |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 15 | 0.06714534 | 0.06408759  | 0.0609882   | 0.0582073  | 0.0561825  | 0.054305  | 0.052308  | 0.050479   | 0.0487523  | 0.0473789  | 0.04607471 | 0.0449061 | 0.0437764    | 0.0427306  | 0.0417764    | 0.0409304  | 0.0402393046 | 0.0402066  | 0.041751809  | 0.04131462 | 0.040793734 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 20 | 0.00249072 | 0.002257069 | 0.002032029 | 0.0018322  | 0.001668   | 0.0015175 | 0.001375  | 0.001249   | 0.0011396  | 0.0010363  | 9.91E-04   | 8.75E-04  | 8.04E-04     | 7.37E-04   | 6.81E-04     | 6.32E-04   | 5.87E-04     | 5.42E-04   | 5.00E-04     | 4.64E-04   | 4.32E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 20 | 0.0543441  | 0.05200369  | 0.0497169   | 0.0474291  | 0.045896   | 0.044462  | 0.043046  | 0.041736   | 0.040481   | 0.039287   | 0.0381481  | 0.0370252 | 0.0359152    | 0.0348152  | 0.0337278    | 0.0326528  | 0.0315928    | 0.0305488  | 0.0295248    | 0.0285128  | 0.0275048   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 25 | 0.00181045 | 0.001640608 | 0.00147577  | 0.0013318  | 0.001211   | 0.0011001 | 0.001003  | 0.98E-04   | 8.25E-04   | 7.54E-04   | 6.91E-04   | 6.36E-04  | 5.84E-04     | 5.36E-04   | 4.95E-04     | 4.59E-04   | 4.27E-04     | 3.98E-04   | 3.72E-04     | 3.48E-04   | 3.26E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 25 | 0.04518926 | 0.043131379 | 0.04104547  | 0.0391739  | 0.0378112  | 0.036547  | 0.035203  | 0.033972   | 0.0328106  | 0.0318632  | 0.0310089  | 0.0302221 | 0.0294618    | 0.02878    | 0.028530805  | 0.0283107  | 0.028099246  | 0.0278601  | 0.02754547   | 0.02725001 | 0.026974457 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 30 | 0.00137173 | 0.001243049 | 0.0011816   | 0.00110091 | 9.18E-04   | 8.34E-04  | 7.57E-04  | 6.88E-04   | 6.25E-04   | 5.71E-04   | 5.24E-04   | 4.82E-04  | 4.43E-04     | 4.06E-04   | 3.75E-04     | 3.48E-04   | 3.23E-04     | 2.97E-04   | 2.74E-04     | 2.54E-04   | 2.35E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 30 | 0.0383157  | 0.036570827 | 0.03486022  | 0.0332153  | 0.0320599  | 0.030988  | 0.029849  | 0.028805   | 0.0278199  | 0.0270321  | 0.0262199  | 0.0254622 | 0.02471909   | 0.0240159  | 0.0233420    | 0.0226974  | 0.022091920  | 0.0215245  | 0.0209825175 | 0.0204757  | 0.020237842 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 35 | 0.00108337 | 9.82E-04    | 8.83E-04    | 7.97E-04   | 7.25E-04   | 6.59E-04  | 6.04E-04  | 5.43E-04   | 4.94E-04   | 4.51E-04   | 4.13E-04   | 3.80E-04  | 3.50E-04     | 3.21E-04   | 2.96E-04     | 2.75E-04   | 2.55E-04     | 2.34E-04   | 2.16E-04     | 2.00E-04   | 1.86E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 35 | 0.03321028 | 0.03169715  | 0.03014945  | 0.0287996  | 0.027788   | 0.026859  | 0.025987  | 0.024967   | 0.024113   | 0.0232869  | 0.0224869  | 0.0217191 | 0.0210159    | 0.02037728 | 0.0197036    | 0.0190862  | 0.0185194    | 0.0179928  | 0.0175048    | 0.0170478  | 0.0166198   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 40 | 8.92E-04   | 8.08E-04    | 7.27E-04    | 6.56E-04   | 5.97E-04   | 5.42E-04  | 4.93E-04  | 4.47E-04   | 4.07E-04   | 3.71E-04   | 3.40E-04   | 3.13E-04  | 2.88E-04     | 2.64E-04   | 2.44E-04     | 2.26E-04   | 2.10E-04     | 1.93E-04   | 1.79E-04     | 1.66E-04   | 1.54E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 40 | 0.02942544 | 0.02808563  | 0.02672717  | 0.0255085  | 0.0246211  | 0.023798  | 0.022923  | 0.022122   | 0.021365   | 0.0207309  | 0.02019155 | 0.0196794 | 0.0191844    | 0.01874    | 0.018378118  | 0.0180438  | 0.0177245    | 0.0174205  | 0.0171265    | 0.0168428  | 0.0165691   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 45 | 7.65E-04   | 6.94E-04    | 6.24E-04    | 5.63E-04   | 5.12E-04   | 4.65E-04  | 4.23E-04  | 3.84E-04   | 3.49E-04   | 3.19E-04   | 2.92E-04   | 2.69E-04  | 2.47E-04     | 2.27E-04   | 2.09E-04     | 1.94E-04   | 1.80E-04     | 1.66E-04   | 1.54E-04     | 1.43E-04   | 1.32E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 45 | 0.02665188 | 0.025438173 | 0.02420734  | 0.0231041  | 0.0223004  | 0.021555  | 0.020762  | 0.020036   | 0.0193511  | 0.0188002  | 0.0182839  | 0.0178245 | 0.0173761    | 0.0169374  | 0.0165082    | 0.0160895  | 0.0156722    | 0.0152567  | 0.0148423    | 0.0144289  | 0.0140266   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 50 | 6.85E-04   | 6.20E-04    | 5.58E-04    | 5.04E-04   | 4.58E-04   | 4.18E-04  | 3.78E-04  | 3.43E-04   | 3.12E-04   | 2.85E-04   | 2.61E-04   | 2.40E-04  | 2.21E-04     | 2.03E-04   | 1.87E-04     | 1.74E-04   | 1.61E-04     | 1.48E-04   | 1.37E-04     | 1.26E-04   | 1.16E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 50 | 0.02467671 | 0.023552948 | 0.02241389  | 0.0213919  | 0.0204777  | 0.019588  | 0.019224  | 0.018552   | 0.017917   | 0.01741231 | 0.016933   | 0.0165005 | 0.0160883    | 0.0157176  | 0.0153944    | 0.0150698  | 0.0147442    | 0.0144186  | 0.0140930    | 0.0137674  | 0.0134418   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 55 | 6.38E-04   | 5.78E-04    | 5.20E-04    | 4.70E-04   | 4.27E-04   | 3.88E-04  | 3.52E-04  | 3.20E-04   | 2.91E-04   | 2.64E-04   | 2.44E-04   | 2.26E-04  | 2.09E-04     | 1.94E-04   | 1.80E-04     | 1.67E-04   | 1.54E-04     | 1.42E-04   | 1.30E-04     | 1.20E-04   | 1.10E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 55 | 0.02335614 | 0.022232518 | 0.02121441  | 0.0202471  | 0.0195428  | 0.01889   | 0.018195  | 0.017559   | 0.0169582  | 0.0164049  | 0.0160284  | 0.0156203 | 0.0152274    | 0.0148575  | 0.014476188  | 0.0140932  | 0.0137087    | 0.0133242  | 0.0129397    | 0.0125552  | 0.0121707   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 60 | 6.20E-04   | 5.62E-04    | 5.06E-04    | 4.66E-04   | 4.31E-04   | 3.77E-04  | 3.40E-04  | 3.11E-04   | 2.83E-04   | 2.58E-04   | 2.37E-04   | 2.20E-04  | 2.04E-04     | 1.89E-04   | 1.75E-04     | 1.61E-04   | 1.48E-04     | 1.36E-04   | 1.25E-04     | 1.15E-04   | 1.06E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 60 | 0.02259797 | 0.021568871 | 0.02052576  | 0.0195898  | 0.0189804  | 0.018276  | 0.017604  | 0.016989   | 0.0164077  | 0.01594551 | 0.01550568 | 0.0151133 | 0.0147331    | 0.014392   | 0.0140627506 | 0.0137454  | 0.0134281    | 0.0131108  | 0.0127935    | 0.0124762  | 0.0121589   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 65 | 5.28E-04   | 4.79E-04    | 4.30E-04    | 3.92E-04   | 3.58E-04   | 3.26E-04  | 2.94E-04  | 2.64E-04   | 2.38E-04   | 2.16E-04   | 1.97E-04   | 1.80E-04  | 1.64E-04     | 1.49E-04   | 1.36E-04     | 1.24E-04   | 1.13E-04     | 1.03E-04   | 9.3E-05      | 8.4E-05    | 7.5E-05     |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 65 | 0.02230570 | 0.021332918 | 0.020330122 | 0.0193755  | 0.0187015  | 0.018076  | 0.017412  | 0.016803   | 0.0162282  | 0.01577707 | 0.01533364 | 0.0149148 | 0.0145179    | 0.0141234  | 0.0137411    | 0.0133704  | 0.0130015    | 0.0126346  | 0.0122697    | 0.0119168  | 0.0115649   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 70 | 5.8E-04    | 5.34E-04    | 4.84E-04    | 4.44E-04   | 4.04E-04   | 3.67E-04  | 3.32E-04  | 3.00E-04   | 2.72E-04   | 2.46E-04   | 2.23E-04   | 2.04E-04  | 1.86E-04     | 1.70E-04   | 1.54E-04     | 1.40E-04   | 1.27E-04     | 1.15E-04   | 1.04E-04     | 9.4E-05    | 8.4E-05     |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 70 | 0.02052576 | 0.0195898   | 0.0189804   | 0.018276   | 0.017604   | 0.016989  | 0.0164077 | 0.01594551 | 0.01550568 | 0.0151133  | 0.0147331  | 0.014392  | 0.0140627507 | 0.0137411  | 0.0134281    | 0.0131108  | 0.0127935    | 0.0124762  | 0.0121589    | 0.0118416  | 0.0115243   |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 5  | 0.00516283 | 0.004451811 | 0.0039097   | 0.0034468  | 0.0030552  | 0.02735   | 0.020432  | 0.0210169  | 0.019375   | 0.0175187  | 0.0159723  | 0.014851  | 0.013762     | 0.01295    | 0.0120864    | 0.011619   | 0.0111467    | 0.0107117  | 0.01030324   | 0.0098967  | 0.0094892   |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 5  | 0.09411327 | 0.089730201 | 0.08561026  | 0.0819661  | 0.078292   | 0.075211  | 0.072106  | 0.069457   | 0.0669382  | 0.0645720  | 0.0623174  | 0.0597276 | 0.0583654    | 0.057239   | 0.056199489  | 0.0552688  | 0.05447561   | 0.05353369 | 0.0525917    | 0.0516498  | 0.0507079   |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 10 | 0.00415758 | 0.003584964 | 0.0031479   | 0.027757   | 0.0024603  | 0.002203  | 0.001959  | 0.001747   | 0.0015603  | 0.00141079 | 0.0012873  | 0.001196  | 0.0011082    | 0.001043   | 9.83E-04     | 9.36E-04   | 8.98E-04     | 8.63E-04   | 8.30E-04     | 8.00E-04   | 7.68E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 10 | 0.08135884 | 0.079261818 | 0.077964529 | 0.0772634  | 0.0691789  | 0.066437  | 0.063713  | 0.061372   | 0.0598231  | 0.0582639  | 0.056739   | 0.0552753 | 0.053775     | 0.0523157  | 0.0508676    | 0.04943152 | 0.04800274   | 0.04659288 | 0.0451937    | 0.0438048  | 0.0424169   |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 15 | 0.00278132 | 0.00239872  | 0.0021169   | 0.001869   | 0.001649   | 0.001474  | 0.00131   | 0.001168   | 0.0010498  | 9.44E-04   | 8.00E-04   | 7.41E-04  | 6.98E-04     | 6.56E-04   | 6.14E-04     | 5.72E-04   | 5.30E-04     | 4.90E-04   | 4.50E-04     | 4.10E-04   | 3.70E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 15 | 0.0660645  | 0.062913228 | 0.0600464   | 0.0574377  | 0.05491    | 0.052749  | 0.050571  | 0.048713   | 0.0462457  | 0.0446752  | 0.0433067  | 0.0418989 | 0.0404345    | 0.0400145  | 0.040116792  | 0.0399106  | 0.03958425   | 0.03928021 | 0.03898547   | 0.03869071 | 0.03839596  |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 20 | 0.00193949 | 0.001672381 | 0.00148029  | 0.0012948  | 0.0011477  | 0.001028  | 9.14E-04  | 8.15E-04   | 7.28E-04   | 6.68E-04   | 6.03E-04   | 5.58E-04  | 5.17E-04     | 4.87E-04   | 4.59E-04     | 4.36E-04   | 4.14E-04     | 3.92E-04   | 3.70E-04     | 3.48E-04   | 3.26E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 20 | 0.0535732  | 0.051047502 | 0.04871832  | 0.0466047  | 0.0445537  | 0.042801  | 0.041303  | 0.03926    | 0.0375235  | 0.0362511  | 0.0351388  | 0.0339892 | 0.032814     | 0.032573   | 0.03255058   | 0.0323759  | 0.032122674  | 0.0318488  | 0.03159881   | 0.0313488  | 0.03109881  |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 25 | 0.00140977 | 0.00125613  | 0.00106741  | 9.41E-04   | 8.34E-04   | 7.47E-04  | 6.64E-04  | 5.92E-04   | 5.29E-04   | 4.78E-04   | 4.36E-04   | 4.03E-04  | 3.76E-04     | 3.54E-04   | 3.33E-04     | 3.17E-04   | 3.04E-04     | 2.92E-04   | 2.80E-04     | 2.68E-04   | 2.56E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 25 | 0.04442278 | 0.043241028 | 0.04040911  | 0.038656   | 0.036548   | 0.03501   | 0.034035  | 0.032784   | 0.0311237  | 0.0295627  | 0.0291457  | 0.0281922 | 0.0275492    | 0.02699818 | 0.02649869   | 0.0260543  | 0.025611818  | 0.02517057 | 0.02472933   | 0.02428809 | 0.02384685  |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 30 | 0.00106815 | 9.21E-04    | 8.09E-04    | 7.13E-04   | 6.32E-04   | 5.66E-04  | 5.03E-04  | 4.49E-04   | 4.01E-04   | 3.62E-04   | 3.31E-04   | 3.07E-04  | 2.85E-04     | 2.66E-04   | 2.53E-04     | 2.40E-04   | 2.28E-04     | 2.16E-04   | 2.04E-04     | 1.92E-04   | 1.80E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 30 | 0.0376658  | 0.035909601 | 0.03426263  | 0.0327762  | 0.0313337  | 0.030101  | 0.028858  | 0.027798   | 0.0268596  | 0.0260447  | 0.0247124  | 0.023904  | 0.0232598    | 0.022908   | 0.0227694    | 0.0226294  | 0.0224894    | 0.0223494  | 0.0222094    | 0.0220694  | 0.0219294   |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 35 | 8.44E-04   | 7.27E-04    | 6.39E-04    | 5.63E-04   | 4.99E-04   | 4.47E-04  | 3.97E-04  | 3.54E-04   | 3.17E-04   | 2.86E-04   | 2.61E-04   | 2.43E-04  | 2.25E-04     | 2.12E-04   | 1.99E-04     | 1.90E-04   | 1.82E-04     | 1.75E-04   | 1.68E-04     | 1.61E-     |             |



|                     |        |    |     |       |    |            |             |            |            |            |            |            |            |            |            |            |            |            |            |             |            |             |              |              |
|---------------------|--------|----|-----|-------|----|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|-------------|--------------|--------------|
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 30 | 0.00109018 | 9.00E-04    | 7.63E-04   | 6.55E-04   | 5.61E-04   | 4.97E-04   | 4.43E-04   | 4.00E-04   | 3.63E-04   | 3.34E-04   | 3.11E-04   | 2.91E-04   | 2.73E-04   | 2.58E-04   | 2.48E-04    | 2.38E-04   | 2.30E-04    | 2.21E-04     | 2.13E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 30 | 0.06753477 | 0.058375237 | 0.0502795  | 0.0384491  | 0.0288419  | 0.028407   | 0.027532   | 0.027722   | 0.0278458  | 0.02793118 | 0.02799532 | 0.0280437  | 0.028068   | 0.02809    | 0.028112375 | 0.0281275  | 0.028136185 | 0.02813421   | 0.028131416  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 35 | 8.61E-04   | 7.11E-04    | 6.03E-04   | 5.17E-04   | 4.43E-04   | 3.93E-04   | 3.50E-04   | 3.16E-04   | 2.87E-04   | 2.64E-04   | 2.49E-04   | 2.30E-04   | 2.16E-04   | 2.04E-04   | 1.96E-04    | 1.89E-04   | 1.81E-04    | 1.74E-04     | 1.68E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 35 | 0.06633602 | 0.05763008  | 0.0517055  | 0.0394947  | 0.0297636  | 0.029327   | 0.028439   | 0.02864    | 0.0287724  | 0.02886436 | 0.0289381  | 0.0289685  | 0.0290139  | 0.0290338  | 0.029063224 | 0.0290802  | 0.02909428  | 0.0290964    | 0.02909254   |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 40 | 7.09E-04   | 5.85E-04    | 4.96E-04   | 4.26E-04   | 3.65E-04   | 3.23E-04   | 2.88E-04   | 2.60E-04   | 2.37E-04   | 2.17E-04   | 2.02E-04   | 1.89E-04   | 1.78E-04   | 1.68E-04   | 1.61E-04    | 1.55E-04   | 1.49E-04    | 1.43E-04     | 1.38E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 40 | 0.06786461 | 0.059626281 | 0.0523872  | 0.0421511  | 0.031884   | 0.031416   | 0.030478   | 0.030688   | 0.0308429  | 0.0309457  | 0.0310261  | 0.0310803  | 0.0311114  | 0.031139   | 0.03116716  | 0.0311864  | 0.0311967   | 0.03119813   | 0.031196495  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 45 | 6.08E-04   | 5.02E-04    | 4.26E-04   | 3.65E-04   | 3.13E-04   | 2.78E-04   | 2.47E-04   | 2.23E-04   | 2.03E-04   | 1.74E-04   | 1.63E-04   | 1.52E-04   | 1.44E-04   | 1.38E-04   | 1.33E-04    | 1.28E-04   | 1.23E-04    | 1.19E-04     | 1.15E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 45 | 0.07301453 | 0.064445054 | 0.05692946 | 0.0464184  | 0.0351854  | 0.034673   | 0.033648   | 0.033894   | 0.0340574  | 0.03417183 | 0.03425873 | 0.034325   | 0.0343607  | 0.034392   | 0.034424184 | 0.0344462  | 0.034458999 | 0.03446042   | 0.034459139  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 50 | 5.44E-04   | 4.49E-04    | 3.81E-04   | 3.27E-04   | 2.80E-04   | 2.48E-04   | 2.21E-04   | 1.99E-04   | 1.81E-04   | 1.67E-04   | 1.55E-04   | 1.45E-04   | 1.36E-04   | 1.29E-04   | 1.24E-04    | 1.19E-04   | 1.15E-04    | 1.10E-04     | 1.06E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 50 | 0.08148778 | 0.072053329 | 0.06379731 | 0.0522966  | 0.0396737  | 0.039099   | 0.037951   | 0.03823    | 0.0384158  | 0.0385432  | 0.03864517 | 0.0387207  | 0.0387616  | 0.038798   | 0.038834295 | 0.0388695  | 0.038874326 | 0.03887626   | 0.038875167  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 55 | 5.07E-04   | 4.19E-04    | 3.55E-04   | 3.05E-04   | 2.61E-04   | 2.31E-04   | 2.06E-04   | 1.86E-04   | 1.69E-04   | 1.56E-04   | 1.45E-04   | 1.36E-04   | 1.27E-04   | 1.20E-04   | 1.15E-04    | 1.11E-04   | 1.07E-04    | 1.03E-04     | 9.91E-05     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 55 | 0.09328438 | 0.082469104 | 0.0729077  | 0.0597856  | 0.0453488  | 0.044694   | 0.043386   | 0.04306    | 0.043182   | 0.04406747 | 0.04418091 | 0.0442674  | 0.0443142  | 0.0443356  | 0.044397494 | 0.0444263  | 0.044443346 | 0.04444565   | 0.04444638   |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 60 | 4.93E-04   | 4.07E-04    | 3.45E-04   | 2.96E-04   | 2.54E-04   | 2.25E-04   | 2.00E-04   | 1.81E-04   | 1.64E-04   | 1.51E-04   | 1.41E-04   | 1.32E-04   | 1.24E-04   | 1.17E-04   | 1.12E-04    | 1.08E-04   | 1.04E-04    | 9.99E-05     | 9.63E-05     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 60 | 0.10840431 | 0.095674381 | 0.08450983 | 0.0688854  | 0.052108   | 0.051457   | 0.049952   | 0.05032    | 0.0505645  | 0.05073585 | 0.05086598 | 0.050965   | 0.0510186  | 0.051066   | 0.051113781 | 0.0511467  | 0.051166061 | 0.05116859   | 0.051167493  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 65 | 4.99E-04   | 4.12E-04    | 3.50E-04   | 3.00E-04   | 2.57E-04   | 2.28E-04   | 2.03E-04   | 1.83E-04   | 1.68E-04   | 1.53E-04   | 1.43E-04   | 1.33E-04   | 1.25E-04   | 1.18E-04   | 1.14E-04    | 1.09E-04   | 1.05E-04    | 1.01E-04     | 9.76E-05     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 65 | 0.12684757 | 0.111675159 | 0.0983545  | 0.0795961  | 0.0602597  | 0.059389   | 0.05765    | 0.058074   | 0.0583547  | 0.05855127 | 0.05870035 | 0.0588136  | 0.0588746  | 0.058929   | 0.058983155 | 0.0590205  | 0.05904247  | 0.05904509   | 0.059043751  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 70 |            |             | 3.69E-04   | 3.17E-04   | 2.71E-04   | 2.41E-04   | 2.14E-04   | 1.93E-04   | 1.76E-04   | 1.62E-04   | 1.51E-04   | 1.41E-04   | 1.32E-04   | 1.25E-04   | 1.20E-04    | 1.15E-04   | 1.10E-04    | 1.03E-04     | 1.03E-04     |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 70 |            |             | 0.11452476 | 0.0919176  | 0.0694955  | 0.06849    | 0.06648    | 0.06697    | 0.0672888  | 0.06751374 | 0.06768044 | 0.0678132  | 0.0678823  | 0.067944   | 0.068005617 | 0.0680479  | 0.068072573 | 0.06807514   | 0.068073413  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 5  | 0.00221472 | 0.002079367 | 0.00193613 | 0.0017176  | 0.0015421  | 0.001448   | 0.001351   | 0.001281   | 0.0012038  | 0.0011555  | 0.0011019  | 0.0010834  | 0.0010458  | 0.0010114  | 9.80E-04    | 9.65E-04   | 9.51E-04    | 9.42E-04     | 9.38E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 5  | 0.12506118 | 0.118613923 | 0.11244018 | 0.0987239  | 0.0895697  | 0.088356   | 0.087228   | 0.087367   | 0.0874953  | 0.0875066  | 0.08720723 | 0.0870018  | 0.0868878  | 0.086797   | 0.086712227 | 0.0866436  | 0.086547622 | 0.08645273   | 0.086390446  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 10 | 0.00194647 | 0.001674477 | 0.00155913 | 0.0013832  | 0.0012418  | 0.001166   | 0.001088   | 0.001032   | 9.69E-04   | 9.31E-04   | 8.94E-04   | 8.42E-04   | 8.22E-04   | 7.89E-04   | 7.77E-04    | 7.49E-04   | 7.36E-04    | 7.15E-04     | 7.05E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 10 | 0.10374133 | 0.099654644 | 0.09560272 | 0.086771   | 0.080258   | 0.079822   | 0.078947   | 0.079151   | 0.0793449  | 0.07951201 | 0.0795998  | 0.0796637  | 0.07973549 | 0.07979628 | 0.0798511   | 0.07990511 | 0.07995961  | 0.08001422   | 0.08006881   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 15 | 0.00130216 | 0.001120193 | 0.00104303 | 9.25E-04   | 8.31E-04   | 7.80E-04   | 7.28E-04   | 6.90E-04   | 6.48E-04   | 6.22E-04   | 5.98E-04   | 5.84E-04   | 5.63E-04   | 5.46E-04   | 5.29E-04    | 5.20E-04   | 5.12E-04    | 5.06E-04     | 5.05E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 15 | 0.08620088 | 0.083884465 | 0.08143257 | 0.0762725  | 0.0727429  | 0.071911   | 0.071237   | 0.071481   | 0.0717181  | 0.07196054 | 0.0721824  | 0.0666376  | 0.0666576  | 0.066698   | 0.066752822 | 0.0668096  | 0.066852875 | 0.06689471   | 0.06694446   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 20 | 9.08E-04   | 7.81E-04    | 7.27E-04   | 6.45E-04   | 5.79E-04   | 5.44E-04   | 5.08E-04   | 4.81E-04   | 4.52E-04   | 4.34E-04   | 4.17E-04   | 4.07E-04   | 3.93E-04   | 3.81E-04   | 3.68E-04    | 3.62E-04   | 3.57E-04    | 3.54E-04     | 3.52E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 20 | 0.06479424 | 0.063245303 | 0.061415   | 0.0569878  | 0.0534876  | 0.053126   | 0.052392   | 0.053065   | 0.0536427  | 0.05407996 | 0.05425544 | 0.05439196 | 0.05450254 | 0.0546133  | 0.054830028 | 0.0549323  | 0.055026231 | 0.05511365   | 0.055205817  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 25 | 6.60E-04   | 5.68E-04    | 5.29E-04   | 4.69E-04   | 4.21E-04   | 3.95E-04   | 3.69E-04   | 3.50E-04   | 3.29E-04   | 3.16E-04   | 3.03E-04   | 2.96E-04   | 2.86E-04   | 2.77E-04   | 2.68E-04    | 2.63E-04   | 2.60E-04    | 2.57E-04     | 2.56E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 25 | 0.08612372 | 0.08433178  | 0.0844734  | 0.0827065  | 0.0814182  | 0.080784   | 0.080321   | 0.080585   | 0.0808426  | 0.08115633 | 0.08152637 | 0.0819376  | 0.0823703  | 0.082827   | 0.083304848 | 0.0838036  | 0.0843252   | 0.0848715946 | 0.0854520127 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 30 | 5.00E-04   | 4.30E-04    | 4.01E-04   | 3.55E-04   | 3.19E-04   | 3.00E-04   | 2.80E-04   | 2.65E-04   | 2.49E-04   | 2.39E-04   | 2.30E-04   | 2.24E-04   | 2.16E-04   | 2.10E-04   | 2.03E-04    | 2.00E-04   | 1.97E-04    | 1.95E-04     | 1.94E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 30 | 0.06401855 | 0.063605297 | 0.06289313 | 0.0616916  | 0.0607759  | 0.060167   | 0.059736   | 0.060013   | 0.060284   | 0.06063578 | 0.06107467 | 0.0616448  | 0.062205   | 0.062814   | 0.06342194  | 0.06409302 | 0.064829508 | 0.065627852  | 0.066482321  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 35 | 3.95E-04   | 3.40E-04    | 3.16E-04   | 2.81E-04   | 2.47E-04   | 2.37E-04   | 2.21E-04   | 2.09E-04   | 1.97E-04   | 1.89E-04   | 1.81E-04   | 1.74E-04   | 1.68E-04   | 1.60E-04   | 1.54E-04    | 1.49E-04   | 1.45E-04    | 1.43E-04     | 1.43E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 35 | 0.06470777 | 0.064524425 | 0.06400442 | 0.0632515  | 0.0626285  | 0.062022   | 0.061608   | 0.06191    | 0.0622069  | 0.0624811  | 0.06287693 | 0.0632949  | 0.0638258  | 0.0643819  | 0.0649528   | 0.0655402  | 0.0661236   | 0.06672331   | 0.06734614   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 40 | 3.25E-04   | 2.80E-04    | 2.60E-04   | 2.31E-04   | 1.95E-04   | 1.82E-04   | 1.72E-04   | 1.62E-04   | 1.55E-04   | 1.49E-04   | 1.44E-04   | 1.41E-04   | 1.38E-04   | 1.32E-04   | 1.30E-04    | 1.28E-04   | 1.27E-04    | 1.26E-04     | 1.26E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 40 | 0.08819138 | 0.08819058  | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058  | 0.08819058 | 0.08819058  | 0.08819058   | 0.08819058   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 45 | 2.79E-04   | 2.40E-04    | 2.23E-04   | 1.98E-04   | 1.78E-04   | 1.67E-04   | 1.56E-04   | 1.49E-04   | 1.39E-04   | 1.33E-04   | 1.28E-04   | 1.25E-04   | 1.21E-04   | 1.17E-04   | 1.13E-04    | 1.11E-04   | 1.10E-04    | 1.09E-04     | 1.08E-04     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 45 | 0.07446937 | 0.074603702 | 0.07430171 | 0.0740096  | 0.0738184  | 0.073148   | 0.072718   | 0.073112   | 0.0734975  | 0.06907142 | 0.06924929 | 0.068544   | 0.0686626  | 0.068803   | 0.06896247  | 0.0691151  | 0.069261923 | 0.0694061    | 0.069553502  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 50 | 2.50E-04   | 2.15E-04    | 2.00E-04   | 1.77E-04   | 1.59E-04   | 1.50E-04   | 1.40E-04   | 1.32E-04   | 1.24E-04   | 1.19E-04   | 1.15E-04   | 1.12E-04   | 1.08E-04   | 1.05E-04   | 1.01E-04    | 9.96E-05   | 9.82E-05    | 9.73E-05     | 9.68E-05     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 50 | 0.08354174 | 0.083763853 | 0.0834877  | 0.0833799  | 0.0831556  | 0.082419   | 0.081957   | 0.082416   | 0.0828651  | 0.0778824  | 0.0780924  | 0.0773003  | 0.0774402  | 0.077602   | 0.077783975 | 0.0779584  | 0.078126617 | 0.0782921    | 0.078462096  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 55 | 2.33E-04   | 2.00E-04    | 1.86E-04   | 1.65E-04   | 1.48E-04   | 1.39E-04   | 1.30E-04   | 1.23E-04   | 1.16E-04   | 1.11E-04   | 1.07E-04   | 1.04E-04   | 1.01E-04   | 9.76E-05   | 9.43E-05    | 9.29E-05   | 9.15E-05    | 9.07E-05     | 9.03E-05     |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 55 | 0.0954085  | 0.095671011 | 0.09536527 | 0.095239   | 0.0949878  | 0.094162   | 0.093652   | 0.094189   | 0.0947143  | 0.08902628 | 0.08927346 | 0.0893749  | 0.0895328  | 0.089718   | 0.089926519 | 0.0901258  | 0.090318254 | 0.09050783   | 0.090703791  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 60 | 2.26E-04   | 1.95E-04    | 1.81E-     |            |            |            |            |            |            |            |            |            |            |            |             |            |             |              |              |

|   |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
|---|--------|------|-----|--------|----|------------|-------------|------------|-----------|-----------|----------|----------|-----------|-----------|------------|------------|-----------|-----------|----------|-------------|-----------|-------------|------------|-------------|--|--|
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 5  | 0.00750075 | 0.007175978 | 0.00698698 | 0.006736  | 0.0064343 | 0.006267 | 0.006085 | 0.0059448 | 0.0058586 | 0.00582073 | 0.0049614  | 0.0048906 | 0.004821  | 0.003923 | 0.003867072 | 0.003812  | 0.003664413 | 0.00257517 | 0.002034879 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 5  | 0.6939649  | 0.679264627 | 0.6622291  | 0.6187728 | 0.6026314 | 0.591935 | 0.579815 | 0.562256  | 0.5054927 | 0.49517073 | 0.48818271 | 0.4790885 | 0.4706065 | 0.464186 | 0.442907807 | 0.435027  | 0.428486361 | 0.39888769 | 0.388810847 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 10 | 0.00604022 | 0.005778687 | 0.00562649 | 0.0054244 | 0.0051814 | 0.005047 | 0.004711 | 0.004387  | 0.0043152 | 0.00425247 | 0.00399532 | 0.0039393 | 0.0038823 | 0.003159 | 0.003114084 | 0.0030697 | 0.002950886 | 0.00207374 | 0.001639651 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 10 | 0.58948204 | 0.578016235 | 0.56326682 | 0.5247192 | 0.5110313 | 0.501961 | 0.491683 | 0.476793  | 0.4286371 | 0.41990469 | 0.41397883 | 0.406267  | 0.3990742 | 0.393629 | 0.37585708  | 0.3688028 | 0.363356362 | 0.33625667 | 0.323711503 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 15 | 0.00404070 | 0.00386583  | 0.00376401 | 0.0036288 | 0.0034663 | 0.003376 | 0.003152 | 0.002935  | 0.0028968 | 0.00284482 | 0.00267279 | 0.0026347 | 0.0025972 | 0.002113 | 0.002083262 | 0.0020536 | 0.001974096 | 0.00138729 | 0.001096226 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 15 | 0.43443503 | 0.425232426 | 0.4158204  | 0.3873634 | 0.3772586 | 0.370563 | 0.362975 | 0.351983  | 0.3164479 | 0.30998619 | 0.30651155 | 0.2999184 | 0.2946085 | 0.290589 | 0.277286804 | 0.2723351 | 0.268240537 | 0.24971119 | 0.243402887 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 20 | 0.00281775 | 0.00269575  | 0.00262475 | 0.0025305 | 0.0024171 | 0.002354 | 0.002198 | 0.002047  | 0.002013  | 0.00198377 | 0.00186381 | 0.0018372 | 0.0018111 | 0.001474 | 0.001452716 | 0.001432  | 0.001376584 | 9.67E-04   | 7.64E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 20 | 0.33213663 | 0.325100959 | 0.31790524 | 0.2961491 | 0.2884238 | 0.283305 | 0.277503 | 0.2691    | 0.2419325 | 0.2369923  | 0.23364778 | 0.2292952 | 0.2252357 | 0.222163 | 0.211978881 | 0.2082071 | 0.205076694 | 0.19091054 | 0.186087679 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 25 | 0.00204816 | 0.001959474 | 0.00190787 | 0.0018993 | 0.0017569 | 0.001711 | 0.001598 | 0.001488  | 0.0014632 | 0.00144196 | 0.001354   | 0.0013354 | 0.0013164 | 0.001071 | 0.001055944 | 0.0010409 | 0.001000606 | 7.03E-04   | 5.56E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 25 | 0.26297172 | 0.257401191 | 0.25170391 | 0.2344783 | 0.2283617 | 0.224309 | 0.219715 | 0.213062  | 0.191519  | 0.18764045 | 0.18499242 | 0.1815462 | 0.1783321 | 0.175999 | 0.167835906 | 0.1648495 | 0.162371034 | 0.15115487 | 0.147336333 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 30 | 0.00155184 | 0.001484646 | 0.00144554 | 0.0013936 | 0.0013312 | 0.001297 | 0.00121  | 0.001127  | 0.0011087 | 0.00109254 | 0.00102647 | 0.0010118 | 9.97E-04  | 8.12E-04 | 8.00E-04    | 7.89E-04  | 7.58E-04    | 5.33E-04   | 4.21E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 30 | 0.21562622 | 0.211058604 | 0.20638708 | 0.1922628 | 0.1872474 | 0.183924 | 0.180158 | 0.174702  | 0.1570648 | 0.15385763 | 0.15168634 | 0.1488606 | 0.1462251 | 0.14423  | 0.137618692 | 0.13517   | 0.133137714 | 0.12394092 | 0.120809869 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 35 | 0.00122561 | 0.001172545 | 0.00114166 | 0.0011006 | 0.0010513 | 0.001024 | 9.56E-04 | 8.90E-04  | 8.76E-04  | 8.63E-04   | 8.11E-04   | 7.99E-04  | 7.88E-04  | 6.41E-04 | 6.32E-04    | 6.23E-04  | 5.99E-04    | 4.21E-04   | 3.32E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 35 | 0.18310256 | 0.179223926 | 0.17525701 | 0.1632631 | 0.1590042 | 0.156182 | 0.152984 | 0.148351  | 0.1333742 | 0.13065075 | 0.12880697 | 0.1264075 | 0.1241695 | 0.122475 | 0.116861184 | 0.1147818 | 0.113056096 | 0.10524648 | 0.102587693 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 40 | 0.00100898 | 9.65E-04    | 9.40E-04   | 9.06E-04  | 8.66E-04  | 8.43E-04 | 7.87E-04 | 7.33E-04  | 7.21E-04  | 7.10E-04   | 6.67E-04   | 6.58E-04  | 6.49E-04  | 5.28E-04 | 5.20E-04    | 5.13E-04  | 4.93E-04    | 3.46E-04   | 2.74E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 40 | 0.16102287 | 0.157611922 | 0.15412337 | 0.1433758 | 0.1398305 | 0.137349 | 0.134538 | 0.130462  | 0.1172911 | 0.11489604 | 0.11327458 | 0.1111644 | 0.1091963 | 0.107706 | 0.102769301 | 0.1009407 | 0.099423057 | 0.0925517  | 0.090217006 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 45 | 8.66E-04   | 8.28E-04    | 8.07E-04   | 7.78E-04  | 7.43E-04  | 7.23E-04 | 6.75E-04 | 6.29E-04  | 6.19E-04  | 6.10E-04   | 5.73E-04   | 5.65E-04  | 5.57E-04  | 4.53E-04 | 4.46E-04    | 4.40E-04  | 4.23E-04    | 2.97E-04   | 2.35E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 45 | 0.14664965 | 0.143543165 | 0.14036602 | 0.1307599 | 0.1273489 | 0.125089 | 0.122527 | 0.118817  | 0.1068214 | 0.10464019 | 0.10316348 | 0.1012417 | 0.0994492 | 0.098092 | 0.093595917 | 0.0919305 | 0.090548357 | 0.08429352 | 0.082164057 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 50 | 7.74E-04   | 7.41E-04    | 7.21E-04   | 6.96E-04  | 6.64E-04  | 6.47E-04 | 6.04E-04 | 5.63E-04  | 5.53E-04  | 5.45E-04   | 5.12E-04   | 5.05E-04  | 4.98E-04  | 4.05E-04 | 3.99E-04    | 3.94E-04  | 3.78E-04    | 2.66E-04   | 2.10E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 50 | 0.13831676 | 0.135386809 | 0.13239017 | 0.1233299 | 0.1201128 | 0.117981 | 0.115565 | 0.112065  | 0.1007517 | 0.09869435 | 0.09730156 | 0.0954889 | 0.0937984 | 0.092519 | 0.088277632 | 0.0867069 | 0.085403241 | 0.07950381 | 0.077495354 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 55 | 7.22E-04   | 6.91E-04    | 6.73E-04   | 6.48E-04  | 6.19E-04  | 6.03E-04 | 5.63E-04 | 5.25E-04  | 5.16E-04  | 5.08E-04   | 4.78E-04   | 4.71E-04  | 4.64E-04  | 3.78E-04 | 3.72E-04    | 3.67E-04  | 3.53E-04    | 2.48E-04   | 1.96E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 55 | 0.13510421 | 0.13242315  | 0.12931528 | 0.1204655 | 0.117323  | 0.115241 | 0.112861 | 0.109463  | 0.0984118 | 0.09640208 | 0.09504161 | 0.0932711 | 0.0916198 | 0.09037  | 0.086227295 | 0.084693  | 0.083419675 | 0.0765726  | 0.075695445 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 60 | 7.02E-04   | 6.71E-04    | 6.54E-04   | 6.30E-04  | 6.02E-04  | 5.86E-04 | 5.47E-04 | 5.10E-04  | 5.01E-04  | 4.94E-04   | 4.64E-04   | 4.58E-04  | 4.51E-04  | 3.67E-04 | 3.62E-04    | 3.57E-04  | 3.43E-04    | 2.41E-04   | 1.90E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 60 | 0.13666688 | 0.133771854 | 0.13081099 | 0.1218588 | 0.11868   | 0.116574 | 0.114187 | 0.110729  | 0.0995499 | 0.09751709 | 0.0961409  | 0.0943499 | 0.0926795 | 0.091415 | 0.087224624 | 0.0856726 | 0.084384524 | 0.07855547 | 0.076570967 |  |  |
| <b>70-year Average DPM Emission Factors (2017-2087)</b> |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| 10 mph 35 mph   |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| Vehicle Class (g/mi) (g/mi)                             |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| LHDT1 0.051528 0.020229                                 |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| LHDT2 0.048646 0.019098                                 |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| T6 (MHDT) 0.037933 0.028794                             |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |
| T7 (HHDT) 0.071101 0.055874                             |        |      |     |        |    |            |             |            |           |           |          |          |           |           |            |            |           |           |          |             |           |             |            |             |  |  |

|   |  |                          |                        |  |  |
|---|--|--------------------------|------------------------|--|--|
| EMFAC2011 Idling Emission Factors   |  | (2017 - 2087)            |                        |  |  |
| Idling Emission Factors for LHDT1 and LHDT2 are derived by multiplying the Running Exhaust Emission Factor (g/mi) times 5 mph to get g/hr |  |                          |                        |  |  |
| Idling Emission Factors for MHDT and HHDT derived directly from the CARB HDT Idling Emission Factor Database                              |  |                          |                        |  |  |
|   | <b>70-year</b>                                   |                          | 70-year                |  |  |
| <b>Vehicle Class</b>  | <b>Ave Emission Factor at 5 mph</b>              | <b>Speed (mph)</b>       | Emission Factor (g/mi) |  |  |
| <b>LHDT2</b>  | 0.0185   | 5                        | <b>0.0924</b>          |  |  |
|   | T6 Idling Factors (g/hr)                         | T7 Idling Factors (g/hr) |                        |  |  |
| 2017  | 0.235  | 0.125                    |                        |  |  |
| 2018  | 0.205  | 0.123                    |                        |  |  |
| 2019  | 0.178  | 0.12                     |                        |  |  |
| 2020  | 0.112  | 0.117                    |                        |  |  |
| 2021  | 0.098  | 0.114                    |                        |  |  |
| 2022  | 0.096  | 0.112                    |                        |  |  |
| 2023  | 0.093  | 0.11                     |                        |  |  |
| 2024  | 0.092  | 0.11                     |                        |  |  |
| 2025  | 0.092  | 0.11                     |                        |  |  |
| 2026  | 0.092  | 0.109                    |                        |  |  |
| 2027  | 0.092  | 0.109                    |                        |  |  |
| 2028  | 0.091  | 0.109                    |                        |  |  |
| 2029  | 0.091  | 0.109                    |                        |  |  |
| 2030  | 0.091  | 0.109                    |                        |  |  |
| 2031  | 0.091  | 0.108                    |                        |  |  |
| 2032  | 0.091  | 0.108                    |                        |  |  |
| 2033  | 0.091  | 0.108                    |                        |  |  |
| 2034  | 0.091  | 0.108                    |                        |  |  |
| 2035  | 0.09   | 0.108                    |                        |  |  |
|   | <b>70-Year Ave Idling Emission Factor (g/hr)</b> |                          |                        |  |  |
| T6 (MHDT)   | 0.091  |                          |                        |  |  |
| T7 (HHDT)   | 0.103  |                          |                        |  |  |

**APPENDIX D**

**CalEEMod Model Annual Emissions Printouts**

**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year         | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| 2016         | 0.4790        | 4.2447        | 4.3301        | 7.0200e-003        | 0.4066        | 0.2037        | 0.6103        | 0.1444         | 0.1893        | 0.3337        | 0.0000        | 606.1994        | 606.1994        | 0.0890        | 0.0000        | 608.0673        |
| 2017         | 1.3804        | 0.3805        | 0.4463        | 8.3000e-004        | 0.0343        | 0.0214        | 0.0557        | 9.1400e-003    | 0.0200        | 0.0292        | 0.0000        | 68.4680         | 68.4680         | 0.0109        | 0.0000        | 68.6967         |
| <b>Total</b> | <b>1.8593</b> | <b>4.6252</b> | <b>4.7764</b> | <b>7.8500e-003</b> | <b>0.4409</b> | <b>0.2251</b> | <b>0.6660</b> | <b>0.1535</b>  | <b>0.2094</b> | <b>0.3629</b> | <b>0.0000</b> | <b>674.6674</b> | <b>674.6674</b> | <b>0.0998</b> | <b>0.0000</b> | <b>676.7639</b> |

#### Mitigated Construction

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year         | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| 2016         | 0.4790        | 4.2447        | 4.3301        | 7.0200e-003        | 0.3109        | 0.2037        | 0.5146        | 0.0973         | 0.1893        | 0.2866        | 0.0000        | 606.1991        | 606.1991        | 0.0890        | 0.0000        | 608.0669        |
| 2017         | 1.3804        | 0.3805        | 0.4463        | 8.3000e-004        | 0.0343        | 0.0214        | 0.0557        | 9.1400e-003    | 0.0200        | 0.0292        | 0.0000        | 68.4680         | 68.4680         | 0.0109        | 0.0000        | 68.6966         |
| <b>Total</b> | <b>1.8593</b> | <b>4.6252</b> | <b>4.7764</b> | <b>7.8500e-003</b> | <b>0.3452</b> | <b>0.2251</b> | <b>0.5703</b> | <b>0.1064</b>  | <b>0.2094</b> | <b>0.3158</b> | <b>0.0000</b> | <b>674.6670</b> | <b>674.6670</b> | <b>0.0998</b> | <b>0.0000</b> | <b>676.7636</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 21.71         | 0.00         | 14.37      | 30.65          | 0.00          | 12.97       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2        | NBio- CO2         | Total CO2         | CH4            | N2O           | CO2e              |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|-----------------|-------------------|-------------------|----------------|---------------|-------------------|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               | MT/yr           |                   |                   |                |               |                   |
| Area         | 4.5331        | 1.4000e-004   | 0.0146         | 0.0000        |               | 5.0000e-005   | 5.0000e-005   |                | 5.0000e-005   | 5.0000e-005   | 0.0000          | 0.0280            | 0.0280            | 8.0000e-005    | 0.0000        | 0.0296            |
| Energy       | 6.5200e-003   | 0.0592        | 0.0498         | 3.6000e-004   |               | 4.5000e-003   | 4.5000e-003   |                | 4.5000e-003   | 4.5000e-003   | 0.0000          | 597.9986          | 597.9986          | 0.0258         | 6.2600e-003   | 600.4789          |
| Mobile       | 0.8318        | 5.4318        | 11.4439        | 0.0297        | 1.6906        | 0.0803        | 1.7710        | 0.4541         | 0.0739        | 0.5280        | 0.0000          | 2,402.1003        | 2,402.1003        | 0.0676         | 0.0000        | 2,403.5202        |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 107.7415        | 0.0000            | 107.7415          | 6.3673         | 0.0000        | 241.4557          |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 41.4255         | 486.5470          | 527.9725          | 4.2772         | 0.1051        | 650.3716          |
| <b>Total</b> | <b>5.3715</b> | <b>5.4911</b> | <b>11.5083</b> | <b>0.0301</b> | <b>1.6906</b> | <b>0.0849</b> | <b>1.7755</b> | <b>0.4541</b>  | <b>0.0784</b> | <b>0.5326</b> | <b>149.1670</b> | <b>3,486.6738</b> | <b>3,635.8408</b> | <b>10.7380</b> | <b>0.1114</b> | <b>3,895.8559</b> |

## 2.2 Overall Operational

### Mitigated Operational

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr          |                   |                   |               |               |                   |
| Area         | 4.1406        | 1.4000e-004   | 0.0146        | 0.0000        |               | 5.0000e-005   | 5.0000e-005   |                | 5.0000e-005   | 5.0000e-005   | 0.0000         | 0.0280            | 0.0280            | 8.0000e-005   | 0.0000        | 0.0296            |
| Energy       | 4.5900e-003   | 0.0417        | 0.0350        | 2.5000e-004   |               | 3.1700e-003   | 3.1700e-003   |                | 3.1700e-003   | 3.1700e-003   | 0.0000         | 540.6959          | 540.6959          | 0.0236        | 5.5400e-003   | 542.9106          |
| Mobile       | 0.7267        | 4.0314        | 9.3349        | 0.0213        | 1.1988        | 0.0575        | 1.2563        | 0.3220         | 0.0529        | 0.3749        | 0.0000         | 1,719.9729        | 1,719.9729        | 0.0493        | 0.0000        | 1,721.0088        |
| Waste        |               |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 53.8708        | 0.0000            | 53.8708           | 3.1837        | 0.0000        | 120.7278          |
| Water        |               |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 33.1404        | 375.7278          | 408.8682          | 3.4211        | 0.0840        | 506.7346          |
| <b>Total</b> | <b>4.8719</b> | <b>4.0733</b> | <b>9.3846</b> | <b>0.0216</b> | <b>1.1988</b> | <b>0.0607</b> | <b>1.2595</b> | <b>0.3220</b>  | <b>0.0561</b> | <b>0.3781</b> | <b>87.0112</b> | <b>2,636.4246</b> | <b>2,723.4358</b> | <b>6.6778</b> | <b>0.0895</b> | <b>2,891.4114</b> |

|                          | ROG         | NOx          | CO           | SO2          | Fugitive PM10 | Exhaust PM10 | PM10 Total   | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total  | Bio- CO2     | NBio-CO2     | Total CO2    | CH4          | N2O          | CO2e         |
|--------------------------|-------------|--------------|--------------|--------------|---------------|--------------|--------------|----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Percent Reduction</b> | <b>9.30</b> | <b>25.82</b> | <b>18.45</b> | <b>28.37</b> | <b>29.09</b>  | <b>28.43</b> | <b>29.06</b> | <b>29.09</b>   | <b>28.44</b>  | <b>29.00</b> | <b>41.67</b> | <b>24.39</b> | <b>25.09</b> | <b>37.81</b> | <b>19.63</b> | <b>25.78</b> |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 25.25**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10  | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|---------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category      | tons/yr       |               |               |                    |                    |               |               |                    |               |               | MT/yr         |                |                |               |               |                |
| Fugitive Dust |               |               |               |                    | 8.0400e-003        | 0.0000        | 8.0400e-003   | 1.2200e-003        | 0.0000        | 1.2200e-003   | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000         |
| Off-Road      | 0.0643        | 0.6848        | 0.5255        | 6.0000e-004        |                    | 0.0344        | 0.0344        |                    | 0.0321        | 0.0321        | 0.0000        | 55.6460        | 55.6460        | 0.0151        | 0.0000        | 55.9638        |
| <b>Total</b>  | <b>0.0643</b> | <b>0.6848</b> | <b>0.5255</b> | <b>6.0000e-004</b> | <b>8.0400e-003</b> | <b>0.0344</b> | <b>0.0424</b> | <b>1.2200e-003</b> | <b>0.0321</b> | <b>0.0333</b> | <b>0.0000</b> | <b>55.6460</b> | <b>55.6460</b> | <b>0.0151</b> | <b>0.0000</b> | <b>55.9638</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 6.6000e-004        | 0.0108        | 8.2100e-003   | 3.0000e-005        | 6.3000e-004        | 1.6000e-004        | 7.9000e-004        | 1.7000e-004        | 1.5000e-004        | 3.2000e-004        | 0.0000        | 2.4780        | 2.4780        | 2.0000e-005        | 0.0000        | 2.4783        |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 8.7000e-004        | 1.3100e-003   | 0.0138        | 3.0000e-005        | 2.4700e-003        | 2.0000e-005        | 2.4900e-003        | 6.6000e-004        | 2.0000e-005        | 6.7000e-004        | 0.0000        | 2.2048        | 2.2048        | 1.2000e-004        | 0.0000        | 2.2073        |
| <b>Total</b> | <b>1.5300e-003</b> | <b>0.0121</b> | <b>0.0220</b> | <b>6.0000e-005</b> | <b>3.1000e-003</b> | <b>1.8000e-004</b> | <b>3.2800e-003</b> | <b>8.3000e-004</b> | <b>1.7000e-004</b> | <b>9.9000e-004</b> | <b>0.0000</b> | <b>4.6828</b> | <b>4.6828</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>4.6856</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10  | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|---------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category      | tons/yr       |               |               |                    |                    |               |               |                    |               |               | MT/yr         |                |                |               |               |                |
| Fugitive Dust |               |               |               |                    | 3.1300e-003        | 0.0000        | 3.1300e-003   | 4.7000e-004        | 0.0000        | 4.7000e-004   | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000         |
| Off-Road      | 0.0643        | 0.6848        | 0.5255        | 6.0000e-004        |                    | 0.0344        | 0.0344        |                    | 0.0321        | 0.0321        | 0.0000        | 55.6460        | 55.6460        | 0.0151        | 0.0000        | 55.9638        |
| <b>Total</b>  | <b>0.0643</b> | <b>0.6848</b> | <b>0.5255</b> | <b>6.0000e-004</b> | <b>3.1300e-003</b> | <b>0.0344</b> | <b>0.0375</b> | <b>4.7000e-004</b> | <b>0.0321</b> | <b>0.0325</b> | <b>0.0000</b> | <b>55.6460</b> | <b>55.6460</b> | <b>0.0151</b> | <b>0.0000</b> | <b>55.9638</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 6.6000e-004        | 0.0108        | 8.2100e-003   | 3.0000e-005        | 6.3000e-004        | 1.6000e-004        | 7.9000e-004        | 1.7000e-004        | 1.5000e-004        | 3.2000e-004        | 0.0000        | 2.4780        | 2.4780        | 2.0000e-005        | 0.0000        | 2.4783        |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 8.7000e-004        | 1.3100e-003   | 0.0138        | 3.0000e-005        | 2.4700e-003        | 2.0000e-005        | 2.4900e-003        | 6.6000e-004        | 2.0000e-005        | 6.7000e-004        | 0.0000        | 2.2048        | 2.2048        | 1.2000e-004        | 0.0000        | 2.2073        |
| <b>Total</b> | <b>1.5300e-003</b> | <b>0.0121</b> | <b>0.0220</b> | <b>6.0000e-005</b> | <b>3.1000e-003</b> | <b>1.8000e-004</b> | <b>3.2800e-003</b> | <b>8.3000e-004</b> | <b>1.7000e-004</b> | <b>9.9000e-004</b> | <b>0.0000</b> | <b>4.6828</b> | <b>4.6828</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>4.6856</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category      | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Fugitive Dust |               |               |               |                    | 0.1489        | 0.0000        | 0.1489        | 0.0759         | 0.0000        | 0.0759        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Off-Road      | 0.1458        | 1.6833        | 1.1056        | 1.3900e-003        |               | 0.0807        | 0.0807        |                | 0.0742        | 0.0742        | 0.0000        | 130.9404        | 130.9404        | 0.0395        | 0.0000        | 131.7698        |
| <b>Total</b>  | <b>0.1458</b> | <b>1.6833</b> | <b>1.1056</b> | <b>1.3900e-003</b> | <b>0.1489</b> | <b>0.0807</b> | <b>0.2295</b> | <b>0.0759</b>  | <b>0.0742</b> | <b>0.1501</b> | <b>0.0000</b> | <b>130.9404</b> | <b>130.9404</b> | <b>0.0395</b> | <b>0.0000</b> | <b>131.7698</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.7300e-003        | 2.6100e-003        | 0.0275        | 6.0000e-005        | 4.9300e-003        | 4.0000e-005        | 4.9700e-003        | 1.3100e-003        | 3.0000e-005        | 1.3400e-003        | 0.0000        | 4.4096        | 4.4096        | 2.4000e-004        | 0.0000        | 4.4146        |
| <b>Total</b> | <b>1.7300e-003</b> | <b>2.6100e-003</b> | <b>0.0275</b> | <b>6.0000e-005</b> | <b>4.9300e-003</b> | <b>4.0000e-005</b> | <b>4.9700e-003</b> | <b>1.3100e-003</b> | <b>3.0000e-005</b> | <b>1.3400e-003</b> | <b>0.0000</b> | <b>4.4096</b> | <b>4.4096</b> | <b>2.4000e-004</b> | <b>0.0000</b> | <b>4.4146</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category      | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Fugitive Dust |               |               |               |                    | 0.0581        | 0.0000        | 0.0581        | 0.0296         | 0.0000        | 0.0296        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Off-Road      | 0.1458        | 1.6833        | 1.1056        | 1.3900e-003        |               | 0.0807        | 0.0807        |                | 0.0742        | 0.0742        | 0.0000        | 130.9402        | 130.9402        | 0.0395        | 0.0000        | 131.7697        |
| <b>Total</b>  | <b>0.1458</b> | <b>1.6833</b> | <b>1.1056</b> | <b>1.3900e-003</b> | <b>0.0581</b> | <b>0.0807</b> | <b>0.1387</b> | <b>0.0296</b>  | <b>0.0742</b> | <b>0.1038</b> | <b>0.0000</b> | <b>130.9402</b> | <b>130.9402</b> | <b>0.0395</b> | <b>0.0000</b> | <b>131.7697</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.7300e-003        | 2.6100e-003        | 0.0275        | 6.0000e-005        | 4.9300e-003        | 4.0000e-005        | 4.9700e-003        | 1.3100e-003        | 3.0000e-005        | 1.3400e-003        | 0.0000        | 4.4096        | 4.4096        | 2.4000e-004        | 0.0000        | 4.4146        |
| <b>Total</b> | <b>1.7300e-003</b> | <b>2.6100e-003</b> | <b>0.0275</b> | <b>6.0000e-005</b> | <b>4.9300e-003</b> | <b>4.0000e-005</b> | <b>4.9700e-003</b> | <b>1.3100e-003</b> | <b>3.0000e-005</b> | <b>1.3400e-003</b> | <b>0.0000</b> | <b>4.4096</b> | <b>4.4096</b> | <b>2.4000e-004</b> | <b>0.0000</b> | <b>4.4146</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.1328        | 1.1118        | 0.7218        | 1.0500e-003        |               | 0.0767        | 0.0767        |                | 0.0721        | 0.0721        | 0.0000        | 94.4399        | 94.4399        | 0.0234        | 0.0000        | 94.9318        |
| <b>Total</b> | <b>0.1328</b> | <b>1.1118</b> | <b>0.7218</b> | <b>1.0500e-003</b> |               | <b>0.0767</b> | <b>0.0767</b> |                | <b>0.0721</b> | <b>0.0721</b> | <b>0.0000</b> | <b>94.4399</b> | <b>94.4399</b> | <b>0.0234</b> | <b>0.0000</b> | <b>94.9318</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Vendor       | 0.0633        | 0.6453        | 0.8241        | 1.5300e-003        | 0.0436        | 0.0103        | 0.0539        | 0.0125         | 9.4200e-003   | 0.0219        | 0.0000        | 139.1379        | 139.1379        | 1.0200e-003   | 0.0000        | 139.1592        |
| Worker       | 0.0695        | 0.1049        | 1.1037        | 2.3500e-003        | 0.1980        | 1.5000e-003   | 0.1995        | 0.0526         | 1.3800e-003   | 0.0540        | 0.0000        | 176.9428        | 176.9428        | 9.5000e-003   | 0.0000        | 177.1424        |
| <b>Total</b> | <b>0.1328</b> | <b>0.7501</b> | <b>1.9278</b> | <b>3.8800e-003</b> | <b>0.2416</b> | <b>0.0118</b> | <b>0.2534</b> | <b>0.0651</b>  | <b>0.0108</b> | <b>0.0759</b> | <b>0.0000</b> | <b>316.0807</b> | <b>316.0807</b> | <b>0.0105</b> | <b>0.0000</b> | <b>316.3016</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.1328        | 1.1118        | 0.7218        | 1.0500e-003        |               | 0.0767        | 0.0767        |                | 0.0721        | 0.0721        | 0.0000        | 94.4398        | 94.4398        | 0.0234        | 0.0000        | 94.9317        |
| <b>Total</b> | <b>0.1328</b> | <b>1.1118</b> | <b>0.7218</b> | <b>1.0500e-003</b> |               | <b>0.0767</b> | <b>0.0767</b> |                | <b>0.0721</b> | <b>0.0721</b> | <b>0.0000</b> | <b>94.4398</b> | <b>94.4398</b> | <b>0.0234</b> | <b>0.0000</b> | <b>94.9317</b> |

**3.4 Building Construction - 2016****Mitigated Construction Off-Site**

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Vendor       | 0.0633        | 0.6453        | 0.8241        | 1.5300e-003        | 0.0436        | 0.0103        | 0.0539        | 0.0125         | 9.4200e-003   | 0.0219        | 0.0000        | 139.1379        | 139.1379        | 1.0200e-003   | 0.0000        | 139.1592        |
| Worker       | 0.0695        | 0.1049        | 1.1037        | 2.3500e-003        | 0.1980        | 1.5000e-003   | 0.1995        | 0.0526         | 1.3800e-003   | 0.0540        | 0.0000        | 176.9428        | 176.9428        | 9.5000e-003   | 0.0000        | 177.1424        |
| <b>Total</b> | <b>0.1328</b> | <b>0.7501</b> | <b>1.9278</b> | <b>3.8800e-003</b> | <b>0.2416</b> | <b>0.0118</b> | <b>0.2534</b> | <b>0.0651</b>  | <b>0.0108</b> | <b>0.0759</b> | <b>0.0000</b> | <b>316.0807</b> | <b>316.0807</b> | <b>0.0105</b> | <b>0.0000</b> | <b>316.3016</b> |

**3.4 Building Construction - 2017****Unmitigated Construction On-Site**

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 4.6500e-003        | 0.0396        | 0.0272        | 4.0000e-005        |               | 2.6700e-003        | 2.6700e-003        |                | 2.5100e-003        | 2.5100e-003        | 0.0000        | 3.5922        | 3.5922        | 8.8000e-004        | 0.0000        | 3.6108        |
| <b>Total</b> | <b>4.6500e-003</b> | <b>0.0396</b> | <b>0.0272</b> | <b>4.0000e-005</b> |               | <b>2.6700e-003</b> | <b>2.6700e-003</b> |                | <b>2.5100e-003</b> | <b>2.5100e-003</b> | <b>0.0000</b> | <b>3.5922</b> | <b>3.5922</b> | <b>8.8000e-004</b> | <b>0.0000</b> | <b>3.6108</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 2.2500e-003        | 0.0226        | 0.0303        | 6.0000e-005        | 1.6800e-003        | 3.5000e-004        | 2.0300e-003        | 4.8000e-004        | 3.2000e-004        | 8.0000e-004        | 0.0000        | 5.2634         | 5.2634         | 4.0000e-005        | 0.0000        | 5.2642         |
| Worker       | 2.3600e-003        | 3.6100e-003   | 0.0380        | 9.0000e-005        | 7.6100e-003        | 6.0000e-005        | 7.6700e-003        | 2.0200e-003        | 5.0000e-005        | 2.0700e-003        | 0.0000        | 6.5378         | 6.5378         | 3.4000e-004        | 0.0000        | 6.5448         |
| <b>Total</b> | <b>4.6100e-003</b> | <b>0.0262</b> | <b>0.0683</b> | <b>1.5000e-004</b> | <b>9.2900e-003</b> | <b>4.1000e-004</b> | <b>9.7000e-003</b> | <b>2.5000e-003</b> | <b>3.7000e-004</b> | <b>2.8700e-003</b> | <b>0.0000</b> | <b>11.8011</b> | <b>11.8011</b> | <b>3.8000e-004</b> | <b>0.0000</b> | <b>11.8090</b> |

#### Mitigated Construction On-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 4.6500e-003        | 0.0396        | 0.0272        | 4.0000e-005        |               | 2.6700e-003        | 2.6700e-003        |                | 2.5100e-003        | 2.5100e-003        | 0.0000        | 3.5922        | 3.5922        | 8.8000e-004        | 0.0000        | 3.6108        |
| <b>Total</b> | <b>4.6500e-003</b> | <b>0.0396</b> | <b>0.0272</b> | <b>4.0000e-005</b> |               | <b>2.6700e-003</b> | <b>2.6700e-003</b> |                | <b>2.5100e-003</b> | <b>2.5100e-003</b> | <b>0.0000</b> | <b>3.5922</b> | <b>3.5922</b> | <b>8.8000e-004</b> | <b>0.0000</b> | <b>3.6108</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 2.2500e-003        | 0.0226        | 0.0303        | 6.0000e-005        | 1.6800e-003        | 3.5000e-004        | 2.0300e-003        | 4.8000e-004        | 3.2000e-004        | 8.0000e-004        | 0.0000        | 5.2634         | 5.2634         | 4.0000e-005        | 0.0000        | 5.2642         |
| Worker       | 2.3600e-003        | 3.6100e-003   | 0.0380        | 9.0000e-005        | 7.6100e-003        | 6.0000e-005        | 7.6700e-003        | 2.0200e-003        | 5.0000e-005        | 2.0700e-003        | 0.0000        | 6.5378         | 6.5378         | 3.4000e-004        | 0.0000        | 6.5448         |
| <b>Total</b> | <b>4.6100e-003</b> | <b>0.0262</b> | <b>0.0683</b> | <b>1.5000e-004</b> | <b>9.2900e-003</b> | <b>4.1000e-004</b> | <b>9.7000e-003</b> | <b>2.5000e-003</b> | <b>3.7000e-004</b> | <b>2.8700e-003</b> | <b>0.0000</b> | <b>11.8011</b> | <b>11.8011</b> | <b>3.8000e-004</b> | <b>0.0000</b> | <b>11.8090</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |                    |               |                |
| Off-Road     | 0.0238        | 0.2537        | 0.1841        | 2.8000e-004        |               | 0.0142        | 0.0142        |                | 0.0131        | 0.0131        | 0.0000        | 25.8668        | 25.8668        | 7.9300e-003        | 0.0000        | 26.0332        |
| Paving       | 0.0130        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| <b>Total</b> | <b>0.0368</b> | <b>0.2537</b> | <b>0.1841</b> | <b>2.8000e-004</b> |               | <b>0.0142</b> | <b>0.0142</b> |                | <b>0.0131</b> | <b>0.0131</b> | <b>0.0000</b> | <b>25.8668</b> | <b>25.8668</b> | <b>7.9300e-003</b> | <b>0.0000</b> | <b>26.0332</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 6.4000e-004        | 9.8000e-004        | 0.0103        | 2.0000e-005        | 2.0600e-003        | 1.0000e-005        | 2.0700e-003        | 5.5000e-004        | 1.0000e-005        | 5.6000e-004        | 0.0000        | 1.7651        | 1.7651        | 9.0000e-005        | 0.0000        | 1.7670        |
| <b>Total</b> | <b>6.4000e-004</b> | <b>9.8000e-004</b> | <b>0.0103</b> | <b>2.0000e-005</b> | <b>2.0600e-003</b> | <b>1.0000e-005</b> | <b>2.0700e-003</b> | <b>5.5000e-004</b> | <b>1.0000e-005</b> | <b>5.6000e-004</b> | <b>0.0000</b> | <b>1.7651</b> | <b>1.7651</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>1.7670</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |                    |               |                |
| Off-Road     | 0.0238        | 0.2537        | 0.1841        | 2.8000e-004        |               | 0.0142        | 0.0142        |                | 0.0131        | 0.0131        | 0.0000        | 25.8667        | 25.8667        | 7.9300e-003        | 0.0000        | 26.0332        |
| Paving       | 0.0130        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| <b>Total</b> | <b>0.0368</b> | <b>0.2537</b> | <b>0.1841</b> | <b>2.8000e-004</b> |               | <b>0.0142</b> | <b>0.0142</b> |                | <b>0.0131</b> | <b>0.0131</b> | <b>0.0000</b> | <b>25.8667</b> | <b>25.8667</b> | <b>7.9300e-003</b> | <b>0.0000</b> | <b>26.0332</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 6.4000e-004        | 9.8000e-004        | 0.0103        | 2.0000e-005        | 2.0600e-003        | 1.0000e-005        | 2.0700e-003        | 5.5000e-004        | 1.0000e-005        | 5.6000e-004        | 0.0000        | 1.7651        | 1.7651        | 9.0000e-005        | 0.0000        | 1.7670        |
| <b>Total</b> | <b>6.4000e-004</b> | <b>9.8000e-004</b> | <b>0.0103</b> | <b>2.0000e-005</b> | <b>2.0600e-003</b> | <b>1.0000e-005</b> | <b>2.0700e-003</b> | <b>5.5000e-004</b> | <b>1.0000e-005</b> | <b>5.6000e-004</b> | <b>0.0000</b> | <b>1.7651</b> | <b>1.7651</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>1.7670</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr       |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 1.3191        |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 7.4800e-003   | 0.0492        | 0.0420        | 7.0000e-005        |               | 3.9000e-003        | 3.9000e-003        |                | 3.9000e-003        | 3.9000e-003        | 0.0000        | 5.7448        | 5.7448        | 6.1000e-004        | 0.0000        | 5.7576        |
| <b>Total</b>    | <b>1.3265</b> | <b>0.0492</b> | <b>0.0420</b> | <b>7.0000e-005</b> |               | <b>3.9000e-003</b> | <b>3.9000e-003</b> |                | <b>3.9000e-003</b> | <b>3.9000e-003</b> | <b>0.0000</b> | <b>5.7448</b> | <b>5.7448</b> | <b>6.1000e-004</b> | <b>0.0000</b> | <b>5.7576</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Worker       | 7.1200e-003        | 0.0109        | 0.1145        | 2.7000e-004        | 0.0229        | 1.7000e-004        | 0.0231        | 6.0900e-003        | 1.5000e-004        | 6.2500e-003        | 0.0000        | 19.6980        | 19.6980        | 1.0100e-003        | 0.0000        | 19.7192        |
| <b>Total</b> | <b>7.1200e-003</b> | <b>0.0109</b> | <b>0.1145</b> | <b>2.7000e-004</b> | <b>0.0229</b> | <b>1.7000e-004</b> | <b>0.0231</b> | <b>6.0900e-003</b> | <b>1.5000e-004</b> | <b>6.2500e-003</b> | <b>0.0000</b> | <b>19.6980</b> | <b>19.6980</b> | <b>1.0100e-003</b> | <b>0.0000</b> | <b>19.7192</b> |

#### Mitigated Construction On-Site

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr       |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 1.3191        |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 7.4800e-003   | 0.0492        | 0.0420        | 7.0000e-005        |               | 3.9000e-003        | 3.9000e-003        |                | 3.9000e-003        | 3.9000e-003        | 0.0000        | 5.7448        | 5.7448        | 6.1000e-004        | 0.0000        | 5.7576        |
| <b>Total</b>    | <b>1.3265</b> | <b>0.0492</b> | <b>0.0420</b> | <b>7.0000e-005</b> |               | <b>3.9000e-003</b> | <b>3.9000e-003</b> |                | <b>3.9000e-003</b> | <b>3.9000e-003</b> | <b>0.0000</b> | <b>5.7448</b> | <b>5.7448</b> | <b>6.1000e-004</b> | <b>0.0000</b> | <b>5.7576</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |        |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|--------|
| Category     | tons/yr            |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |                    |               |                |        |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         | 0.0000 |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         | 0.0000 |
| Worker       | 7.1200e-003        | 0.0109        | 0.1145        | 2.7000e-004        | 0.0229        | 1.7000e-004        | 0.0231        | 6.0900e-003        | 1.5000e-004        | 6.2500e-003        | 0.0000        | 19.6980        | 19.6980        | 1.0100e-003        | 0.0000        | 19.7192        |        |
| <b>Total</b> | <b>7.1200e-003</b> | <b>0.0109</b> | <b>0.1145</b> | <b>2.7000e-004</b> | <b>0.0229</b> | <b>1.7000e-004</b> | <b>0.0231</b> | <b>6.0900e-003</b> | <b>1.5000e-004</b> | <b>6.2500e-003</b> | <b>0.0000</b> | <b>19.6980</b> | <b>19.6980</b> | <b>1.0100e-003</b> | <b>0.0000</b> | <b>19.7192</b> |        |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

- Increase Density
- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network
- Employee Vanpool/Shuttle
- Provide Ride Sharing Program

|             | ROG     | NOx    | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|-------------|---------|--------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Category    | tons/yr |        |         |        |               |              |            |                |               |             | MT/yr    |            |            |        |        |            |
| Mitigated   | 0.7267  | 4.0314 | 9.3349  | 0.0213 | 1.1988        | 0.0575       | 1.2563     | 0.3220         | 0.0529        | 0.3749      | 0.0000   | 1,719.9729 | 1,719.9729 | 0.0493 | 0.0000 | 1,721.0088 |
| Unmitigated | 0.8318  | 5.4318 | 11.4439 | 0.0297 | 1.6906        | 0.0803       | 1.7710     | 0.4541         | 0.0739        | 0.5280      | 0.0000   | 2,402.1003 | 2,402.1003 | 0.0676 | 0.0000 | 2,403.5202 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |               |               | Unmitigated      | Mitigated        |
|----------------------------------|-------------------------|---------------|---------------|------------------|------------------|
|                                  | Weekday                 | Saturday      | Sunday        | Annual VMT       | Annual VMT       |
| Other Asphalt Surfaces           | 0.00                    | 0.00          | 0.00          |                  |                  |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00          | 0.00          |                  |                  |
| Parking Lot                      | 0.00                    | 0.00          | 0.00          |                  |                  |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62        | 948.62        | 4,400,149        | 3,120,016        |
| <b>Total</b>                     | <b>948.62</b>           | <b>948.62</b> | <b>948.62</b> | <b>4,400,149</b> | <b>3,120,016</b> |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                         | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|-------------------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category                | tons/yr     |        |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |             |          |
| Electricity Mitigated   |             |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 495.2870  | 495.2870  | 0.0228      | 4.7100e-003 | 497.2253 |
| Electricity Unmitigated |             |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 533.5161  | 533.5161  | 0.0245      | 5.0700e-003 | 535.6040 |
| Natural Gas Mitigated   | 4.5900e-003 | 0.0417 | 0.0350 | 2.5000e-004 |               | 3.1700e-003  | 3.1700e-003 |                | 3.1700e-003   | 3.1700e-003 | 0.0000   | 45.4089   | 45.4089   | 8.7000e-004 | 8.3000e-004 | 45.6853  |
| Natural Gas Unmitigated | 6.5200e-003 | 0.0592 | 0.0498 | 3.6000e-004 |               | 4.5000e-003  | 4.5000e-003 |                | 4.5000e-003   | 4.5000e-003 | 0.0000   | 64.4824   | 64.4824   | 1.2400e-003 | 1.1800e-003 | 64.8749  |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O                | CO2e           |        |
|----------------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|--------|
| Land Use                         | kBTU/yr        | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |                |                |                    |                    |                |        |
| Parking Lot                      | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Unrefrigerated Warehouse-No Pail | 1.20836e+006   | 6.5200e-003        | 0.0592        | 0.0498        | 3.6000e-004        |               | 4.5000e-003        | 4.5000e-003        |                | 4.5000e-003        | 4.5000e-003        | 0.0000        | 64.4824        | 64.4824        | 1.2400e-003        | 1.1800e-003        | 64.8749        |        |
| Other Asphalt Surfaces           | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| <b>Total</b>                     |                | <b>6.5200e-003</b> | <b>0.0592</b> | <b>0.0498</b> | <b>3.6000e-004</b> |               | <b>4.5000e-003</b> | <b>4.5000e-003</b> |                | <b>4.5000e-003</b> | <b>4.5000e-003</b> | <b>0.0000</b> | <b>64.4824</b> | <b>64.4824</b> | <b>1.2400e-003</b> | <b>1.1800e-003</b> | <b>64.8749</b> |        |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                  | NaturalGas Use | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O                | CO2e           |        |
|----------------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|--------|
| Land Use                         | kBTU/yr        | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |                |                |                    |                    |                |        |
| Parking Lot                      | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Unrefrigerated Warehouse-No Pail | 850931         | 4.5900e-003        | 0.0417        | 0.0350        | 2.5000e-004        |               | 3.1700e-003        | 3.1700e-003        |                | 3.1700e-003        | 3.1700e-003        | 0.0000        | 45.4089        | 45.4089        | 8.7000e-004        | 8.3000e-004        | 45.6853        |        |
| Other Asphalt Surfaces           | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| <b>Total</b>                     |                | <b>4.5900e-003</b> | <b>0.0417</b> | <b>0.0350</b> | <b>2.5000e-004</b> |               | <b>3.1700e-003</b> | <b>3.1700e-003</b> |                | <b>3.1700e-003</b> | <b>3.1700e-003</b> | <b>0.0000</b> | <b>45.4089</b> | <b>45.4089</b> | <b>8.7000e-004</b> | <b>8.3000e-004</b> | <b>45.6853</b> |        |

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

|                                  | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|----------------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use                         | kWh/yr          | MT/yr           |               |                    |                 |
| Other Asphalt Surfaces           | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces       | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Parking Lot                      | 159104          | 45.5303         | 2.0900e-003   | 4.3000e-004        | 45.7085         |
| Unrefrigerated Warehouse-No Rail | 1.70525e+006    | 487.9858        | 0.0224        | 4.6400e-003        | 489.8956        |
| <b>Total</b>                     |                 | <b>533.5161</b> | <b>0.0245</b> | <b>5.0700e-003</b> | <b>535.6040</b> |

### 5.3 Energy by Land Use - Electricity

#### Mitigated

|                                  | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|----------------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use                         | kWh/yr          | MT/yr           |               |                    |                 |
| Other Asphalt Surfaces           | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces       | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Parking Lot                      | 151149          | 43.2538         | 1.9900e-003   | 4.1000e-004        | 43.4231         |
| Unrefrigerated Warehouse-No Rail | 1.57961e+006    | 452.0332        | 0.0208        | 4.3000e-003        | 453.8023        |
| <b>Total</b>                     |                 | <b>495.2870</b> | <b>0.0228</b> | <b>4.7100e-003</b> | <b>497.2253</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|-------------|---------|-------------|--------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category    | tons/yr |             |        |        |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| Mitigated   | 4.1406  | 1.4000e-004 | 0.0146 | 0.0000 |               | 5.0000e-005  | 5.0000e-005 |                | 5.0000e-005   | 5.0000e-005 | 0.0000   | 0.0280    | 0.0280    | 8.0000e-005 | 0.0000 | 0.0296 |
| Unmitigated | 4.5331  | 1.4000e-004 | 0.0146 | 0.0000 |               | 5.0000e-005  | 5.0000e-005 |                | 5.0000e-005   | 5.0000e-005 | 0.0000   | 0.0280    | 0.0280    | 8.0000e-005 | 0.0000 | 0.0296 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG           | NOx                | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| SubCategory           | tons/yr       |                    |               |               |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Architectural Coating | 0.5445        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Consumer Products     | 3.9872        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Landscaping           | 1.4100e-003   | 1.4000e-004        | 0.0146        | 0.0000        |               | 5.0000e-005        | 5.0000e-005        |                | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0280        | 0.0280        | 8.0000e-005        | 0.0000        | 0.0296        |
| <b>Total</b>          | <b>4.5331</b> | <b>1.4000e-004</b> | <b>0.0146</b> | <b>0.0000</b> |               | <b>5.0000e-005</b> | <b>5.0000e-005</b> |                | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0280</b> | <b>0.0280</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>0.0296</b> |

### 6.2 Area by SubCategory

#### Mitigated

|                       | ROG           | NOx                | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| SubCategory           | tons/yr       |                    |               |               |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Architectural Coating | 0.1519        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Consumer Products     | 3.9872        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Landscaping           | 1.4100e-003   | 1.4000e-004        | 0.0146        | 0.0000        |               | 5.0000e-005        | 5.0000e-005        |                | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0280        | 0.0280        | 8.0000e-005        | 0.0000        | 0.0296        |
| <b>Total</b>          | <b>4.1406</b> | <b>1.4000e-004</b> | <b>0.0146</b> | <b>0.0000</b> |               | <b>5.0000e-005</b> | <b>5.0000e-005</b> |                | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0280</b> | <b>0.0280</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>0.0296</b> |

### 7.0 Water Detail

#### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
| Category    | MT/yr     |        |        |          |
| Mitigated   | 408.8682  | 3.4211 | 0.0840 | 506.7346 |
| Unmitigated | 527.9725  | 4.2772 | 0.1051 | 650.3716 |

## 7.2 Water by Land Use

### Unmitigated

|                                  | Indoor/Outdoor Use | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|--------------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | Mgal               | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 130.575 / 0        | 527.9725        | 4.2772        | 0.1051        | 650.3716        |
| <b>Total</b>                     |                    | <b>527.9725</b> | <b>4.2772</b> | <b>0.1051</b> | <b>650.3716</b> |

## 7.2 Water by Land Use

### Mitigated

|                                  | Indoor/Outdoor Use | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|--------------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | Mgal               | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 104.46 / 0         | 408.8682        | 3.4211        | 0.0840        | 506.7346        |
| <b>Total</b>                     |                    | <b>408.8682</b> | <b>3.4211</b> | <b>0.0840</b> | <b>506.7346</b> |

## 8.0 Waste Detail

---

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

**Category/Year**

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
|             | MT/yr     |        |        |          |
| Mitigated   | 53.8708   | 3.1837 | 0.0000 | 120.7278 |
| Unmitigated | 107.7415  | 6.3673 | 0.0000 | 241.4557 |

**8.2 Waste by Land Use**

**Unmitigated**

|                                  | Waste Disposed | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|----------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | tons           | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 530.77         | 107.7415        | 6.3673        | 0.0000        | 241.4557        |
| <b>Total</b>                     |                | <b>107.7415</b> | <b>6.3673</b> | <b>0.0000</b> | <b>241.4557</b> |

## 8.2 Waste by Land Use

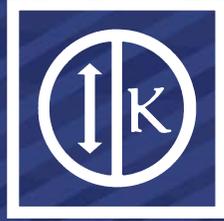
### Mitigated

|                                  | Waste Disposed | Total CO2      | CH4           | N2O           | CO2e            |
|----------------------------------|----------------|----------------|---------------|---------------|-----------------|
| Land Use                         | tons           | MT/yr          |               |               |                 |
| Other Asphalt Surfaces           | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Pail | 265.385        | 53.8708        | 3.1837        | 0.0000        | 120.7278        |
| <b>Total</b>                     |                | <b>53.8708</b> | <b>3.1837</b> | <b>0.0000</b> | <b>120.7278</b> |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## 10.0 Vegetation



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**AIR QUALITY, GLOBAL CLIMATE CHANGE, AND  
HEALTH RISK ASSESSMENT IMPACT ANALYSIS**

**January 15, 2016**



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER**

**AIR QUALITY, GLOBAL CLIMATE CHANGE, AND  
HEALTH RISK ASSESSMENT IMPACT ANALYSIS**

**January 15, 2016**

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**5629b**

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## **I. INTRODUCTION AND SETTING**

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### **A. Purpose and Objectives**

This study was performed to address the possibility of regional and local air quality impacts, global climate change impacts, and cancer risk from diesel emissions. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality, greenhouse gases, and cancer risk thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- analysis of the operations related cancer risk from diesel emissions
- recommendations for mitigation measures
- analysis of the conformity of the proposed project with the SCAQMD AQMP

The City of San Bernardino is the lead agency responsible for preparation of this air quality analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

### **B. Project Location**

The project is located on the southwest corner of the Waterman Avenue and Dumas Drive intersection in the City of San Bernardino. A vicinity map showing the project location is provided on Figure 1.

According to the SCAQMD's MATES-IV study, the project area has an estimated ambient cancer risk of 336.39 in one million. This increased cancer risk is largely due to the proximity to the I-10 and I-215 Freeways. In comparison the average cancer risk for San Bernardino County is 339 in one million.

### **C. Project Description**

The approximately 25.25 acre project site is proposed to be developed with a 564,652 square foot high-cube warehouse distribution center with 452 total parking stalls, including 281 warehouse parking spaces and 171 trailer parking spaces, and 24 bicycle stalls. The project also includes 103,585 gross square feet of landscaping. The proposed project will have access to Waterman Avenue and Dumas Drive. Figure 2 illustrates the project site plan.

**D. Phasing and Timing**

The project will be constructed in one phase. The construction of the project is expected to begin June 2016 and be completed in March 2017. The project will be operational in 2017.

**E. Sensitive Receptors in Project Vicinity**

For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, or convalescent facility where it is possible that an individual could remain at the location for 24 hours. SCAQMD also considers land uses such as schools, child care centers, athletic facilities, and playgrounds to be sensitive receptors. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain on-site for a full 24 hours, but are present for shorter periods of time, such as eight hours.

The nearest sensitive receptors to the project site are the single-family detached residential dwelling units on the north side of Dumas Street (approximately 65 feet from the project's northern property line), the single-family detached residential dwelling unit to the west of the project site (approximately 170 feet from the western property line). The San Bernardino Public Golf Course is located adjacent to the southern and southwestern property line.

**F. Executive Summary of Findings**

*Construction-Source Emissions*

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

*Operational-Source Emissions*

The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related traffic will not cause or result in CO concentrations exceeding applicable state

and/or federal standards (CO “hotspots). The Diesel Emissions Health Risk Assessment conducted for this project showed that DPM emissions from project-related truck traffic will not cause a significantly elevated cancer risk or significant non-cancer-related health risk to nearby receptors. Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions are also considered to be less than significant, with mitigation, and the project does not conflict with the goals of the SANBAG GHG Reduction Plan for the City of San Bernardino.

Figure 1  
Project Location Map

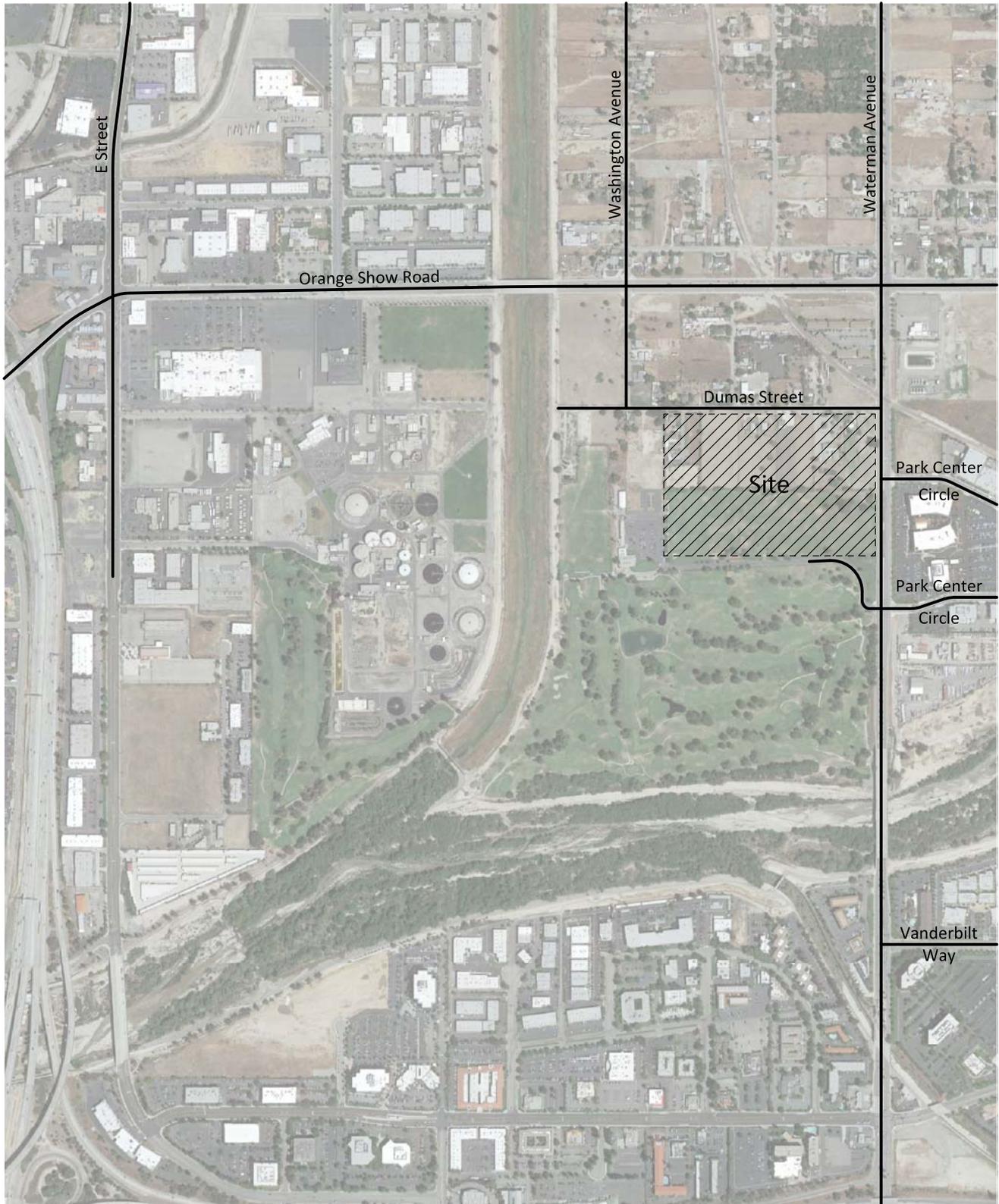
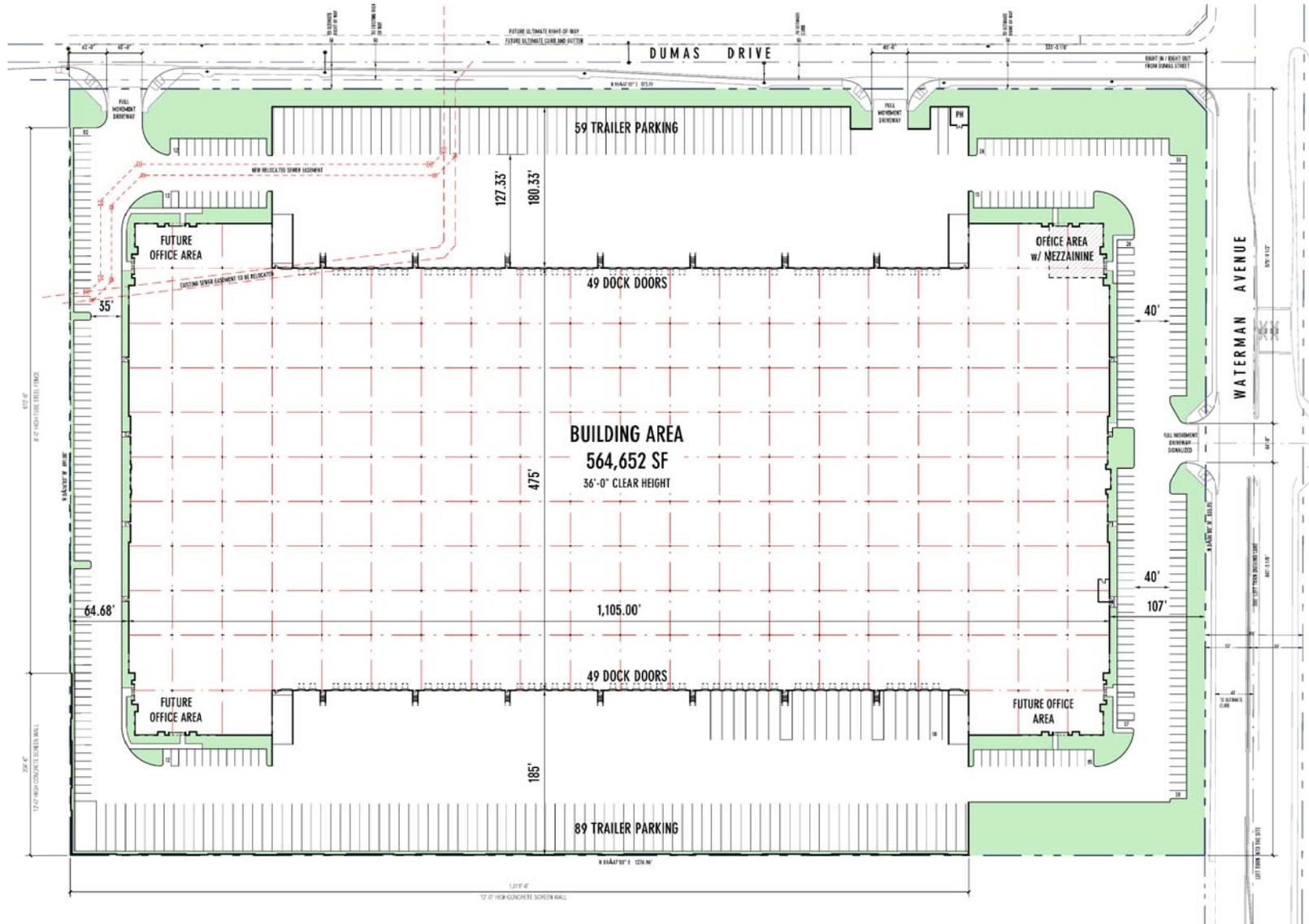


Figure 2  
Site Plan



## II. ATMOSPHERIC SETTING

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The project site is located within the western portion of San Bernardino County, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter. The project site is located toward the northeast portion of the South Coast Air Basin near the foot of the San Bernardino Mountains, which define the eastern boundary of the South Coast Air Basin.

The climate of western San Bernardino County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western San Bernardino County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the populated areas of the Los Angeles Basin. This airflow brings polluted air into western San Bernardino County late in the afternoon. This transport pattern creates unhealthy air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western San Bernardino County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the South Coast Air Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the South Coast Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin,

there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of San Bernardino are shown below in Table 1. Table 1 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

**Table 1**

**San Bernardino Monthly Climate Data<sup>1</sup>**

| Descriptor                     | Month of Year |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|
|                                | Jan           | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
| Avg. Max. Temperature          | 66.4          | 68   | 71.6 | 76.8 | 82.2 | 88.9 | 94.7 | 95.6 | 91.1 | 82.6 | 70.2 | 66.2 |
| Avg. Min. Temperature          | 42.1          | 44.1 | 46.3 | 49.9 | 54.6 | 58.6 | 63.1 | 64.1 | 61   | 54.4 | 44.8 | 41.5 |
| Avg. Total Precipitation (in.) | 2.99          | 3.69 | 2.85 | 1.06 | 0.22 | 0.08 | 0.04 | 0.18 | 0.29 | 0.57 | 1.18 | 2.05 |

<sup>1</sup> Source: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7723>

### III. POLLUTANTS

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Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

#### A. Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants “criteria” air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

##### 1. Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen Oxides (NO<sub>x</sub>) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NO<sub>x</sub> are colorless and odorless, concentrations of nitrogen dioxide (NO<sub>2</sub>) can often be seen as a reddish-brown layer over many urban areas. NO<sub>x</sub> form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO<sub>x</sub> are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NO<sub>x</sub> reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO<sub>2</sub>, which cause respiratory problems. NO<sub>x</sub> and the pollutants formed from NO<sub>x</sub> can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NO<sub>x</sub> is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

##### 2. Ozone (O<sub>3</sub>)

Ozone is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NO<sub>x</sub> and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NO<sub>x</sub> and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NO<sub>x</sub> and VOC are ozone precursors, the health effects associated

with ozone are also indirect health effects associated with significant levels of NO<sub>x</sub> and VOC emissions.

3. Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

4. Sulfur Dioxide (SO<sub>2</sub>)

Sulfur Oxide (SO<sub>x</sub>) gases (including sulfur dioxide [SO<sub>2</sub>]) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SO<sub>x</sub> dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

5. Lead (Pb)

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid

battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

6. Particulate Matter (PM)

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

7. Volatile Organic Compounds (VOCs)

Although not a criteria pollutant, reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.

**B. Other Pollutants of Concern**

1. Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2005 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM<sub>2.5</sub> because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

## 2. Asbestos

Asbestos is listed as a TAC by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in San Bernardino County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

## C. Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent

greenhouse gases contributing to this process include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone, water vapor, nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO<sub>2</sub> and nitrous oxide (NO<sub>x</sub>) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO<sub>2</sub>, where CO<sub>2</sub> is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

1. Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved in is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop". The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

2. Carbon Dioxide

The natural production and absorption of CO<sub>2</sub> is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s. Each of these activities has increased in scale and distribution. CO<sub>2</sub> was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left

unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius.

3. Methane

CH<sub>4</sub> is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO<sub>2</sub>. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO<sub>2</sub>, N<sub>2</sub>O, and Chlorofluorocarbons (CFCs)). CH<sub>4</sub> has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

4. Nitrous Oxide

Concentrations of N<sub>2</sub>O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

5. Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C<sub>2</sub>H<sub>6</sub>) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

6. Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF<sub>3</sub>), HFC-134a (CF<sub>3</sub>CH<sub>2</sub>F), and HFC-152a (CH<sub>3</sub>CHF<sub>2</sub>). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 HFC-134a are now about 10 parts per trillion

(ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

7. Perfluorocarbons

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane ( $\text{CF}_4$ ) and hexafluoroethane ( $\text{C}_2\text{F}_6$ ). Concentrations of  $\text{CF}_4$  in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

8. Sulfur Hexafluoride

$\text{SF}_6$  is an inorganic, odorless, colorless, nontoxic, nonflammable gas.  $\text{SF}_6$  has the highest global warming potential of any gas evaluated; 23,900 times that of  $\text{CO}_2$ . Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

9. Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

10. Global Warming Potential

GHGs have varying global warming potential (GWP). The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas,  $\text{CO}_2$ . One teragram of carbon dioxide equivalent (Tg  $\text{CO}_2\text{e}$ ) is essentially the emissions of the gas multiplied by the global warming potential. One teragram is equal to one million metric tons. The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the global warming potential of the gas. A summary of the atmospheric lifetime and the global warming potential of selected gases are summarized in Table 2. As shown in Table 2, the global warming potential of GHGs ranges from 1 to 22,800.

**Table 2****Global Warming Potentials and Atmospheric Lifetimes<sup>1</sup>**

| Gas                                     | Atmospheric Lifetime | Global Warming Potential <sup>2</sup><br>(100 Year Horizon) |
|---|----------------------|---|
| Carbon Dioxide (CO <sub>2</sub> )       | — <sup>3</sup>       | 1   |
| Methane (CH <sub>4</sub> )              | 12                   | 28-36   |
| Nitrous Oxide (NO)                      | 114                  | 298   |
| Hydrofluorocarbons (HFCs)               | 1-270                | 12-14,800   |
| Perfluorocarbons (PFCs)                 | 2,600-50,000         | 7,390-12,200  |
| Nitrogen trifluoride (NF <sub>3</sub> ) | 740                  | 17,200  |
| Sulfur Hexafluoride (SF <sub>6</sub> )  | 3,200                | 22,800  |

<sup>1</sup> Source: <http://www3.epa.gov/climatechange/ghgemissions/gases.html>

<sup>2</sup> Compared to the same quantity of CO<sub>2</sub> emissions.

<sup>3</sup> Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean-atmosphere-land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

## IV. AIR QUALITY MANAGEMENT

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### A. Regulatory Setting

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

#### 1. International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by 2000 and methyl chloroform by 2005.

#### 2. Federal - United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 3.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

As indicated below in Table 4, the Basin has been designated by the EPA as a non-attainment area for ozone (O<sub>3</sub>) and suspended particulates (PM<sub>10</sub> and PM<sub>2.5</sub>).

Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>).

In 2011, the Basin exceeded federal standards for either ozone or PM<sub>2.5</sub> at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM<sub>2.5</sub>. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM<sub>2.5</sub> in the Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM<sub>2.5</sub> NAAQS and the 98th percentile form of the 24-hour PM<sub>2.5</sub> NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM<sub>2.5</sub> 24-hour standard level was exceeded in 2011 on 17 sampling days.

The Basin is currently in attainment for the federal standards for carbon monoxide (CO), lead, sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>). While the concentration level of the new 1-hour NO<sub>2</sub> federal standard (100 ppb) was exceeded in the Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO<sub>2</sub> design value has not been exceeded. Therefore, the Basin remains in attainment of the NO<sub>2</sub> NAAQS.

The EPA designated the Los Angeles County portion of the Basin as nonattainment for the recently revised (2008) federal lead standard (0.15 µg/m<sup>3</sup>, rolling 3-month average), due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard in the 2007-2009 period of data used.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO<sub>2</sub> and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

On March 19, 2015, the Whitehouse announced that President Obama will issue an Executive Order that will cut the Federal Government's greenhouse gas (GHG) emissions 40 percent over the next decade from 2008 levels -- saving taxpayers up to \$18 billion in avoided energy costs -- and increase the share of electricity the Federal Government consumes from renewable sources to 30 percent. Complementing this effort, several major Federal suppliers are announcing commitments to cut their own GHG emissions. Today, the Administration is hosting a roundtable that will bring some of these large Federal suppliers together to discuss the benefits of their GHG reduction targets or to make their first-ever corporate commitments to disclose emissions and set new reduction goals.

Together, the combined results of the Federal Government actions and new supplier commitments will reduce GHG emissions by 26 million metric tons by 2025 from 2008 levels, the equivalent of taking nearly 5.5 million cars off the road for a year. And to encourage continued progress across the Federal supply chain, the Administration is releasing a new scorecard to publicly track self-reported emissions disclosure and progress for all major Federal suppliers, who together represent more than \$187 billion in Federal spending and account for more than 40 percent of all Federal contract dollars.

Since the Federal Government is the single largest consumer of energy in the Nation, Federal emissions reductions and progress across the supply chain will have broad impacts. The new commitments announced today support the United States' international commitment to cut net GHG emissions 26-28 percent below 2005 levels by 2025, which President Obama first announced in November 2014 as part of an historic agreement with China. Additionally, the goals build on the strong progress made by Federal agencies during the first six years of the Administration under President Obama's 2009 Executive Order on Federal Leadership on Environmental, Energy and Economic Performance, including reducing Federal GHG emissions by 17 percent — which helped Federal agencies avoid \$1.8 billion in cumulative energy costs — and increasing the share of renewable energy consumption to 9 percent.<sup>1</sup>

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<sup>1</sup> Source: <https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro>.

### 3. State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 3. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, SO<sub>2</sub>, NO<sub>2</sub>, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m<sup>3</sup> and established an annual average standard for PM2.5 of 12 µg/m<sup>3</sup>. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projected attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard in 2015.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB also proposed interim statewide CEQA thresholds for GHG emissions and released Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act, on October 24, 2008. The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

#### *Assembly Bill 1493*

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more

stringent tailpipe emission standards for CO<sub>2</sub> and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the “waiver” request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State’s request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

#### *Executive Order S-3-05*

The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

#### *Assembly Bill 32*

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

On December 6, 2007 CARB released the calculated Year 1990 GHG emissions of 427 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e). The 2020 target of 427 MMTCO<sub>2</sub>e requires the reduction of 169 MMTCO<sub>2</sub>e, or approximately 30 percent from the State’s projected 2020 business as usual emissions of 596 MMTCO<sub>2</sub>e and the reduction of 42 MMTCO<sub>2</sub>e, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO<sub>2</sub> in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources that became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May 11, 2009 that proposed a variety of measures including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, a market-based cap-and-trade system, and a fee regulation to fund the program. In current pending litigation, *Association of Irrigated Residents v. California Air Resources Board*, a California State trial court found that the analysis of the alternatives identified in the AB 32 Scoping Plan Functional Equivalent Document (FED) was not sufficient for informed decision-making and public review under CEQA. In response, CARB has appealed the decision. In addition, CARB prepared the *Supplement to the AB 32 Scoping Plan Functional Equivalent Document*, June 13, 2011. On August 24, 2011 CARB recertified the complete AB 32 Scoping Plan Functional Equivalent Environmental Document revised by the Final Supplement. In December, 2011 the Final Supplement was accepted as sufficient to fulfill the trial court's March order.

#### *Senate Bill 1368*

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

#### *Executive Order S-1-07*

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid

electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

#### *Senate Bill 97*

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.

- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation”.
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

*Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09*

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State’s Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

*Senate Bill 375*

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO’s sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as “transit priority projects”.

*Senate Bill X7-7*

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

*Assembly Bill 939 and Senate Bill 1374*

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

*California Code of Regulations (CCR) Title 24, Part 6*

CCR Title 24, Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. CalEEMod modeling defaults to 2008 standards. 2013 Standards have been approved and became effective July 1, 2014.

*California Code of Regulations (CCR) Title 24, Part 11*

All buildings for which an application for a building permit is submitted on or after January 1, 2014 must follow the 2013 standards. The 2013 commercial standards are estimated to be 30 percent more efficient than the 2008 standards; residential standards are 25 percent more efficient. Energy efficient

buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

#### *California Green Building Standards*

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

#### 4. Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies. SCAMD defines a "sensitive receptor" as a land use such as residences, schools, child care centers, athletic facilities, playgrounds, retirement homes and convalescent homes.

#### *South Coast Air Quality Management District*

The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through

educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. A revised draft of the 2012 AQMP was released on September, 2012, and was adopted by the SCAQMD Board on December 7, 2012. The 2012 AQMP is now awaiting approval from CARB and the U.S. EPA. The 2012 AQMP is being prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM<sub>2.5</sub> non-attainment areas prepare a SIP, which was required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM<sub>2.5</sub> standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM<sub>2.5</sub> standard by 2014 in the Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These “black box” emissions reductions represent 65 percent of the remaining NO<sub>x</sub> emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NO<sub>x</sub> control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM<sub>2.5</sub> emissions standards.

The 2012 AQMP is designed to satisfy the California Clean Air Act’s (CCAA) emission reductions of 5 percent per year or adoption of all feasible measures requirements and fulfill the EPA’s requirement to update transportation conformity emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2012 AQMP updates and revises the previous 2007 AQMP. The 2012 AQMP was prepared to comply with the Federal and State CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet Federal and State ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2012 AQMP for the Basin is to set forth a comprehensive program that will lead this area into compliance with all federal and state air-quality planning requirements.

The 2012 AQMP builds upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB’s 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as LPG transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of

several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: 1) Basin-wide and episodic short-term PM<sub>2.5</sub> measures; 2) Section 182(e)(5) implementation measures; and 3) Transportation control measures. Many of the control measures are not based on command and control regulations, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes. More broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals. Many of the same technologies will address both air quality and climate needs.

During construction and operation, the project must comply with applicable rules and regulations. The following are rules the project may be required to comply with, either directly, or indirectly:

**SCAQMD Rule 402** prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

**SCAQMD Rule 403** governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

**SCAQMD Rule 445** prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

**SCAQMD Rule 481** applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- (1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- (2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- (3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

**SCAQMD Rule 1108** governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

**SCAQMD Rule 1113** governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

**SCAQMD Rule 1143** governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

**SCAQMD Rule 1186** limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

**SCAQMD Rule 1303** governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM<sub>10</sub> among other pollutants.

**SCAQMD Rule 1401**, New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

**SCAQMD Rule 2202**, On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

#### **Rules 2700 and 2701**

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2701 provides specific protocols for private parties to follow

to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

#### **Rule 2702**

The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

#### **Rule 3002**

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of CO<sub>2</sub>e are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook), prepared by the SCAQMD, 1993, with the most current updates found at <http://www.aqmd.gov/ceqa/hdbk.html>, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the South Coast Air Basin, and adverse impacts will be minimized.

#### **SCAQMD Stakeholder Working Group**

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions.

At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual thresholds of 10,000 MTCO<sub>2</sub>e for industrial uses.

*Southern California Association of Governments*

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

5. Local – City of San Bernardino

Local jurisdictions, such as the City of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2007 and 2012 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The Natural Resources and Conservation Element of the City of San Bernardino General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goal 12.5: Promote air quality that is compatible with the health, well-being, and enjoyment of life.

Policy 12.5.1: Reduce the emission of pollutants including carbon monoxide, oxides of nitrogen, photochemical smog, and sulfate in

accordance with South Coast Air Quality Management District (SCAQMD) standards.

Policy 12.5.2: Prohibit the development of land uses (e.g., heavy manufacturing) that will contribute significantly to air quality degradation, unless sufficient mitigation measures are undertaken according SCAQMD standards.

Policy 12.5.3: Require dust abatement measures during grading and construction operations.

Policy 12.5.4: Evaluate the air emissions of industrial land uses to ensure that they will not impact adjacent uses.

Goal 12.6: Reduce the amount of vehicular emissions in San Bernardino County.

Policy 12.6.1: Promote a pattern of land uses which locates residential uses in close proximity to employment and commercial services and provides, to the fullest extent possible, local job opportunities and commercial service to minimize vehicular travel and associated air emissions.

Policy 12.6.4: Facilitate the development of centralized parking lots and structures in commercial districts to promote walking between individual businesses in lieu of the use of automobiles. (LU-1)

Policy 12.6.5: Require qualifying development to implement or participate in transportation demand management programs, which provide incentives for car pooling, van pools, and the use of public transit and employ other trip reduction techniques (consistent with the Circulation Element and South Coast Air Quality Management Plan).

Policy 12.6.7: Promote the use of public transit and alternative travel modes to reduce air emissions.

Goal 12.7: Participate in regional initiatives and programs to improve the South Coast Basin's air quality.

Policy 12.7.1: Cooperate with the South Coast Air Quality Management District and incorporate pertinent local implementation provisions of the Air Quality Management Plan.

Policy 12.7.2: Work with the South Coast Air Quality Management District to establish controls and monitor uses in the City that could add to the air basin's degradation (e.g., auto repair, manufacturers).

- Policy 12.7.3: Coordinate with SCAQMD to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.
- Policy 12.7.4: Work with the other cities in the South Coast Air Basin to implement regional mechanisms to reduce air emissions and improve air quality.
- Policy 12.7.5: Support legislation that promotes cleaner industry, clean fuel vehicles, and more efficient burning engines and fuels.
- Policy 12.7.6: Encourage, publicly recognize, and reward innovative approaches to improve air quality.
- Policy 12.7.7: Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that actively reduce airborne pollutants.

**B. Monitored Air Quality**

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Revised Draft 2012 Air Quality Management Plan, prepared by SCAQMD, September 2012, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust.

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in source receptor area 34 (SRA 34), which is located in San Bernardino County and covers the area from just west of Fontana to Loma Linda. The nearest air monitoring station to the project site is the San Bernardino 4th Street Monitoring Station (San Bernardino Station). The San Bernardino Station is located approximately 2.02 miles northeast of the project site at 24302 East 4th Street, San Bernardino. Table 5 presents the monitored pollutant levels from the San Bernardino Station. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

The monitoring data presented in Table 5 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below. Where state and federal emissions are exceeded, the values have been bolded.

**Ozone**

During the 2012 to 2014 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 22 and 41 days each year at the San Bernardino Station.

The State 8-hour ozone standard has been exceeded between 53 and 77 days each year over the past three years at the San Bernardino Station. The Federal 8-hour ozone standard was exceeded between 36 and 54 days each year over the past five years at the San Bernardino Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO<sub>2</sub>, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

#### **Carbon Monoxide**

CO is another important pollutant that is due mainly to motor vehicles. The San Bernardino Station did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last five years.

#### **Nitrogen Dioxide**

The San Bernardino Station did not record an exceedance of the State or Federal NO<sub>2</sub> standards for the last three years.

#### **Particulate Matter**

The State 24-hour concentration standards for PM<sub>10</sub> have been exceeded between one and two days each year over the past three years at the San Bernardino Station. Over the past three years the Federal 24-hour standard for PM<sub>10</sub> has only been exceeded for one day in 2013 and one day in 2014 at the San Bernardino Station.

The Federal 24 hour standard for PM<sub>2.5</sub> was exceeded one day in 2013 and one day in 2014 over the past three years at the San Bernardino Station. There does not appear to be a noticeable trend for PM<sub>10</sub> or PM<sub>2.5</sub> in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

**Table 3**

**State and Federal Criteria Pollutant Standards**

| Air Pollutant                                     | Concentration / Averaging Time  |   | Most Relevant Effects  |
|---|---|---|--|
|   | California Standards  | Federal Primary Standards                                     |  |
| Ozone (O <sub>3</sub> )                           | 0.09 ppm/1-hour<br>0.07 ppm/8-hour  | 0.075 ppm/8-hour  | (a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; (f) Property damage. |
| Carbon Monoxide (CO)                              | 20.0 ppm/1-hour<br>9.0 ppm/8-hour   | 35.0 ppm/1-hour<br>9.0 ppm/8-hour                             | (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses.   |
| Nitrogen Dioxide (NO <sub>2</sub> )               | 0.18 ppm/1-hour<br>0.03 ppm/annual  | 0.053 ppm/annual  | (a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration.  |
| Sulfur Dioxide (SO <sub>2</sub> )                 | 0.25 ppm/1-hour<br>0.04 ppm/24-hour   | 75 ppb/1-hour<br>0.14 ppm/24-hour                             | (a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.  |
| Suspended Particulate Matter (PM <sub>10</sub> )  | 50 µg/m <sup>3</sup> /24-hour<br>20 µg/m <sup>3</sup> /annual   | 150 µg/m <sup>3</sup> /24-hour                                | (a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly.  |
| Suspended Particulate Matter (PM <sub>2.5</sub> ) | 12 µg/m <sup>3</sup> / annual   | 35 µg/m <sup>3</sup> /24-hour<br>12 µg/m <sup>3</sup> /annual |  |
| Sulfates  | 25 µg/m <sup>3</sup> /24-hour   | No Federal Standards  | (a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage.   |
| Lead  | 1.5 µg/m <sup>3</sup> /30-day   | 1.5 µg/m <sup>3</sup> / calendar quarter                      | (a) Learning disabilities; (b) Impairment of blood formation and nerve conduction.   |
| Visibility Reducing Particles                     | Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent. | No Federal Standards  | Visibility impairment on days when relative humidity is less than 70 percent.  |

<sup>1</sup> Source: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

**Table 4**

**South Coast Air Basin Attainment Status**

| Pollutant                         | Averaging Time                                | National Standards <sup>1</sup>         | Attainment Date <sup>2</sup>                                    | California Standards <sup>3</sup> |
|-----------------------------------|---|---|---|-----------------------------------|
| 1979<br>1-Hour Ozone <sup>4</sup> | 1-Hour<br>(0.12 ppm)                          | Nonattainment<br>(Extreme)              | 11/15/2010<br>(Not attained <sup>4</sup> )                      | Extreme<br>Nonattainment          |
| 1997<br>8-Hour Ozone <sup>5</sup> | 8-Hour<br>(0.08 ppm)                          | Nonattainment<br>(Extreme)              | 6/15/2024   | Nonattainment                     |
| 2008<br>8-Hour Ozone              | 8-Hour<br>(0.075 ppm)                         | Nonattainment<br>(Extreme)              | 12/31/2032  |                                   |
| CO                                | 1-Hour (35 ppm)<br>8-Hour (9 ppm)             | Attainment<br>(Maintenance)             | 6/11/2007<br>(Attained)   | Maintenance                       |
| NO <sub>2</sub> <sup>6</sup>      | 1-Hour (100 ppb)<br>Annual (0.053 ppm)        | Attainment<br>(Maintenance)             | 9/22/1998<br>(Attained)   | Attainment                        |
| SO <sub>2</sub> <sup>7</sup>      | 1-Hour (75 ppb)                               | Designations Pending                    | Pending   | Attainment                        |
|                                   | 24-Hour (0.14 ppm)<br>Annual (0.03 ppm)       | Unclassifiable/<br>Attainment           | 3/19/1979<br>(Attained)   |                                   |
| PM10                              | 24-Hour<br>(150 µg/m <sup>3</sup> )           | Nonattainment<br>(Serious) <sup>8</sup> | 12/31/2006<br>(Redesignation request<br>submitted) <sup>8</sup> | Nonattainment                     |
| PM2.5                             | 24-Hour (35 µg/m <sup>3</sup> )               | Nonattainment                           | --  | Nonattainment                     |
| Lead                              | 3-Months Rolling<br>(0.15 µg/m <sup>3</sup> ) | Nonattainment<br>(Partial) <sup>9</sup> | 12/31/2015  | Attainment                        |

<sup>1</sup> Obtained from Draft 2012 AQMP, SCAQMD, 2012. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassified/Attainment or Unclassifiable.

<sup>2</sup> A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.

<sup>3</sup> Obtained from <http://www.arb.ca.gov/desig/adm/adm.htm>.

<sup>4</sup> 1-hour O<sub>3</sub> standard (0.13 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data has some continuing obligations under the former standard.

<sup>5</sup> 1997 8-hour O<sub>3</sub> standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O<sub>3</sub> standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.

<sup>6</sup> New NO<sub>2</sub> 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO<sub>2</sub> standard retained.

<sup>7</sup> The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO<sub>2</sub> 1-hour standard. Area designations expected in 2012, with SSAB designated Unclassifiable/Attainment.

<sup>8</sup> Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA

<sup>9</sup> Partial Nonattainment designation - Los Angeles County portion of Basin only.

**Table 5**

**Local Area Air Quality Levels from the San Bernardino Air Monitoring Station<sup>1</sup>**

| Pollutant (Standard) <sup>2</sup>                  | Year      |           |           |
|--|-----------|-----------|-----------|
|  | 2012      | 2013      | 2014      |
| <b>Ozone:</b>                                      |           |           |           |
| Maximum 1-Hour Concentration (ppm)                 | 0.124     | 0.139     | 0.121     |
| Days > CAAQS (0.09 ppm)                            | <b>41</b> | <b>22</b> | <b>38</b> |
| Maximum 8-Hour Concentration (ppm)                 | 0.109     | 0.113     | 0.100     |
| Days > NAAQS (0.08 ppm)                            | <b>54</b> | <b>36</b> | <b>51</b> |
| Days > CAAQS (0.070 ppm)                           | <b>77</b> | <b>53</b> | <b>76</b> |
| <b>Carbon Monoxide:</b>                            |           |           |           |
| Maximum 8-Hour Concentration (ppm)                 | 1.64      | --        | --        |
| Days > NAAQS (9 ppm)                               | 0         | 0         | 0         |
| <b>Nitrogen Dioxide:</b>                           |           |           |           |
| Maximum 1-Hour Concentration (ppb)                 | 67        | 72.1      | 72.6      |
| Days > NAAQS (0.25 ppm)                            | 0         | 0         | 0         |
| <b>Inhalable Particulates (PM10):</b>              |           |           |           |
| Maximum 24-Hour Concentration (ug/m <sup>3</sup> ) | 68.1      | 177.3     | 157.2     |
| Days > NAAQS (150 ug/m <sup>3</sup> )              | 0         | <b>1</b>  | <b>1</b>  |
| Days > CAAQS (50 ug/m <sup>3</sup> )               | <b>1</b>  | <b>2</b>  | <b>2</b>  |
| Annual Average (ug/m <sup>3</sup> )                | 31.0      | 30.0      | 33        |
| <b>Ultra-Fine Particulates (PM2.5):</b>            |           |           |           |
| Maximum 24-Hour Concentration (ug/m <sup>3</sup> ) | 34.8      | 55.3      | 73.9      |
| Days > NAAQS (35 ug/m <sup>3</sup> )               | 0         | <b>1</b>  | <b>1</b>  |
| Annual Average (ug/m <sup>3</sup> )                | 11.7      | 11.4      | *         |
| Annual > NAAQS (15 ug/m <sup>3</sup> )             | no        | no        | no        |
| Annual > CAAQS (12 ug/m <sup>3</sup> )             | no        | no        | no        |

<sup>1</sup> Source: <http://www.arb.ca.gov/adam/>

<sup>2</sup> CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

## V. AIR QUALITY STANDARDS

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### A. Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 6.

### B. Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO<sub>2</sub>, CO, PM10, and PM2.5.

The significance thresholds for the local emissions of NO<sub>2</sub> and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 5 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significant Thresholds. Table 6 shows the Localized Significant Thresholds for NO<sub>2</sub>, CO, and PM10 and PM2.5 as well as the ambient significance concentrations.

### C. Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to hazardous air pollutants (HAP), the Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (Diesel Analysis), prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create hazardous air pollutants through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the hazardous air pollutants and the toxicity of the hazardous air pollutants should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

**D. Odor Impacts**

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

“A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals”.

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

**E. Greenhouse Gases**

1. Regional - South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

**SCAQMD Regulation XXVII, Climate Change.** SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO<sub>2e</sub> per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the project since the project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

**SCAQMD Threshold Development.** On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project’s construction emissions are averaged over 30 years and are added to a project’s operational emissions. If a project’s emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO<sub>2e</sub> per year
  - Based on land use type: residential: 3,500 MTCO<sub>2e</sub> per year; commercial: 1,400 MTCO<sub>2e</sub> per year; or mixed use: 3,000 MTCO<sub>2e</sub> per year.
  - Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 MTCO<sub>2e</sub> per year.
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined (Riverside County Draft

CAP calls for a community-wide reduction of 25% from 2011 BAU emissions by 2020).

- Option 2: Early implementation of applicable AB 32 Scoping Plan measures.
- Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO<sub>2</sub>e/SP/year for projects and 6.6 MTCO<sub>2</sub>e/SP/year for plans;
- Option 3, 2035 target: 3.0 MTCO<sub>2</sub>e/SP/year for projects and 4.1 MTCO<sub>2</sub>e/SP/year for plans.
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, the Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 MMTCO<sub>2</sub>e/yr). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

The SCAQMD has adopted a quantitative annual threshold of 10,000 MTCO<sub>2</sub>e for industrial uses. To be conservative, this project's emissions have been compared to both the draft screening threshold of 3,000 MTCO<sub>2</sub>e per year and the industrial threshold of 10,000 MTCO<sub>2</sub>e. Therefore, the SCAQMD's GHG emission thresholds are applicable to the proposed project and have been used as the threshold of significance.

## 2. Local - City of San Bernardino

The City of San Bernardino is a participating member of the San Bernardino Associated Governments (SANBAG) San Bernardino County Regional Greenhouse Gas

Reduction Plan. The City of San Bernardino is one of the 21 Partnership Cities of San Bernardino County and the Partnership has committed to actions that will reduce GHG emissions associated with its regional (or Countywide) activities as a whole. The 21 Partnership cities participating in the SANBAG San Bernardino County Regional Greenhouse Gas Reduction Plan are Adelanto, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Victorville, Yucaipa, and Yucca Valley. By working in a collaborative manner on these goals, the cities aim to more effectively address emissions from activities that are affected or influenced by the region as a whole.

According to 3.18 City of San Bernardino Chapter, of the SANBAG San Bernardino County Regional Greenhouse Gas Reduction Plan (2014). The City of San Bernardino selected a goal to reduce its community GHG emissions to a level that is 15% below its 2008 GHG emissions level by 2020. The City will meet and exceed this goal subject to reduction measures that are technologically feasible and cost-effective per AB 32 through a combination of state (~86%) and local (~14%) efforts. The City actually exceeds the goal with only state/county level actions (104% of goal), but has committed to several additional local measures.

The City of San Bernardino's Sustainability Master Plan Task Force, appointed by the City Council, is recommending various draft strategies for the Mayor and Common Council to consider adopting. This framework of strategies is located within the Land Use and Transportation section of the Draft Sustainable Master Plan (SMP). If adopted, the Draft SMP will support the goals of SB 375 and the Sustainable Communities Strategy through a wide range of actions. The Draft SMP will include GHG reduction measures similar to, but different from, the measures listed in the Plan. The Draft SMP measures will generally be more specific to the City of San Bernardino, but they will also support the goals of AB 32. The SMP follows the organization of the SANBAG San Bernardino County GHG Reduction Plan, with the SMP measures following the SANBAG San Bernardino County GHG Reduction Plan measures. For consistency with the County-level plan, estimates of GHG emission reductions identified in the SMP were obtained using the regional quantification tool.

The Pavley vehicle standards, the state's low carbon fuel standard, the RPS, and other state measures will reduce GHG emissions in San Bernardino's on-road, solid waste, and building energy sectors in 2020. An additional reduction of 72,138 MTCO<sub>2e</sub> will be achieved primarily through the following local measures, in order of importance: GHG Performance Standard for New Development; Energy Efficiency for Existing Buildings; and Implementation of the Sustainable Communities Strategy. San Bernardino's Plan has the greatest impacts on GHG emissions in the solid waste management, on-road transportation, and building energy sectors.

**Threshold for this project.** If the project's emissions exceed the SCAQMD's and GHG Reduction Plan's screening threshold of 3,000 MTCO<sub>2e</sub> per year for all land use projects, then the project's year 2020 emissions will be compared to the project's baseline GHG emissions.

**Table 6**

**SCAQMD Air Quality Significance Thresholds<sup>1</sup>**

| Mass Daily Thresholds                                 |  |                        |
|---|--|------------------------|
| Pollutant   | Construction<br>(lbs/day)  | Operation<br>(lbs/day) |
| NOx   | 100  | 55                     |
| VOC   | 75   | 55                     |
| PM10  | 150  | 150                    |
| PM2.5   | 55   | 55                     |
| SOx   | 150  | 150                    |
| CO  | 550  | 550                    |
| Lead  | 3  | 3                      |
| Toxic Air Contaminants, Odor and GHG Thresholds       |  |                        |
| TACs  | Maximum Incremental Cancer Risk $\geq$ 10 in 1 million<br>Cancer Burden > 0.5 excess cancer cases (in areas $\geq$ 1 in 1 million)<br>Chronic & Acute Hazard Index > 1.0 (project increment) |                        |
| Odor  | Project creates an odor nuisance pursuant to SCAQMD Rule 402   |                        |
| GHG   | 10,000 MT/yr CO <sub>2</sub> e for industrial facilities   |                        |
| Ambient Air Quality Standards for Criteria Pollutants |  |                        |
| Pollutant   | Significance Threshold   |                        |
| NO <sub>2</sub> -1-hour average                       | 0.18 ppm (338 $\mu\text{g}/\text{m}^3$ )   |                        |
| PM10 -24-hour average                                 | 10.4 $\mu\text{g}/\text{m}^3$  |                        |
| Construction  | 10.4 $\mu\text{g}/\text{m}^3$  |                        |
| Operations  | 2.5 $\mu\text{g}/\text{m}^3$   |                        |
| PM2.5 -24-hour average                                | 10.4 $\mu\text{g}/\text{m}^3$  |                        |
| Construction  | 10.4 $\mu\text{g}/\text{m}^3$  |                        |
| Operations  | 2.5 $\mu\text{g}/\text{m}^3$   |                        |
| SO <sub>2</sub>                                       | 0.25 ppm   |                        |
| 1-hour average  | 0.25 ppm   |                        |
| 24-hour average                                       | 0.04 ppm   |                        |
| CO  | 20 ppm (23,000 $\mu\text{g}/\text{m}^3$ )  |                        |
| 1-hour average  | 20 ppm (23,000 $\mu\text{g}/\text{m}^3$ )  |                        |
| 8-hour average  | 9 ppm (10,000 $\mu\text{g}/\text{m}^3$ )   |                        |
| Lead  | 1.5 $\mu\text{g}/\text{m}^3$   |                        |
| 30-day average  | 1.5 $\mu\text{g}/\text{m}^3$   |                        |
| Rolling 3-month average                               | 0.15 $\mu\text{g}/\text{m}^3$  |                        |
| Quarterly average                                     | 1.5 $\mu\text{g}/\text{m}^3$   |                        |

<sup>1</sup> Source: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>

## VI. SHORT-TERM CONSTRUCTION-RELATED AIR QUALITY IMPACTS

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Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The construction activities for the proposed project are anticipated to include: site demolition of approximately 16,332 square feet, grading of 25.25 acres, construction of 564,652 square feet of building space and 103,585 square feet of landscaping, paving of 5.84 acres of on-site roads and a 452-space parking lot, and application of architectural coatings. The project will be constructed in one phase. The construction of the project is expected to begin June 2016 and be completed in March 2017. The project will be operational in 2017

### A. Construction-Related Regional Impacts

The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

#### 1. Construction-Related Criteria Pollutants Analysis

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants.

##### *Methodology*

Typical emission rates from construction activities were obtained from CalEEMod Version 2013.2.2 CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2011 computer program to calculate the emission rates specific for the western portion of San Bernardino County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2011 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions during each phase was calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions. The construction emissions printouts from CalEEMod are provided in Appendix B.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on

finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area (approximately 25.25 acres) a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 is required.

The phases of the construction activities which have been analyzed below are: 1) grading, 2) building construction, 3) paving, and 4) application of architectural coatings. For details on construction modeling, please see Appendix B.

The application of architectural coatings would occur after the completion of the construction phase. Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings applied after January 1, 2014 will be limited to an average of 50 grams per liter or less and the CalEEMod model default VOC emissions have been adjusted accordingly. The architectural coating phase was modeled based on the CalEEMod-based calculation of the exterior area of 308,227 square feet and 846,978 square feet<sup>2</sup> for the interior. The exterior amount also includes 25,901 square feet of painting for the parking lot (approximately 6 percent of the paved area). According to the site plan, the concrete tilt-up panels will be pre-coated. Therefore, the emissions modeled by CalEEMod are likely an over-estimation VOC emissions.

#### *Project Impacts*

The construction-related criteria pollutant emissions for each phase are shown below in Table 7. Table 7 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

### **B. Construction-Related Local Impacts**

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

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<sup>2</sup> Interior area to be painted (SF) = (building square footage x 2) x 0.75  
Exterior to be painted (SF) = (building square footage x 2) x 0.25

1. Local Air Quality Impacts from Construction

The SCAQMD has published a “Fact Sheet for Applying CalEEMod to Localized Significance Thresholds” (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

- 1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
- 2) The maximum number of acres disturbed on the peak day.
- 3) Any emission control devices added onto off-road equipment.
- 4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The CalEEMod output sheets included in Appendix B show the equipment used for this analysis.

As shown in Table 8, the maximum number of acres disturbed in a day would be five acres during grading.

The local air quality emissions from construction were analyzed using the SCAQMD’s Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the Central San Bernardino Valley source receptor area (SRA 34) and a disturbance of five acres per day at the closest distance, 25 meters (82 feet), as the distance to the nearest sensitive receptors to the north of the site boundary is less than 25 meters. Table 9 shows the on-site emissions from the CalEEMod model for the different construction phases and the calculated emissions thresholds.

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

2. Construction-Related Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”.

“Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

3. Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

**Table 7**  
**Construction-Related Regional Pollutant Emissions<sup>1</sup>**

| Activity                                       | Pollutant Emissions (pounds/day) |              |              |                 |              |             |
|--|----------------------------------|--------------|--------------|-----------------|--------------|-------------|
|  | VOC                              | NOx          | CO           | SO <sub>2</sub> | PM10         | PM2.5       |
| <b>Demolition</b>                              |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 4.29                             | 45.66        | 35.03        | 0.04            | 2.50         | 2.17        |
| Off-Site <sup>3</sup>                          | 0.11                             | 0.79         | 1.52         | 0.00            | 0.22         | 0.07        |
| <b>Subtotal</b>                                | <b>4.39</b>                      | <b>46.45</b> | <b>36.55</b> | <b>0.04</b>     | <b>2.72</b>  | <b>2.24</b> |
| <b>Grading</b>                                 |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 6.48                             | 74.81        | 49.14        | 0.06            | 6.16         | 4.61        |
| Off-Site <sup>3</sup>                          | 0.09                             | 0.11         | 1.38         | 0.00            | 0.23         | 0.06        |
| <b>Subtotal</b>                                | <b>6.57</b>                      | <b>74.93</b> | <b>50.52</b> | <b>0.06</b>     | <b>6.39</b>  | <b>4.67</b> |
| <b>Building Construction</b>                   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 3.41                             | 28.51        | 18.51        | 0.03            | 1.97         | 1.85        |
| Off-Site <sup>3</sup>                          | 3.53                             | 18.82        | 49.85        | 0.10            | 6.62         | 1.98        |
| <b>Subtotal</b>                                | <b>6.93</b>                      | <b>47.33</b> | <b>68.36</b> | <b>0.13</b>     | <b>8.58</b>  | <b>3.82</b> |
| <b>Paving</b>                                  |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 2.95                             | 20.30        | 14.73        | 0.02            | 1.14         | 1.05        |
| Off-Site <sup>3</sup>                          | 0.06                             | 0.07         | 0.93         | 0.00            | 0.17         | 0.05        |
| <b>Subtotal</b>                                | <b>3.00</b>                      | <b>20.37</b> | <b>15.66</b> | <b>0.02</b>     | <b>1.31</b>  | <b>1.09</b> |
| <b>Architectural Coating</b>                   |                                  |              |              |                 |              |             |
| On-Site <sup>2</sup>                           | 58.96                            | 2.19         | 1.87         | 0.00            | 0.17         | 0.17        |
| Off-Site <sup>3</sup>                          | 0.36                             | 0.47         | 5.75         | 0.01            | 1.05         | 0.28        |
| <b>Subtotal</b>                                | <b>59.31</b>                     | <b>2.65</b>  | <b>7.62</b>  | <b>0.02</b>     | <b>1.22</b>  | <b>0.46</b> |
| <b>Total of Overlapping Phases<sup>4</sup></b> | <b>69.25</b>                     | <b>70.34</b> | <b>91.64</b> | <b>0.17</b>     | <b>11.11</b> | <b>5.37</b> |
| <b>SCAQMD Thresholds</b>                       | <b>75</b>                        | <b>100</b>   | <b>550</b>   | <b>150</b>      | <b>150</b>   | <b>55</b>   |
| <b>Exceeds Thresholds</b>                      | no                               | no           | no           | no              | no           | no          |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> On-site emissions from equipment operated on-site that is not operated on public roads.

<sup>3</sup> Off-site emissions from equipment operated on public roads.

<sup>4</sup> Construction, architectural coating, and paving phases may overlap.

**Table 8****Maximum Number of Acres Disturbed Per Day<sup>1</sup>**

| Activity        | Equipment                 | Number | Acres/8hr-day | Total Acres |
|-----------------|---------------------------|--------|---------------|-------------|
| Demolition      | Rubber Tired Dozers       | 2      | 0.5           | 1           |
|                 | Excavators                | 3      | 0.5           | 1.5         |
| Total Per Phase |                           | -      | -             | <b>2.5</b>  |
| Site Grading    | Graders                   | 1      | 0.5           | 0.5         |
|                 | Rubber Tired Dozers       | 1      | 0.5           | 0.5         |
|                 | Excavators                | 2      | 0.5           | 1           |
|                 | Tractors/Loaders/Backhoes | 2      | 0.5           | 1           |
|                 | Scrapers                  | 2      | 1             | 2           |
| Total Per Phase |                           | -      | -             | <b>5</b>    |

<sup>1</sup> Source: CalEEMod Output

**Table 9**

**Local Construction Emissions at the Nearest Receptor<sup>1</sup>**

| Phase   | On-Site Pollutant Emissions (pounds/day) |              |           |          |
|---|--|--------------|-----------|----------|
|   | NOx                                      | CO           | PM10      | PM2.5    |
| Demolition  | 45.66                                    | 35.03        | 2.50      | 2.17     |
| Grading   | 74.81                                    | 49.14        | 6.16      | 4.61     |
| Building Construction                                       | 28.51                                    | 18.51        | 1.97      | 1.85     |
| Paving  | 20.30                                    | 14.73        | 1.14      | 1.05     |
| Architectural Coating                                       | 2.19                                     | 1.87         | 0.17      | 0.17     |
| <b>SCAQMD Threshold for 25 meters (82 feet)<sup>2</sup></b> | <b>270</b>                               | <b>1,746</b> | <b>14</b> | <b>8</b> |
| Exceeds Threshold?  | no                                       | no           | no        | no       |

<sup>1</sup> Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in SRA 34 Central San Bernardino Valley.

<sup>2</sup> The estimated distance from the proposed grading activities to the nearest sensitive receptor (residences to the north of the project site) is less than 25 meters or 82 feet.

## VII. LONG-TERM OPERATIONAL AIR QUALITY IMPACTS

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The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

### A. Operations-Related Regional Air Quality Impacts

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

#### 1. Operations-Related Criteria Pollutant Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model. The operating emissions were based on the year 2017, which is the anticipated opening year for the proposed project. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

#### **Mobiles Sources**

Mobile sources include emissions from the vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips from the Waterman Industrial Center Traffic Impact Analysis (TIA) (prepared by Kunzman Associates, Inc. September 9, 2015), into the CalEEMod Model. The Trip Generation Analysis found that the proposed project would create 755 automobile round trips, 33 2-axle truck round trips, 44 3-axle truck round trips, and 117 4+-axle truck round trips per day. The trip generation rate is 1.68 per thousand square feet. The program then applies the emission factors for each trip which is provided by the EMFAC2011 model to determine the vehicular traffic pollutant emissions. The vehicle mix was changed in CalEEMod to match the TIA (see Table 10). Due to the proposed project's location and proposed unrefrigerated warehouse land use, the average customer based trip length was increased to 40 miles, while all other trip lengths were based on the urban default values.

#### **Area Sources**

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed 564,652 square feet of warehouse in the CalEEMod model. In order to account for SCAQMD Rule 1113, VOC content of paints was changed to 50g/L No other changes were made to the default area source parameters.

### **Energy Usage**

Energy usage includes emissions from the generation of electricity and natural gas used on-site. The energy usage emissions were based on the on-going use of the proposed 564,652 square feet of warehouse in the CalEEMod model. No changes were made to the default energy usage parameters. It should be noted that 2013 Title 24 commercial standards are 30 percent more efficient than 2008 Title 24 Standards (used as the baseline for emissions calculations in CalEEMod). However, no reduction credit was taken.

### *Project Impacts*

The worst-case summer or winter VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table 11. Table 11 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

## 2. Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and PM<sub>10</sub> particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. With respect to long-term emissions, this project would create a less than significant cumulative impact.

## **B. Operations-Related Local Air Quality Impacts**

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site

operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations, and odor impacts.

1. Local CO Emission Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section V.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section V, a sensitivity analysis is typically conducted to determine the potential for CO “hot spots” at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, “hot spots” typically occur at high traffic volume intersections with a Level of Service E or worse.

The Traffic Analysis showed that the project would only generate a maximum of 949 trips. The intersection with the highest traffic volume is located at E Street and Orange Show Road and has a peak hour volume of 1,816 trips for the Year 2035 With Project AM peak hour scenario. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the intersection with the highest traffic volume falls far short of 100,000 vehicles, no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

2. Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The nearest sensitive receptors that may be impacted by the proposed project are the residential dwelling units to the north and west of the boundaries of the project site.

The local air quality emissions from on-site operations were analyzed according to the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The proposed project was analyzed based on the Central San Bernardino Valley source receptor area and a five acre project site, which is the largest site available in the Look-up Tables and can be used as a screening analysis to determine whether more extension dispersion modeling is required. Table 12 shows the on-site emissions from

the CalEEMod model that includes natural gas usage, landscape maintenance equipment, and vehicles operating on-site and the calculated emissions thresholds. The data provided in Table 12 shows that the on-going operations of the proposed project would not exceed the local NO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> thresholds of significance discussed above in Section V. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

3. Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from diesel truck emissions and trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project.

**Table 10**

**CalEEMod Revised Vehicle Mix Parameters for Warehouse Uses**

| CalEEMod Vehicle Type               | Vehicle Mix from Traffic Analysis | CalEEMod Default Mix <sup>1</sup> |                    | CalEEMod Revised Mix <sup>2</sup> |                    |
|-------------------------------------|-----------------------------------|-----------------------------------|--------------------|-----------------------------------|--------------------|
|                                     |                                   | Ratio                             | Number of Vehicles | Ratio                             | Number of Vehicles |
| Light Auto                          | Automobile                        | 0.472                             | 448                | 0.431                             | 409                |
| Light Truck < 3750 lbs              | Automobile                        | 0.066                             | 62                 | 0.060                             | 57                 |
| Light Truck 3751-5750 lbs           | Automobile                        | 0.173                             | 164                | 0.158                             | 150                |
| Med Truck 5751-8500 lbs             | Automobile                        | 0.155                             | 147                | 0.142                             | 134                |
| Lite-Heavy Truck 8501-10,000 lbs    | 2-Axle Truck                      | 0.056                             | 53                 | 0.030                             | 28                 |
| Lite-Heavy Truck 10,001-14,000 lbs  | 2-Axle Truck                      | 0.009                             | 9                  | 0.005                             | 5                  |
| Med-Heavy Truck 14,001-33,000 lbs   | 3-Axle Truck                      | 0.017                             | 16                 | 0.046                             | 44                 |
| Heavy-Heavy Truck 33,001-60,000 lbs | 4+-Axle Truck                     | 0.041                             | 39                 | 0.123                             | 117                |
| Other Bus                           | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Urban Bus                           | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Motorcycle                          | Automobile                        | 0.005                             | 5                  | 0.004                             | 4                  |
| School Bus                          | --                                | 0.001                             | 1                  | 0.000                             | 0                  |
| Motor Home                          | --                                | 0.003                             | 3                  | 0.000                             | 0                  |
| <b>Total</b>                        |                                   | <b>1.0</b>                        | <b>949</b>         | <b>1.0</b>                        | <b>949</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2 default values for Opening year of 2018.

<sup>2</sup> Revised per the vehicle mix provided in the Traffic Impact Analysis of 78.6% Autos, 8.0% 2-Axle Trucks, 3.9% 3-Axle Trucks and 9.5% 4+ Axle Trucks.

**Table 11**

**Unmitigated Regional Operational Pollutant Emissions<sup>1</sup>**

| Activity                    | Pollutant Emissions (pounds/day) |              |              |             |             |             |
|-----------------------------|----------------------------------|--------------|--------------|-------------|-------------|-------------|
|                             | VOC                              | NOx          | CO           | SO2         | PM10        | PM2.5       |
| Area Sources <sup>2</sup>   | 24.84                            | 0.00         | 0.12         | 0.00        | 0.00        | 0.00        |
| Energy Usage <sup>3</sup>   | 0.04                             | 0.32         | 0.27         | 0.00        | 0.02        | 0.02        |
| Mobile Sources <sup>4</sup> | 4.75                             | 29.31        | 63.84        | 0.17        | 9.91        | 2.95        |
| <b>Total Emissions</b>      | <b>29.63</b>                     | <b>29.63</b> | <b>64.23</b> | <b>0.17</b> | <b>9.93</b> | <b>2.97</b> |
| SCAQMD Thresholds           | <b>55</b>                        | <b>55</b>    | <b>550</b>   | <b>150</b>  | <b>150</b>  | <b>55</b>   |
| Exceeds Threshold?          | no                               | no           | no           | no          | no          | no          |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of emissions from generation of electricity and on-site natural gas usage.

<sup>4</sup> Mobile sources consist of emissions from vehicles and road dust.

**Table 12**

**Local Operational Emissions at the Nearest Receptor<sup>1</sup>**

| On-Site Emission Source                                     | On-Site Pollutant Emissions (pounds/day) |              |             |             |
|---|--|--------------|-------------|-------------|
|   | NOx                                      | CO           | PM10        | PM2.5       |
| Area Sources <sup>2</sup>                                   | 0.00                                     | 0.12         | 0.00        | 0.00        |
| Energy Usage <sup>3</sup>                                   | 0.32                                     | 0.27         | 0.02        | 0.02        |
| On-Site Vehicle Emissions <sup>4</sup>                      | 2.93                                     | 6.38         | 0.99        | 0.29        |
| <b>Total Emissions</b>                                      | <b>3.26</b>                              | <b>6.77</b>  | <b>1.02</b> | <b>0.32</b> |
| <b>SCAQMD Threshold for 25 meters (80 feet)<sup>5</sup></b> | <b>270</b>                               | <b>1,746</b> | <b>14</b>   | <b>8</b>    |
| Exceeds Threshold?  | no                                       | no           | no          | no          |

<sup>1</sup> Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for five acres in Central San Bernardino Valley.

<sup>2</sup> Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

<sup>3</sup> Energy usage consists of emissions from generation of electricity and on-site natural gas usage.

<sup>4</sup> On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.

<sup>5</sup> The estimated distance from the proposed project to the nearest sensitive receptor (residences to the north of the project site) is less than 25 meters or 82 feet.

## VIII. DIESEL EMISSIONS HEALTH RISK ASSESSMENT

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The on-going operation of the proposed project would generate toxic air contaminant emissions from diesel truck emissions created by the on-going operations of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology<sup>3</sup>.

A health risk assessment requires the completion and interaction of four general steps:

1. Quantify project-generated TAC emissions.
2. Identify nearby ground-level receptor locations that may be affected by the emissions (including any special sensitive receptor locations such as residences, schools, hospitals, convalescent homes, and daycare centers).
3. Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project TAC emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.
4. Characterize and compare the calculated health risks with the applicable health risk significance thresholds.

### A. Emission Inventory Development

Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues is addressed below.

#### 1. Emission Source Estimates - DPM from Motor Vehicles

DPM emissions from the various sources were calculated using information derived from the project description, and mobile source emission factors from the CARB EMFAC2011 emissions factor model<sup>4</sup>. Truck mix information was obtained from the project-specific traffic report (Kunzman 2015).

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<sup>3</sup> In February 2015, the Office of Environmental Health Hazard Assessment updated their "Air Toxics Hot Spots Program, Risk Assessments Guidelines, Guidance Manual for Preparation of Health Risk Assessments; however, the updated OEHHHA guidance states in the page footers "do not cite or quote." SCAQMD staff are still in the process of incorporating the updates into their methodology for SCAQMD's Rules 1401, 1401.1, 1402, and 212, and currently updating their HRA Guidance for permitting and CEQA analyses; therefore, the existing SCAQMD guidance was used to assess HRA impacts in this analysis. Per SCAQMD staff (personal communication with Dr. Jillian Wong 6-19-2015), updated SCAQMD HRA guidance will be forthcoming and use of current methodology and EMFAC2011 is acceptable.

<sup>4</sup> An emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit of activity, volume, distance, or duration of the activity emitting the pollutant (e.g., grams of pollutant emitted per vehicle-mile traveled or grams of pollutant emitted per brake-horsepower).

Four pieces of information are required to generate the mobile source emissions from the proposed project:

- Number of vehicle trips for each component of the proposed project;
- Types of vehicles that access the proposed project (passenger car vs. heavy-duty truck and gasoline vs. diesel);
- The allocation of the vehicle trips to each building that comprises the proposed project; and
- Estimate of the vehicle emission factors for estimating exhaust and idling emissions.

#### *Estimate of Vehicle Trips and Vehicle Types*

The Kunzman Associates, Inc. project-specific traffic study (2015) showed the project is expected to generate approximately 949 vehicle trips per day.

The vehicle mix followed the recommendations of the Fontana Truck Trip Generation Study with a mix of 79.57 percent cars, 3.46 percent 2-axle trucks, 4.64 percent 3-axle trucks and 12.33 percent 4-axle trucks.

#### *Estimate of Emission Factors*

The DPM emission factors for the various vehicle types were derived from the CARB EMFAC2011 mobile source emission model. The 70-year average factors were derived for San Bernardino County for year 2017, the buildout year the proposed project. Emissions factors were estimated to establish the emissions generated while the vehicles travel off-site, along travel links from the entrance to the loading docks, and while idling at the loading dock during loading or unloading materials. All vehicles were assumed to travel on-site at a speed of 10 miles per hour. Off-site, the speeds along the roads were anticipated to average 35 miles per hour. Delivery vehicles were assumed to idle for a maximum of 15 minutes per vehicle per day (5 minutes per location: at the facility entrance, at the loading bay, and at the facility exit, in keeping with the CARB Air Toxic Control Measure (ATCM), which regulates truck idling time (CARB 2005). Table 13 provides the emission factors used in this assessment. It should be noted that the DPM emissions on both the gram per mile and gram per idle hour bases decline beyond 2015 for all vehicle classes and in particular the heavy-heavy-duty truck class (the 4+ axle “big rig” trucks). This is due to the CARB emissions’ requirements on heavy-duty trucks that call for either the replacement of older trucks with cleaner trucks or the installation of diesel particulate matter filters on the truck fleet.

#### *Emission Source Characterization*

Each of the emission source types described above also requires geometrical and emission release specifications for use in the air dispersion model. Table 14 provides a summary of the assumptions used to configure the various emission sources. The following definitions are used to characterize the emission source geometrical configurations referred to in Table 14:

Point source: A single, identifiable, local source of emissions; it is approximated in the AERMOD air dispersion model as a mathematical point in the modeling region with a

location and emission characteristics such as height of release, temperature, etc., for example, a truck idle location.

Line source: A series of volume sources along a path, for example, vehicular traffic along a roadway.

Figure 3 provides the location of the project buildings, emission source locations, and the locations of the adjacent sensitive receptors (located near the site's northern boundary [approximately 65 feet from the site] and to the west of the project (approximately 170 feet from the project's western boundary)). Commercial receptors are labeled com\_9, golf\_13, and golf\_14 and are located just north of the site and at the San Bernardino Public Golf Course to the south of the project site (adjacent to the project's southern boundary) respectively. The patrons of the Golf Course are treated like commercial receptors due to their relatively short time at the location (not 24-hours). Residential receptors are shown as orange triangles labeled 1 through 8, 10 through 12, 15 and 16.

**B. Receptor Network**

The assessment requires that a network of receptors be specified where the impacts can be computed at the various locations surrounding the project. Receptors were located at existing sensitive receptors surrounding the proposed project (as detailed above). In addition, the identified sensitive receptors locations were supplemented by the specification of a modeling grid that extended around the proposed project to identify other potential locations of impact. The locations of the receptors are shown as orange triangles on Figure 3.

**C. Dispersion Modeling**

The next step in the assessment process utilizes the emissions inventory along with a mathematical air dispersion model and representative meteorological data to calculate impacts at the various receptor locations. The dispersion model used in this assessment is described below.

1. Model Selection

The assessment of air quality and health risk impacts from pollutant emissions from this project applied the USEPA AERMOD Model, which is the air dispersion model accepted by the SCAQMD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

2. General Model Assumptions

A summary of Emission Configurations is shown in Table 14. The basic options used in the dispersion modeling are summarized in Table 15.

As indicated in Table 15, the analysis takes into account the effects of building downwash on the dispersion of emissions from the various sources located on the project's property. Building downwash occurs when the aerodynamic turbulence, induced by nearby buildings, causes pollutants emitted from an elevated source to be mixed rapidly toward the ground (downwash), resulting in potentially higher ground-level concentrations than if the buildings were not present. The AERMOD dispersion model contains algorithms to account for building downwash effects. The required information includes the location of the emission source; the location of adjacent buildings; and the building geometry in terms of length, width, and height. For purposes of this analysis, the emission source and building locations were taken from the project site plan. The building geometries were derived from the project plan, assuming a building height of 43 feet (as stated on the site plan) for the building.

### 3. Meteorological Data

Meteorological data from the Air District's San Bernardino monitoring site was selected for this modeling application. Five full years of sequential meteorological data was collected at the site from January 1, 2007 to December 31, 2011 by the SCAQMD. The SCAQMD processed the data for input to the model. The data was obtained at SCAQMD's <http://www.aqmd.gov/smog/metdata/AERMOD.html> (see Figure 4).

## D. Estimation of Health Risks

Health risks from diesel particulate matter are twofold. First, diesel particulate matter is a carcinogen according to the State of California. Second, long-term chronic exposure to diesel particulate matter can cause health effects to the respiratory system. Each of these health risks is discussed below.

### 1. Cancer Risks

According to the in Health Risk Assessment for Proposed Land Use Projects, prepared by CAPCOA, July 2009 and the SCAQMD Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality, the cancer risk should be calculated using the following formula:

$$[\text{Dose-inh (mg)/(Kg-day)}] * [\text{Oral Slope Factor (kg-day)/mg}] * [1 \times 10^6] = \text{Potential Cancer Risk}$$

Where:

Oral Slope Factor = 1.1

Dose-inh =  $(C_{\text{air}} * \text{DBR} * A * \text{EF} * \text{ED} * 10^{-6}) / \text{AT}$

Where:

$C_{\text{air}}$  [Concentration in air ( $\mu\text{g}/\text{m}^3$ )] = (Calculated by AERMOD Model)

DBR [Daily breathing rate (L/kg body weight – day)] = 302 for residential, 149 for off-site worker, and 581 for children

A [Inhalation absorption factor] = 1

EF [Exposure frequency (days/year)] = 350  
 ED [Exposure duration (years)] = 70 for residential, 40 for worker, and 9 for school child  
 $10^6$  [Micrograms to milligrams conversion]  
 AT [Average time period over which exposure is averaged in days] = 25,550

The Year 2017 model run results are shown below on Figure 5 and Appendix C. Table 16 provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors for the residential exposure scenario and Table 17 shows the Worker exposure scenario. There are no schools in the project vicinity. Table 16 shows that the highest residential cancer risks at any receptor location does not exceed a cancer risk increase of 3.39 per million people. As shown in Table 17, the highest risk to off-site workers does not exceed a cancer risk increase of 0.33 per million people. As shown on Figure 5, all off-site diesel emissions concentrations were found to be below the 10.0 in a million cancer risk threshold that has been discussed above in Section 2.0. Therefore, no significant long-term health impacts would occur to adjacent receptors from the operation of diesel trucks on the project site.

## 2. Non-Cancer Risks

The relationship for non-cancer health effects is given by the equation:

$$\text{HIDPM} = \text{CDPM}/\text{RELDPM}$$

Where,

HIDPM = Hazard Index; an expression of the potential for non-cancer health effects.  
 CDPM = Annual average diesel particulate matter concentration in  $\mu\text{g}/\text{m}^3$ .  
 RELDPM = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The non-carcinogenic hazards to residential and worker receptors are also detailed in Tables 16 and 17 respectively. The RELDPM is  $5 \mu\text{g}/\text{m}^3$ . The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. Using the maximum DPM concentration, the resulting Hazard Index is

$$\text{HIDPM} = 0.01429/5 = 0.0029$$

The criterion for significance is a Hazard Index increase of 1.0 or greater. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer risk from diesel emissions created by the proposed project.

**Table 13**

**2017 DPM Emissions Factors for the Proposed Project (70-year average)<sup>1</sup>**

| Vehicle Class            | Idling (g/hr) | On-Site Travel (g/mi) | Off-Site Travel (g/mi) |
|--------------------------|---------------|-----------------------|------------------------|
| Light Heavy Duty Truck 2 | 0.0185        | 0.04865               | 0.019098               |
| Medium Heavy Duty Truck  | 0.091         | 0.03793               | 0.02879                |
| Heavy Heavy Duty Truck   | 0.103         | 0.0711                | 0.05587                |

<sup>1</sup> Source: EMFAC2011

**Table 14**

**Summary of Emission Configurations**

| Emission Source Type          | Geometric Configuration                                      | Relevant Assumptions   |
|-------------------------------|--|--|
| Off-Site Diesel Truck Traffic | Line Sources   | · Stack release height: 12 feet  |
|                               |  | · Vehicle speed: 35 mph  |
|                               |  | · Length of the line source (from east driveway on Dumas to Waterman Ave, from west driveway to east driveway, from Waterman driveway north to Orange Show Rd, Orange Show westbound from Waterman, Orange Show eastbound from Waterman, Waterman Ave north of Orange Show Rd, and from Waterman driveway south toward the I-10 freeway) |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
|                               |  | · Emission factor: CARB EMFAC2011  |
| On-Site Diesel Truck Traffic  | Line Sources   | · Stack release height: 12 feet  |
|                               |  | · Vehicle speed: 10 mph  |
|                               |  | · Length of the line source (distance from the facility entrances to alongside the loading docks )   |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
|                               |  | · Emission factor: CARB EMFAC2011  |
| On-Site Diesel Truck Idling   | Point Sources located at the loading docks for each building | · Stack release height: 12 feet  |
|                               |  | · Stack release characteristics  |
|                               |  | > Stack diameter: 0.1 meter (0.3 feet)   |
|                               |  | > Stack velocity: 51.9 mps (170 feet/sec)  |
|                               |  | > Stack temperature: 366 °k (200° F)   |
|                               |  | · Idle time: 15 minutes per truck per day  |
|                               |  | · Vehicle types: heavy-heavy-duty, medium-heavy-duty and light-heavy-duty diesel delivery trucks   |
|                               |  | · Emission factor: CARB EMFAC2011  |

**Table 15**

**General Modeling Assumptions - AERMOD Model**

| Feature                       | Option Selected                           |
|-------------------------------|---|
| Terrain processing            | AERMAP-generated                          |
| Emission source configuration | See Table 14                              |
| Regulatory dispersion options | Default/Fastall sources                   |
| Land use                      | Urban                                     |
| Coordinate system             | UTM                                       |
| Building downwash             | Included in calculations                  |
| Receptor height               | 0 meters above ground                     |
| Meteorological data           | SCAQMD San Bernardino Meteorological Data |

**Table 16**

**MEIR - Residential Exposure Scenario (70-year)**

| Receptor<br>ID<br>(a) | Maximum<br>Concentration |                | Weight<br>Fraction<br>(d) | Contaminant<br>(e) | Carcinogenic Risk |                    |             | Noncarcinogenic Hazards |                    |              |
|-----------------------|--------------------------|----------------|---------------------------|--------------------|-------------------|--------------------|-------------|-------------------------|--------------------|--------------|
|                       | (ug/m3)<br>(b)           | (mg/m3)<br>(c) |                           |                    | URF               | CPF                | RISK<br>(h) | REL                     | RfD                | Index<br>(k) |
|                       |                          |                |                           |                    | (ug/m3)<br>(f)    | (mg/kg/day)<br>(g) |             | (ug/m3)<br>(i)          | (mg/kg/day)<br>(j) |              |
| 1                     | 0.00167                  | 1.7E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 0.53        | 5.0E+00                 | 1.4E-03            | 0.0003       |
| 2                     | 0.00162                  | 1.6E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 0.51        | 5.0E+00                 | 1.4E-03            | 0.0003       |
| 3                     | 0.00224                  | 2.2E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 0.71        | 5.0E+00                 | 1.4E-03            | 0.0004       |
| 4                     | 0.00306                  | 3.1E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 0.97        | 5.0E+00                 | 1.4E-03            | 0.0006       |
| 5                     | 0.00415                  | 4.2E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 1.32        | 5.0E+00                 | 1.4E-03            | 0.0008       |
| 6                     | 0.0048                   | 4.8E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 1.52        | 5.0E+00                 | 1.4E-03            | 0.0010       |
| 7                     | 0.00501                  | 5.0E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 1.59        | 5.0E+00                 | 1.4E-03            | 0.0010       |
| 8                     | 0.00604                  | 6.0E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 1.92        | 5.0E+00                 | 1.4E-03            | 0.0012       |
| 10                    | 0.00786                  | 7.9E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 2.49        | 5.0E+00                 | 1.4E-03            | 0.0016       |
| 11                    | 0.00849                  | 8.5E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 2.69        | 5.0E+00                 | 1.4E-03            | 0.0017       |
| 12                    | 0.0107                   | 1.1E-05        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 3.39        | 5.0E+00                 | 1.4E-03            | 0.0021       |
| 15                    | 0.00575                  | 5.8E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 1.82        | 5.0E+00                 | 1.4E-03            | 0.0012       |
| 16                    | 0.00215                  | 2.2E-06        | 1.00E+00                  | Particulates       | 3.0E-04           | 1.1E+00            | 0.68        | 5.0E+00                 | 1.4E-03            | 0.0004       |

Note: Exposure factors used to calculate TAC intake

|   |       |
|---|-------|
| Exposure Frequency (days/year)                | 365   |
| Exposure Duration (years)                     | 70    |
| Inhalation Rate (m3/day)*                     | 21.14 |
| Average Body Weight (kg)                      | 70    |
| Averaging Time <sub>(cancer)</sub> (days)     | 25550 |
| Averaging Time <sub>(non-cancer)</sub> (days) | 25550 |

\*Inhalation Rate of 21.14 m3/day equates to the ARB breathing 302 liters per kilogram-day

E= 10<sup>X</sup>, i.e. E-02 = 10<sup>-2</sup>

**Table 17**

**Carcinogenic Risks and Non-Carcinogenic Hazards  
Worker Exposure Scenario (40-year)**

| Receptor ID<br>(a) | Maximum Concentration |                | Weight Fraction<br>(d) | Contaminant<br>(e) | Carcinogenic Risk     |                           |             | Noncarcinogenic Hazards |                           |              |
|--------------------|-----------------------|----------------|------------------------|--------------------|-----------------------|---------------------------|-------------|-------------------------|---------------------------|--------------|
|                    | (ug/m3)<br>(b)        | (mg/m3)<br>(c) |                        |                    | URF<br>(ug/m3)<br>(f) | CPF<br>(mg/kg/day)<br>(g) | RISK<br>(h) | REL<br>(ug/m3)<br>(i)   | RfD<br>(mg/kg/day)<br>(j) | Index<br>(k) |
| com_9              | 0.00545               | 5.5E-06        | 1.00E+00               | Particulates       | 3.0E-04               | 1.1E+00                   | 0.33        | 5.0E+00                 | 1.4E-03                   | 0.001        |
| golf_13            | 0.00214               | 2.1E-06        | 1.00E+00               | Particulates       | 3.0E-04               | 1.1E+00                   | 0.13        | 5.0E+00                 | 1.4E-03                   | 0.000        |
| golf_14            | 0.0045                | 4.5E-06        | 1.00E+00               | Particulates       | 3.0E-04               | 1.1E+00                   | 0.27        | 5.0E+00                 | 1.4E-03                   | 0.001        |

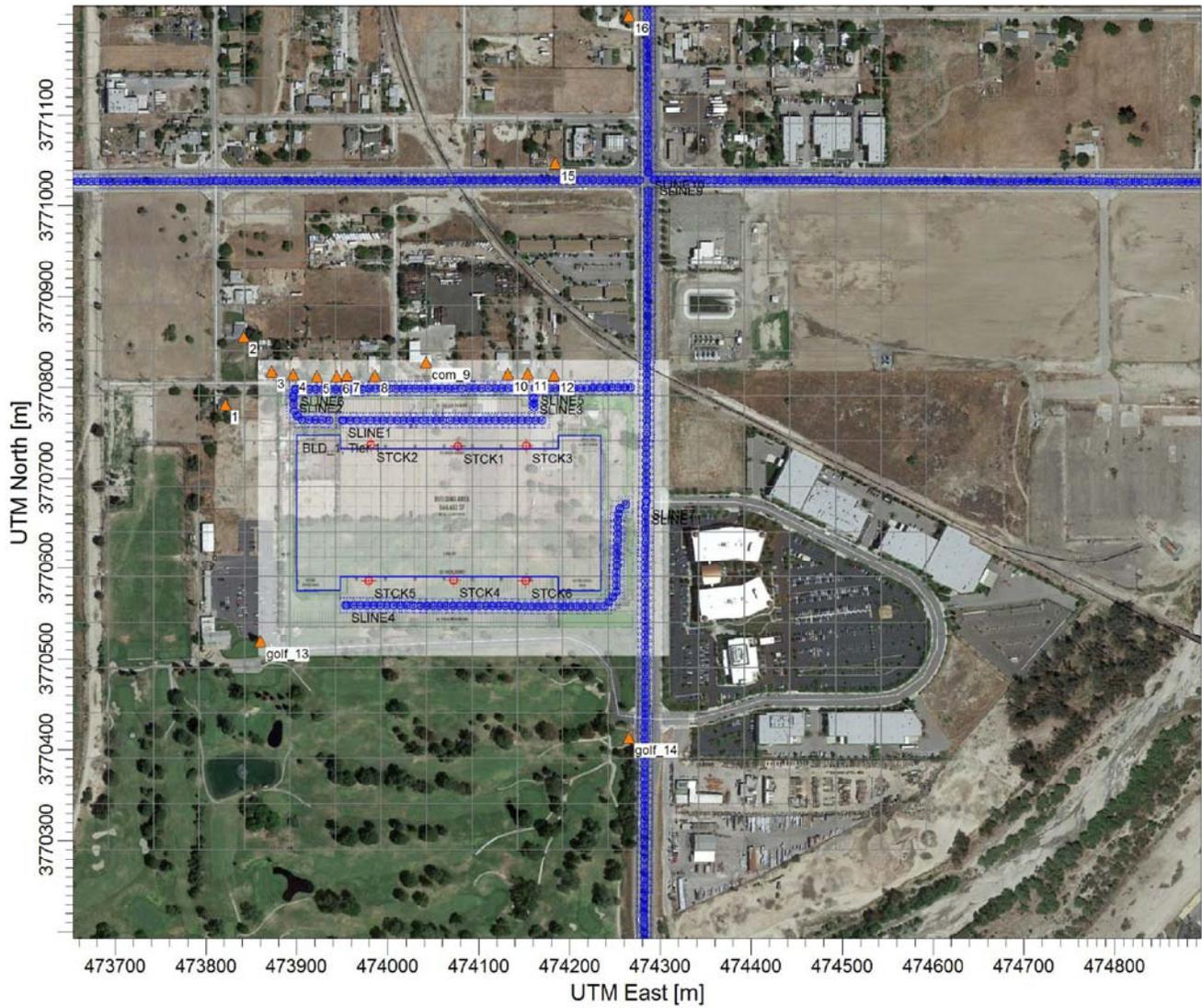
Note: Exposure factors used to calculate TAC intake

|   |       |
|---|-------|
| Exposure Frequency (days/year)                | 245   |
| Exposure Duration (years)                     | 40    |
| Inhalation Rate (m3/day)*                     | 10.43 |
| Average Body Weight (kg)                      | 70    |
| Averaging Time <sub>(cancer)</sub> (days)     | 25550 |
| Averaging Time <sub>(non-cancer)</sub> (days) | 14600 |

\*Inhalation Rate of 10.43 m3/day equates to the ARB breathing 149 liters per kilogram-day

E= 10<sup>x</sup>, i.e. E-02 = 10<sup>-2</sup>

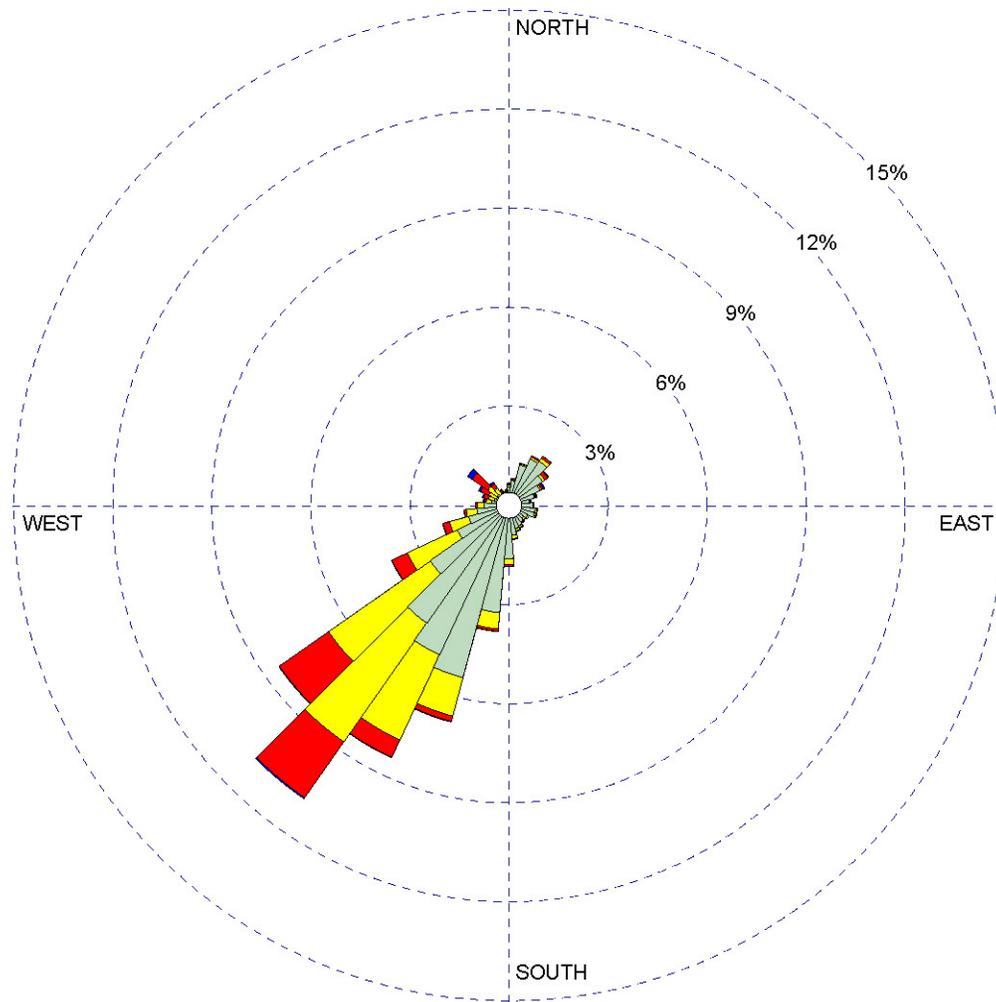
Figure 3  
 AERMOD Model Source and Receptor Placement



**Legend**

-  = Line of Truck Travel
-  = Truck Idling Point
-  = Receptor Location

Figure 4  
Wind Rose: San Bernardino



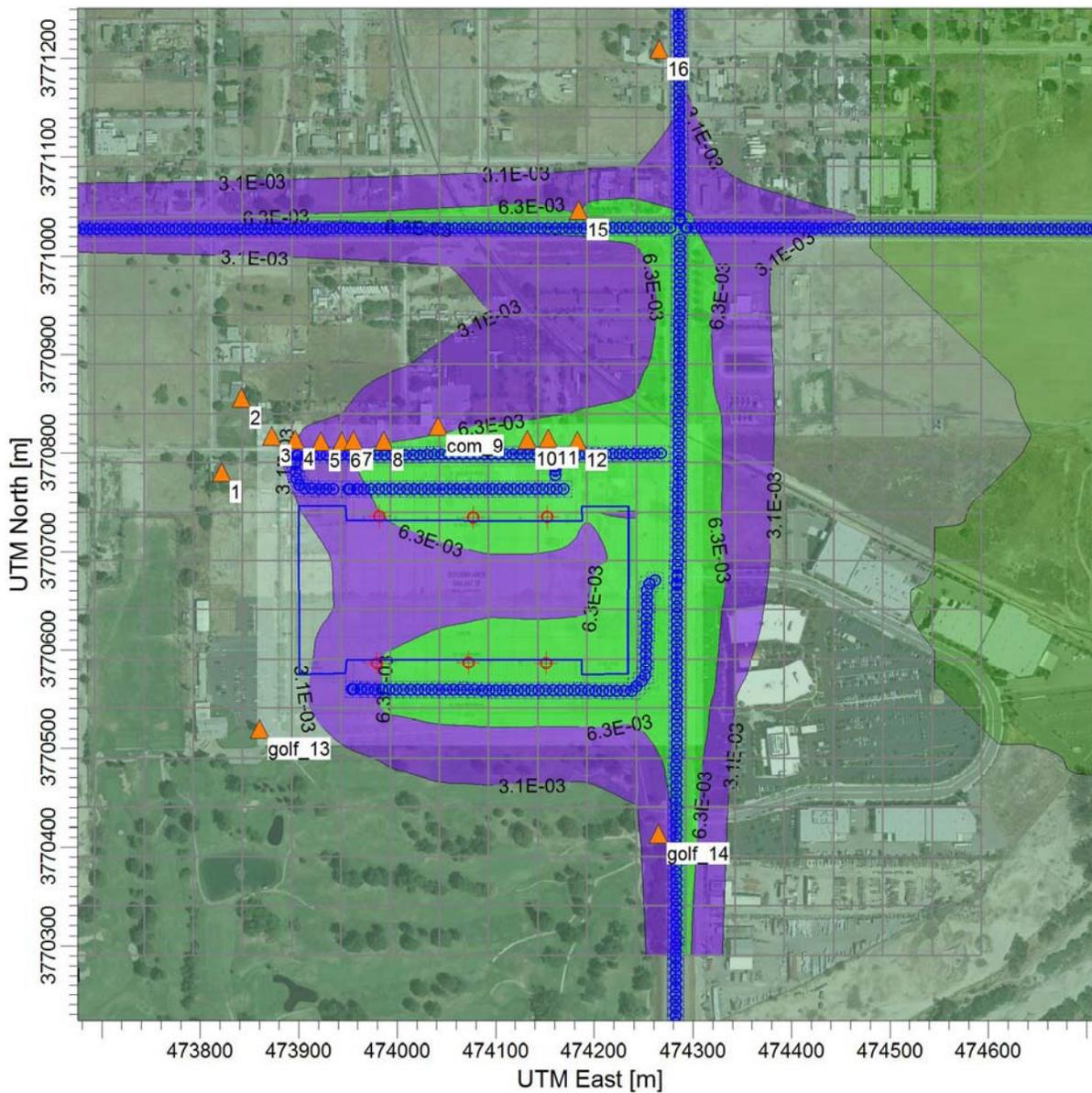
**Legend**

WIND SPEED  
(Knots)

- $\geq 21.58$
- 17.11 - 21.58
- 11.08 - 17.11
- 7.00 - 11.08
- 4.08 - 7.00
- 0.97 - 4.08

Calms: 22.95%

Figure 5  
Modeled Study Area Annual DPM Emissions



**Cancer Risk For Residential Uses**

- = 10 in One Million
- = 5 in One Million
- = 2 in One Million
- = 1 in One Million

## IX. GLOBAL CLIMATE CHANGE ANALYSIS

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The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions, the project impacts and a consistency analysis of the proposed project with any applicable GHG reduction plans, policies or regulations.

### A. Methodology

The CalEEMod Version 2013.2.2 was used to calculate the GHG emissions from the proposed project. Through San Bernardino Associated Governments (SANBAG), the City of San Bernardino forms the San Bernardino Chapter of the San Bernardino County Regional GHG Reduction Plan. The Plan has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Based on the CARB Scoping Plan, reducing GHG emissions to 1990 levels by 2020 means cutting approximately 30 percent from business-as-usual (BAU) emissions levels, or about 15 percent from year 2008 levels, which is the baseline year for the GHG Reduction Plan. Consistent with the CARB Scoping Plan, the City of San Bernardino has chosen a reduction target of 15 percent below 2008 GHG emissions levels by 2020. If the project exceeds the SCAQMD screening threshold of 3,000 MTCO<sub>2</sub>e per year for all land use types, then the project's year 2020 emissions will be compared to the project's baseline (BAU) GHG emissions.

The project's year 2017 (opening year) emissions were calculated, compared to the both the SCAQMD 3,000 MTCO<sub>2</sub>e per year screening threshold and the SCAQMD industrial threshold of 10,000 MTCO<sub>2</sub>e per year and the unmitigated results are shown in Table 18.

#### 1. Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Emissions from architectural coating reflect SCAQMD Rule 1113.

#### 2. Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. The energy usage was based on the CalEEMod defaults. No changes were made to the default energy usage parameters.

#### 3. Mobile Sources

Mobile sources were analyzed in the manner described in Section VII above.

4. Waste

Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The CalEEMod default values were used in the analysis.

5. Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The CalEEMod default values were used in the analysis.

6. Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30 year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod and detailed above in Section VI.

**B. Project Greenhouse Gas Emissions**

The GHG emissions have been calculated based on the parameters described above. A summary of the results are shown below in Table 18 and the CalEEMod Model run for the proposed project is provided in Appendix D. Table 18 shows that without any mitigation, the proposed project would generate 3,918.41 MTCO<sub>2</sub>e per year. However, with mitigation (as detailed in Section XI, Mitigation Measures), the results in Table 19 show that the project would generate 2,913.97 MTCO<sub>2</sub>e per year. According to the thresholds of significance established above in Section 5.0, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed the 3,000 metric tons per year of CO<sub>2</sub>e SCAQMD and the SANBAG GHG Reduction Plan Screening threshold. The emissions were also compared the SCAQMD industrial project's threshold of 10,000 metric tons per year of CO<sub>2</sub>e. Therefore, with incorporation of mitigation, the operation of the proposed project would not create a significant cumulative impact to global climate change.

The project is also subject to the requirements of the California Green Building Standards Code. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code

provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- Water Efficiency and Conservation [Indoor Water Use (4.303.1)]. Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20 percent shall be provided. The 20 percent reduction shall be demonstrated by one of the following methods:
  - Prescriptive Method: Showerheads ( $\leq 2.0$  gpm @ 80 psi); Residential Lavatory Faucets ( $\leq 1.5$  gpm @ 60 psi); Nonresidential Lavatory Faucets ( $\leq .4$  gpm @ 60 psi); Kitchen Faucets ( $\leq 1.8$  gpm @ 60 psi); Toilets ( $\leq 1.28$  gal/flush); and urinals ( $\leq 0.5$  gal/flush).
  - Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.
- Water Efficiency and Conservation [Outdoor Water Use (4.304.1)]. Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:
  - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change.
  - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
- Construction Waste Reduction of at least 50 percent (4.408.1). Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4; OR meet a more stringent local construction and demolition waste management ordinance. Documentation is required per Section 4.408.5. Exceptions:
  - Excavated soil and land-clearing debris.
  - Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
  - The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.
- Materials pollution control (4.504.1 – 4.504.6). Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard.
- Installer and Special Inspector Qualifications (702.1-702.2). Mandatory special installer inspector qualifications for installation and inspection of energy systems (e.g., heat furnace, air conditioner, mechanical equipment).

Compliance with 2013 Title 24 Standards and Green Building Standards (CalGreen) is included as mitigation and will reduce project-related greenhouse emissions.

**C. Greenhouse Gas Plan Consistency**

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. As stated previously, the City of San Bernardino is one of the 21 partnership cities that are participating in the San Bernardino Associated Governments (SANBAG) San Bernardino County Regional GHG Reduction Plan. Therefore, the applicable plan for the proposed project is the SANBAG San Bernardino County Regional GHG Reduction Plan. The City of San Bernardino forms the San Bernardino Chapter of the San Bernardino County Regional GHG Reduction Plan, released March 5, 2014. The Plan has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32.

The City of San Bernardino also has a Sustainability Master Plan. The City of San Bernardino's Sustainability Master Plan Task Force, appointed by the City Council, is recommending various draft strategies for the Mayor and Common Council to consider adopting. This framework of strategies is located within the Land Use and Transportation section of the Draft Sustainable Master Plan (SMP). If adopted, the Draft SMP will support the goals of SB 375 and the Sustainable Communities Strategy through a wide range of actions. The Draft SMP will include GHG reduction measures similar to, but different from, the measures listed in the GHG Plan. The Draft SMP measures will generally be more specific to the City of San Bernardino, but they will also support the goals of AB 32. The SMP follows the organization of the SANBAG San Bernardino County GHG Reduction Plan, with the SMP measures following the County GHG Reduction Plan measures.

As stated previously, the SCAQMD's screening thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012.

Therefore, if the project's emissions meet the threshold for compliance (the 3,000 MTCO<sub>2</sub>e per year screening threshold) with Executive Order S-3-05, then the project's emissions also comply with the goals of AB 32; which is also the goal of the SANBAG GHG Reduction Plan and the SMP.

At a level of 2,913.97 MTCO<sub>2</sub>e per year with mitigation, the project's GHG emissions fall below the SCAQMD and SANBAG GHG Reduction Plan screening threshold of 3,000 metric tons per year of CO<sub>2</sub>e for all land uses, and well below the SCAQMD's GHG emissions threshold of 10,000 metric tons per year of CO<sub>2</sub>e for industrial projects. Furthermore, the project will comply with applicable Green Building Standards and City of San Bernardino's policies regarding sustainability (as dictated by the City's General Plan), further analysis is not warranted.

**Table 18**

**Unmitigated Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>                                | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>                                | 0.00  | 598.00                 | 598.00          | 0.03            | 0.01             | 600.48            |
| Mobile Sources <sup>4</sup>                              | 0.00  | 2,402.10               | 2,402.10        | 0.07            | 0.00             | 2,403.52          |
| Waste <sup>5</sup>                                       | 107.74                                      | 0.00                   | 107.74          | 6.37            | 0.00             | 241.46            |
| Water <sup>6</sup>                                       | 41.43                                       | 486.55                 | 527.97          | 4.28            | 0.11             | 650.37            |
| Construction <sup>7</sup>                                | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>                                   | 149.17                                      | 3,509.16               | 3,658.33        | 10.74           | 0.11             | <b>3,918.41</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b> |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>yes</b>        |
| <b>SCAQMD Industrial Threshold</b>                       |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>no</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions based on a 30 year amortization rate.

**Table 19**

**Mitigated Project-Related Greenhouse Gas Emissions<sup>1</sup>**

| Category   | Greenhouse Gas Emissions (Metric Tons/Year) |                        |                 |                 |                  |                   |
|--|---|------------------------|-----------------|-----------------|------------------|-------------------|
|  | Bio-CO2                                     | NonBio-CO <sub>2</sub> | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
| Area Sources <sup>2</sup>                                | 0.00  | 0.03                   | 0.03            | 0.00            | 0.00             | 0.03              |
| Energy Usage <sup>3</sup>                                | 0.00  | 540.70                 | 540.70          | 0.02            | 0.01             | 542.91            |
| Mobile Sources <sup>4</sup>                              | 0.00  | 1,719.97               | 1,719.97        | 0.05            | 0.00             | 1,721.01          |
| Waste <sup>5</sup>                                       | 53.87                                       | 0.00                   | 53.87           | 3.18            | 0.00             | 120.73            |
| Water <sup>6</sup>                                       | 33.14                                       | 375.73                 | 408.87          | 3.42            | 0.08             | 506.73            |
| Construction <sup>7</sup>                                | 0.00  | 22.49                  | 22.49           | 0.00            | 0.00             | 22.56             |
| <b>Total Emissions</b>                                   | 87.01                                       | 2,658.91               | 2,745.92        | 6.68            | 0.09             | <b>2,913.97</b>   |
| <b>SCAQMD and GHG Reduction Plan Screening Threshold</b> |   |                        |                 |                 |                  | <b>3,000.00</b>   |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>no</b>         |
| <b>SCAQMD Industrial Threshold</b>                       |   |                        |                 |                 |                  | <b>10,000</b>     |
| Exceeds Threshold?                                       |   |                        |                 |                 |                  | <b>no</b>         |

<sup>1</sup> Source: CalEEMod Version 2013.2.2

<sup>2</sup> Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

<sup>3</sup> Energy usage consist of GHG emissions from electricity and natural gas usage.

<sup>4</sup> Mobile sources consist of GHG emissions from vehicles.

<sup>5</sup> Solid waste includes the CO<sub>2</sub> and CH<sub>4</sub> emissions created from the solid waste placed in landfills.

<sup>6</sup> Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

<sup>7</sup> Construction GHG emissions based on a 30 year amortization rate.

## **X. AIR QUALITY COMPLIANCE**

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The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP". Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

### **A. Criterion 1 - Increase in the Frequency or Severity of Violations**

Based on the air quality modeling analysis contained in this Air Analysis, short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that long-term operations impacts will not result in significant impacts based on the SCAQMD local, regional, and toxic air contaminant thresholds of significance.

Therefore, the proposed project is not anticipated to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

### **B. Criterion 2 - Exceed Assumptions in the AQMP?**

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to

insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of San Bernardino General Plan defines the assumptions that are represented in the AQMP.

The City's General Plan land use designations for the project site are Industrial and Open Space. The City's zoning designation for the site includes: Industrial Light, Office Industrial Park, and Public Commercial Recreation. Therefore, the proposed project is not currently consistent with the land use or zoning designations. However, approval of the proposed project includes a General Plan Amendment (GPA) and a Zoning Map Amendment (ZMA) to change the General Plan land use designation to Industrial and the zoning designation to Industrial Light. With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site.

With approval of the GPA and ZMA, the proposed project would be consistent with the land use and zoning designations and development standards for the project site. Therefore, once the proposed project is approved, the project would not result in an inconsistency with the land use designation. Therefore, the proposed would not be anticipated to exceed the AQMP assumptions for the project site and would be consistent with the AQMP for the second criterion.

Based on the above, the proposed project would not conflict with implementation of the AQMP, impacts are considered to be less than significant.

## **XI. MITIGATION MEASURES**

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### **A. Construction Measures**

The project is required to comply with SCAQMD Rule 403 - Fugitive Dust. No construction mitigation is required.

### **B. Operational Measures**

Mitigation Measure 1. The project applicant shall provide sidewalks within the project boundary and along the off-site roadway improvements.

Mitigation Measure 2. The project applicant shall require that any future tenants institute a ride sharing program and employee vanpool/shuttle that is open to all employees.

Mitigation Measure 3. The project applicant shall require that all building structures meet or exceed 2013 Title 24 Standards and Green Building Code Standards.

Mitigation Measure 4. The project applicant shall require that all lighting installed in the proposed structures uses on average a minimum of 5 percent less energy than conventional metal halide warehouse lighting.

Mitigation Measure 5. The project applicant shall require that all faucets, toilets and showers installed in the proposed structures utilize low-flow fixtures that would reduce indoor water demand by 20% per CalGreen Standards.

Mitigation Measure 6. The project applicant shall require that ENERGY STAR-compliant appliances are installed on-site.

Mitigation Measure 7. The project applicant shall require all future tenants to institute recycling programs that reduces waste to landfills by a minimum of 50 percent (75 percent by 2020) and includes designated recycling bins at each proposed structure and requires all green waste to be processed at a recycling or composting facility.

## **XII. REFERENCES**

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### **California Air Pollution Control Officers Association**

2009 Health Risk Assessments for Proposed Land Use Projects

### **California Air Resources Board**

2008 Resolution 08-43

2008 Airborne Toxic Control Measure for in-use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, Section 2477 of Division 3, Chapter 9, Title 13, California Code of Regulations

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2015 Historical Air Quality, Top 4 Summary

### **City of San Bernardino**

2005 City of San Bernardino General Plan. July.

2012 San Bernardino Sustainability Master Plan. Public review Draft. August.

### **Governor's Office of Planning and Research**

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

### **Kunzman Associates, Inc.**

2015 Waterman Industrial Center Traffic Impact Analysis. September 9.

### **Office of Environmental Health Hazard Assessment**

2003 Air Toxics Hot Spots Program Risk Assessment Guidelines

### **San Bernardino Associated Governments (SANBAG)**

2013 San Bernardino County Regional Greenhouse Gas Reduction Plan - Public Draft  
(Chapter 3.18 [City of San Bernardino]). June.

**South Coast Air Quality Management District**

1993 CEQA Air Quality Handbook

2003 Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source  
Diesel Idling Emissions for CEQA Air Quality Analysis

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2011 Appendix A Calculation Details for CalEEMod

2012 Final 2012 Air Quality Management Plan

2014 MATES-IV Multiple Air Toxics Exposure Study in the South Coast Air Basin. October.

## **APPENDICES**

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**Appendix A – Glossary of Terms**

**Appendix B – CalEEMod Model Daily Emissions Printouts**

**Appendix C – AERMOD Model Printouts**

**Appendix D – CalEEMod Model Annual Emissions Printouts**

**APPENDIX A**

**Glossary of Terms**

|                      |  |
|----------------------|--|
| AQMP                 | Air Quality Management Plan                              |
| BACT                 | Best Available Control Technologies                      |
| CAAQS                | California Ambient Air Quality Standards                 |
| CalEPA               | California Environmental Protection Agency               |
| CARB                 | California Air Resources Board                           |
| CCAA                 | California Clean Air Act                                 |
| CCAR                 | California Climate Action Registry                       |
| CEQA                 | California Environmental Quality Act                     |
| CFCs                 | Chlorofluorocarbons                                      |
| CH <sub>4</sub>      | Methane  |
| CNG                  | Compressed natural gas                                   |
| CO                   | Carbon monoxide  |
| CO <sub>2</sub>      | Carbon dioxide   |
| CO <sub>2</sub> e    | Carbon dioxide equivalent                                |
| DPM                  | Diesel particulate matter                                |
| EPA                  | U.S. Environmental Protection Agency                     |
| GHG                  | Greenhouse gas   |
| GWP                  | Global warming potential                                 |
| HIDPM                | Hazard Index Diesel Particulate Matter                   |
| HFCs                 | Hydrofluorocarbons                                       |
| IPCC                 | International Panel on Climate Change                    |
| LCFS                 | Low Carbon Fuel Standard                                 |
| LST                  | Localized Significant Thresholds                         |
| MTCO <sub>2</sub> e  | Metric tons of carbon dioxide equivalent                 |
| MMTCO <sub>2</sub> e | Million metric tons of carbon dioxide equivalent         |
| MPO                  | Metropolitan Planning Organization                       |
| NAAQS                | National Ambient Air Quality Standards                   |
| NO <sub>x</sub>      | Nitrogen Oxides  |
| NO <sub>2</sub>      | Nitrogen dioxide   |
| N <sub>2</sub> O     | Nitrous oxide  |
| O <sub>3</sub>       | Ozone  |
| OPR                  | Governor's Office of Planning and Research               |
| PFCs                 | Perfluorocarbons   |
| PM                   | Particle matter  |
| PM10                 | Particles that are less than 10 micrometers in diameter  |
| PM2.5                | Particles that are less than 2.5 micrometers in diameter |
| PMI                  | Point of maximum impact                                  |
| PPM                  | Parts per million  |
| PPB                  | Parts per billion  |
| RTIP                 | Regional Transportation Improvement Plan                 |
| RTP                  | Regional Transportation Plan                             |
| SCAB                 | South Coast Air Basin                                    |
| SCAG                 | Southern California Association of Governments           |
| SCAQMD               | South Coast Air Quality Management District              |

|                 |   |
|-----------------|---|
| SF              | Square Feet   |
| SF <sub>6</sub> | Sulfur hexafluoride                                     |
| SIP             | State Implementation Plan                               |
| SO <sub>x</sub> | Sulfur Oxides   |
| T6              | Heavy Duty Trucks from EMFAC 2007 classifications       |
| T7              | Heavy-Heavy Duty Trucks from EMFAC 2007 classifications |
| TAC             | Toxic air contaminants                                  |
| VOC             | Volatile organic compounds                              |

**APPENDIX B**

**CalEEMod Model Daily Emissions Printouts**

**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Summer**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total    | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|----------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |                | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9319         | 74.9183         | 68.3593         | 0.1312        | 6.8407         | 3.5859        | 10.4266        | 3.4338         | 3.2990        | 6.7328         | 0.0000        | 12,022.64<br>44         | 12,022.64<br>44         | 1.9466        | 0.0000        | 12,063.52<br>28         |
| 2017         | 62.3158        | 63.3168         | 79.4717         | 0.1556        | 6.4802         | 3.1912        | 9.6714         | 1.7417         | 2.9702        | 4.7118         | 0.0000        | 14,165.52<br>20         | 14,165.52<br>20         | 1.6303        | 0.0000        | 14,199.75<br>84         |
| <b>Total</b> | <b>69.2477</b> | <b>138.2351</b> | <b>147.8310</b> | <b>0.2868</b> | <b>13.3209</b> | <b>6.7771</b> | <b>20.0980</b> | <b>5.1754</b>  | <b>6.2692</b> | <b>11.4446</b> | <b>0.0000</b> | <b>26,188.16<br/>64</b> | <b>26,188.16<br/>64</b> | <b>3.5769</b> | <b>0.0000</b> | <b>26,263.28<br/>12</b> |

#### Mitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |               | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9319         | 74.9183         | 68.3593         | 0.1312        | 6.3124         | 3.5859        | 8.5798         | 1.6972         | 3.2990        | 4.6744        | 0.0000        | 12,022.64<br>44         | 12,022.64<br>44         | 1.9466        | 0.0000        | 12,063.52<br>28         |
| 2017         | 62.3158        | 63.3168         | 79.4717         | 0.1556        | 6.4802         | 3.1912        | 9.6714         | 1.7417         | 2.9702        | 4.7118        | 0.0000        | 14,165.52<br>20         | 14,165.52<br>20         | 1.6303        | 0.0000        | 14,199.75<br>84         |
| <b>Total</b> | <b>69.2477</b> | <b>138.2351</b> | <b>147.8310</b> | <b>0.2868</b> | <b>12.7926</b> | <b>6.7771</b> | <b>18.2512</b> | <b>3.4388</b>  | <b>6.2692</b> | <b>9.3862</b> | <b>0.0000</b> | <b>26,188.16<br/>64</b> | <b>26,188.16<br/>64</b> | <b>3.5769</b> | <b>0.0000</b> | <b>26,263.28<br/>12</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 3.97          | 0.00         | 9.19       | 33.55          | 0.00          | 17.99       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 24.8427        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0357         | 0.3246         | 0.2726         | 1.9500e-003   |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779           | 389.4779           | 7.4600e-003   | 7.1400e-003        | 391.8482           |
| Mobile       | 4.7471         | 28.1870        | 63.8421        | 0.1711        | 9.4644        | 0.4411        | 9.9055        | 2.5382         | 0.4058        | 2.9440        |          | 15,175.8152        | 15,175.8152        | 0.4096        |                    | 15,184.4171        |
| <b>Total</b> | <b>29.6255</b> | <b>28.5127</b> | <b>64.2319</b> | <b>0.1731</b> | <b>9.4644</b> | <b>0.4662</b> | <b>9.9306</b> | <b>2.5382</b>  | <b>0.4309</b> | <b>2.9691</b> |          | <b>15,565.5396</b> | <b>15,565.5396</b> | <b>0.4178</b> | <b>7.1400e-003</b> | <b>15,576.5262</b> |

### Mitigated Operational

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 22.6916        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0251         | 0.2286         | 0.1920         | 1.3700e-003   |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725           | 274.2725           | 5.2600e-003   | 5.0300e-003        | 275.9417           |
| Mobile       | 4.1506         | 20.9694        | 50.6476        | 0.1225        | 6.7109        | 0.3157        | 7.0266        | 1.7998         | 0.2904        | 2.0902        |          | 10,865.5529        | 10,865.5529        | 0.2987        |                    | 10,871.8259        |
| <b>Total</b> | <b>26.8673</b> | <b>21.1991</b> | <b>50.9568</b> | <b>0.1239</b> | <b>6.7109</b> | <b>0.3335</b> | <b>7.0444</b> | <b>1.7998</b>  | <b>0.3082</b> | <b>2.1080</b> |          | <b>11,140.0719</b> | <b>11,140.0719</b> | <b>0.3047</b> | <b>5.0300e-003</b> | <b>11,148.0284</b> |

|                   | ROG  | NOx   | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e  |
|-------------------|------|-------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|-------|
| Percent Reduction | 9.31 | 25.65 | 20.67 | 28.40 | 29.09         | 28.47        | 29.06      | 29.09          | 28.47         | 29.00       | 0.00     | 28.43    | 28.43     | 27.07 | 29.55 | 28.43 |

### 3.0 Construction Detail

#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 25.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Fugitive Dust |               |                |                |               | 0.5359        | 0.0000        | 0.5359        | 0.0811         | 0.0000        | 0.0811        |          |                        | 0.0000                 |               |     | 0.0000                 |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        |          | 4,089.284<br>1         | 4,089.284<br>1         | 1.1121        |     | 4,112.637<br>4         |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.5359</b> | <b>2.2921</b> | <b>2.8280</b> | <b>0.0811</b>  | <b>2.1365</b> | <b>2.2177</b> |          | <b>4,089.284<br/>1</b> | <b>4,089.284<br/>1</b> | <b>1.1121</b> |     | <b>4,112.637<br/>4</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0427        | 0.6802        | 0.4836        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0535        | 0.0118         | 9.7300e-003   | 0.0215        |          | 182.2820        | 182.2820        | 1.3100e-003   |     | 182.3095        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0645        | 0.0784        | 1.0333        | 2.1100e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 175.1667        | 175.1667        | 8.7000e-003   |     | 175.3494        |
| <b>Total</b> | <b>0.1072</b> | <b>0.7586</b> | <b>1.5169</b> | <b>3.9200e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>357.4487</b> | <b>357.4487</b> | <b>0.0100</b> |     | <b>357.6589</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 0.2090        | 0.0000        | 0.2090        | 0.0316         | 0.0000        | 0.0316        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        | 0.0000        | 4,089.2841        | 4,089.2841        | 1.1121        |     | 4,112.6374        |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.2090</b> | <b>2.2921</b> | <b>2.5011</b> | <b>0.0316</b>  | <b>2.1365</b> | <b>2.1682</b> | <b>0.0000</b> | <b>4,089.2841</b> | <b>4,089.2841</b> | <b>1.1121</b> |     | <b>4,112.6374</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0427        | 0.6802        | 0.4836        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0535        | 0.0118         | 9.7300e-003   | 0.0215        |          | 182.2820        | 182.2820        | 1.3100e-003   |     | 182.3095        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0645        | 0.0784        | 1.0333        | 2.1100e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 175.1667        | 175.1667        | 8.7000e-003   |     | 175.3494        |
| <b>Total</b> | <b>0.1072</b> | <b>0.7586</b> | <b>1.5169</b> | <b>3.9200e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>357.4487</b> | <b>357.4487</b> | <b>0.0100</b> |     | <b>357.6589</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |                |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 6.6171        | 0.0000        | 6.6171         | 3.3745         | 0.0000        | 3.3745        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842         |                | 3.2975        | 3.2975        |          | 6,414.9807        | 6,414.9807        | 1.9350        |     | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>6.6171</b> | <b>3.5842</b> | <b>10.2014</b> | <b>3.3745</b>  | <b>3.2975</b> | <b>6.6720</b> |          | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0860        | 0.1046        | 1.3777        | 2.8100e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 233.5556        | 233.5556        | 0.0116        |     |      | 233.7992        |
| <b>Total</b> | <b>0.0860</b> | <b>0.1046</b> | <b>1.3777</b> | <b>2.8100e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>233.5556</b> | <b>233.5556</b> | <b>0.0116</b> |     |      | <b>233.7992</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e   |                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|--------|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |        |                   |
| Fugitive Dust |               |                |                |               | 2.5807        | 0.0000        | 2.5807        | 1.3161         | 0.0000        | 1.3161        |               |                   | 0.0000            |               |     | 0.0000 |                   |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842        |                | 3.2975        | 3.2975        | 0.0000        | 6,414.9807        | 6,414.9807        | 1.9350        |     |        | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>2.5807</b> | <b>3.5842</b> | <b>6.1649</b> | <b>1.3161</b>  | <b>3.2975</b> | <b>4.6136</b> | <b>0.0000</b> | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     |        | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0860        | 0.1046        | 1.3777        | 2.8100e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 233.5556        | 233.5556        | 0.0116        |     |      | 233.7992        |
| <b>Total</b> | <b>0.0860</b> | <b>0.1046</b> | <b>1.3777</b> | <b>2.8100e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>233.5556</b> | <b>233.5556</b> | <b>0.0116</b> |     |      | <b>233.7992</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        |          | 2,669.2864        | 2,669.2864        | 0.6620        |     |      | 2,683.1890        |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> |          | <b>2,669.2864</b> | <b>2,669.2864</b> | <b>0.6620</b> |     |      | <b>2,683.1890</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5340        | 15.8077        | 17.9593        | 0.0393        | 1.1372        | 0.2617        | 1.3988        | 0.3247         | 0.2406        | 0.5653        |          | 3,946.547<br>1         | 3,946.547<br>1         | 0.0284        |     |      | 3,947.143<br>8         |
| Worker       | 1.9917        | 2.4205         | 31.8934        | 0.0651        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 5,406.810<br>9         | 5,406.810<br>9         | 0.2686        |     |      | 5,412.452<br>0         |
| <b>Total</b> | <b>3.5257</b> | <b>18.2281</b> | <b>49.8527</b> | <b>0.1044</b> | <b>6.3124</b> | <b>0.3001</b> | <b>6.6125</b> | <b>1.6972</b>  | <b>0.2759</b> | <b>1.9731</b> |          | <b>9,353.358<br/>0</b> | <b>9,353.358<br/>0</b> | <b>0.2970</b> |     |      | <b>9,359.595<br/>8</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        | 0.0000        | 2,669.286<br>4         | 2,669.286<br>4         | 0.6620        |     |      | 2,683.189<br>0         |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> | <b>0.0000</b> | <b>2,669.286<br/>4</b> | <b>2,669.286<br/>4</b> | <b>0.6620</b> |     |      | <b>2,683.189<br/>0</b> |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5340        | 15.8077        | 17.9593        | 0.0393        | 1.1372        | 0.2617        | 1.3988        | 0.3247         | 0.2406        | 0.5653        |          | 3,946.547<br>1         | 3,946.547<br>1         | 0.0284        |     |      | 3,947.143<br>8         |
| Worker       | 1.9917        | 2.4205         | 31.8934        | 0.0651        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 5,406.810<br>9         | 5,406.810<br>9         | 0.2686        |     |      | 5,412.452<br>0         |
| <b>Total</b> | <b>3.5257</b> | <b>18.2281</b> | <b>49.8527</b> | <b>0.1044</b> | <b>6.3124</b> | <b>0.3001</b> | <b>6.6125</b> | <b>1.6972</b>  | <b>0.2759</b> | <b>1.9731</b> |          | <b>9,353.358<br/>0</b> | <b>9,353.358<br/>0</b> | <b>0.2970</b> |     |      | <b>9,359.595<br/>8</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        |          | 2,639.805<br>3         | 2,639.805<br>3         | 0.6497        |     |      | 2,653.449<br>0         |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> |          | <b>2,639.805<br/>3</b> | <b>2,639.805<br/>3</b> | <b>0.6497</b> |     |      | <b>2,653.449<br/>0</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.4169        | 14.3743        | 17.0391        | 0.0393        | 1.1372        | 0.2334        | 1.3706        | 0.3247         | 0.2147        | 0.5394        |          | 3,881.6100        | 3,881.6100        | 0.0275        |     |      | 3,882.1866        |
| Worker       | 1.7697        | 2.1702         | 28.6483        | 0.0651        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 5,194.7514        | 5,194.7514        | 0.2463        |     |      | 5,199.9229        |
| <b>Total</b> | <b>3.1866</b> | <b>16.5444</b> | <b>45.6874</b> | <b>0.1044</b> | <b>6.3125</b> | <b>0.2704</b> | <b>6.5829</b> | <b>1.6972</b>  | <b>0.2488</b> | <b>1.9460</b> |          | <b>9,076.3614</b> | <b>9,076.3614</b> | <b>0.2737</b> |     |      | <b>9,082.1094</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        | 0.0000        | 2,639.8053        | 2,639.8053        | 0.6497        |     |      | 2,653.4490        |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> | <b>0.0000</b> | <b>2,639.8053</b> | <b>2,639.8053</b> | <b>0.6497</b> |     |      | <b>2,653.4490</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.4169        | 14.3743        | 17.0391        | 0.0393        | 1.1372        | 0.2334        | 1.3706        | 0.3247         | 0.2147        | 0.5394        |          | 3,881.6100        | 3,881.6100        | 0.0275        |     |      | 3,882.1866        |
| Worker       | 1.7697        | 2.1702         | 28.6483        | 0.0651        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 5,194.7514        | 5,194.7514        | 0.2463        |     |      | 5,199.9229        |
| <b>Total</b> | <b>3.1866</b> | <b>16.5444</b> | <b>45.6874</b> | <b>0.1044</b> | <b>6.3125</b> | <b>0.2704</b> | <b>6.5829</b> | <b>1.6972</b>  | <b>0.2488</b> | <b>1.9460</b> |          | <b>9,076.3614</b> | <b>9,076.3614</b> | <b>0.2737</b> |     |      | <b>9,082.1094</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        |          | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> |          | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0573        | 0.0703        | 0.9281        | 2.1100e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 168.2965        | 168.2965        | 7.9800e-003        |     |      | 168.4640        |
| <b>Total</b> | <b>0.0573</b> | <b>0.0703</b> | <b>0.9281</b> | <b>2.1100e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>168.2965</b> | <b>168.2965</b> | <b>7.9800e-003</b> |     |      | <b>168.4640</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        | 0.0000        | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> | <b>0.0000</b> | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0573        | 0.0703        | 0.9281        | 2.1100e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 168.2965        | 168.2965        | 7.9800e-003        |     |      | 168.4640        |
| <b>Total</b> | <b>0.0573</b> | <b>0.0703</b> | <b>0.9281</b> | <b>2.1100e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>168.2965</b> | <b>168.2965</b> | <b>7.9800e-003</b> |     |      | <b>168.4640</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        |          | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Worker       | 0.3555        | 0.4359        | 5.7544        | 0.0131        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 1,043.4382        | 1,043.4382        | 0.0495        |     |      | 1,044.4770        |
| <b>Total</b> | <b>0.3555</b> | <b>0.4359</b> | <b>5.7544</b> | <b>0.0131</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>1,043.4382</b> | <b>1,043.4382</b> | <b>0.0495</b> |     |      | <b>1,044.4770</b> |

#### Mitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e   |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|--------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |        |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     | 0.0000 |                 |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        | 0.0000        | 281.4481        | 281.4481        | 0.0297        |     |        | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |        | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Worker       | 0.3555        | 0.4359        | 5.7544        | 0.0131        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 1,043.4382        | 1,043.4382        | 0.0495        |     |      | 1,044.4770        |
| <b>Total</b> | <b>0.3555</b> | <b>0.4359</b> | <b>5.7544</b> | <b>0.0131</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>1,043.4382</b> | <b>1,043.4382</b> | <b>0.0495</b> |     |      | <b>1,044.4770</b> |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

- Increase Density
- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network
- Employee Vanpool/Shuttle
- Provide Ride Sharing Program

|             | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2       | Total CO2       | CH4    | N2O | CO2e            |
|-------------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------------|-----------------|--------|-----|-----------------|
| Category    | lb/day |         |         |        |               |              |            |                |               |             | lb/day   |                 |                 |        |     |                 |
| Mitigated   | 4.1506 | 20.9694 | 50.6476 | 0.1225 | 6.7109        | 0.3157       | 7.0266     | 1.7998         | 0.2904        | 2.0902      |          | 10,865.55<br>29 | 10,865.55<br>29 | 0.2987 |     | 10,871.82<br>59 |
| Unmitigated | 4.7471 | 28.1870 | 63.8421 | 0.1711 | 9.4644        | 0.4411       | 9.9055     | 2.5382         | 0.4058        | 2.9440      |          | 15,175.81<br>52 | 15,175.81<br>52 | 0.4096 |     | 15,184.41<br>71 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|----------------------------------|-------------------------|----------|--------|-------------|------------|
|                                  | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Other Asphalt Surfaces           | 0.00                    | 0.00     | 0.00   |             |            |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00     | 0.00   |             |            |
| Parking Lot                      | 0.00                    | 0.00     | 0.00   |             |            |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |
| Total                            | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                        | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|------------------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category               | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |             |          |
| NaturalGas Mitigated   | 0.0251 | 0.2286 | 0.1920 | 1.3700e-003 |               | 0.0174       | 0.0174     |                | 0.0174        | 0.0174      |          | 274.2725  | 274.2725  | 5.2600e-003 | 5.0300e-003 | 275.9417 |
| NaturalGas Unmitigated | 0.0357 | 0.3246 | 0.2726 | 1.9500e-003 |               | 0.0247       | 0.0247     |                | 0.0247        | 0.0247      |          | 389.4779  | 389.4779  | 7.4600e-003 | 7.1400e-003 | 391.8482 |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |
|----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|
| Land Use                         | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |
| Parking Lot                      | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Unrefrigerated Warehouse-No Pail | 3310.56        | 0.0357        | 0.3246        | 0.2726        | 1.9500e-003        |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779        | 389.4779        | 7.4600e-003        | 7.1400e-003        | 391.8482        |
| Other Asphalt Surfaces           | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| <b>Total</b>                     |                | <b>0.0357</b> | <b>0.3246</b> | <b>0.2726</b> | <b>1.9500e-003</b> |               | <b>0.0247</b> | <b>0.0247</b> |                | <b>0.0247</b> | <b>0.0247</b> |          | <b>389.4779</b> | <b>389.4779</b> | <b>7.4600e-003</b> | <b>7.1400e-003</b> | <b>391.8482</b> |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                   | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |
|-----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|
| Land Use                          | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |
| Unrefrigerated Warehouse-No Paint | 2.33132        | 0.0251        | 0.2286        | 0.1920        | 1.3700e-003        |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725        | 274.2725        | 5.2600e-003        | 5.0300e-003        | 275.9417        |
| Other Asphalt Surfaces            | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces        | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Parking Lot                       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| <b>Total</b>                      |                | <b>0.0251</b> | <b>0.2286</b> | <b>0.1920</b> | <b>1.3700e-003</b> |               | <b>0.0174</b> | <b>0.0174</b> |                | <b>0.0174</b> | <b>0.0174</b> |          | <b>274.2725</b> | <b>274.2725</b> | <b>5.2600e-003</b> | <b>5.0300e-003</b> | <b>275.9417</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e   |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category    | lb/day  |             |        |             |               |              |             |                |               |             | lb/day   |           |           |             |     |        |
| Mitigated   | 22.6916 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |
| Unmitigated | 24.8427 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 2.9835         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>24.8427</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 0.8324         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>22.6916</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy  
 Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## **10.0 Vegetation**

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**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Winter**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

## Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

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### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total    | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|----------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |                | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9090         | 74.9255         | 66.4063         | 0.1251        | 6.8407         | 3.5859        | 10.4266        | 3.4338         | 3.2990        | 6.7328         | 0.0000        | 11,507.84<br>41         | 11,507.84<br>41         | 1.9466        | 0.0000        | 11,548.72<br>25         |
| 2017         | 62.2894        | 63.8461         | 77.7740         | 0.1492        | 6.4802         | 3.1934        | 9.6736         | 1.7417         | 2.9722        | 4.7139         | 0.0000        | 13,654.34<br>96         | 13,654.34<br>96         | 1.6312        | 0.0000        | 13,688.60<br>39         |
| <b>Total</b> | <b>69.1984</b> | <b>138.7716</b> | <b>144.1803</b> | <b>0.2743</b> | <b>13.3209</b> | <b>6.7793</b> | <b>20.1002</b> | <b>5.1754</b>  | <b>6.2713</b> | <b>11.4467</b> | <b>0.0000</b> | <b>25,162.19<br/>37</b> | <b>25,162.19<br/>37</b> | <b>3.5778</b> | <b>0.0000</b> | <b>25,237.32<br/>64</b> |

#### Mitigated Construction

|              | ROG            | NOx             | CO              | SO2           | Fugitive PM10  | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2               | Total CO2               | CH4           | N2O           | CO2e                    |
|--------------|----------------|-----------------|-----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------------|-------------------------|---------------|---------------|-------------------------|
| Year         | lb/day         |                 |                 |               |                |               |                |                |               |               | lb/day        |                         |                         |               |               |                         |
| 2016         | 6.9090         | 74.9255         | 66.4063         | 0.1251        | 6.3124         | 3.5859        | 8.5825         | 1.6972         | 3.2990        | 4.6744        | 0.0000        | 11,507.84<br>41         | 11,507.84<br>41         | 1.9466        | 0.0000        | 11,548.72<br>25         |
| 2017         | 62.2894        | 63.8461         | 77.7740         | 0.1492        | 6.4802         | 3.1934        | 9.6736         | 1.7417         | 2.9722        | 4.7139        | 0.0000        | 13,654.34<br>96         | 13,654.34<br>96         | 1.6312        | 0.0000        | 13,688.60<br>39         |
| <b>Total</b> | <b>69.1984</b> | <b>138.7716</b> | <b>144.1803</b> | <b>0.2743</b> | <b>12.7926</b> | <b>6.7793</b> | <b>18.2561</b> | <b>3.4388</b>  | <b>6.2713</b> | <b>9.3883</b> | <b>0.0000</b> | <b>25,162.19<br/>37</b> | <b>25,162.19<br/>37</b> | <b>3.5778</b> | <b>0.0000</b> | <b>25,237.32<br/>64</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 3.97          | 0.00         | 9.17       | 33.55          | 0.00          | 17.98       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

**2.2 Overall Operational**

**Unmitigated Operational**

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 24.8427        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0357         | 0.3246         | 0.2726         | 1.9500e-003   |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779           | 389.4779           | 7.4600e-003   | 7.1400e-003        | 391.8482           |
| Mobile       | 4.6788         | 29.3064        | 61.0710        | 0.1620        | 9.4644        | 0.4428        | 9.9072        | 2.5382         | 0.4074        | 2.9456        |          | 14,437.3991        | 14,437.3991        | 0.4106        |                    | 14,446.0207        |
| <b>Total</b> | <b>29.5572</b> | <b>29.6321</b> | <b>61.4608</b> | <b>0.1640</b> | <b>9.4644</b> | <b>0.4679</b> | <b>9.9323</b> | <b>2.5382</b>  | <b>0.4325</b> | <b>2.9707</b> |          | <b>14,827.1234</b> | <b>14,827.1234</b> | <b>0.4187</b> | <b>7.1400e-003</b> | <b>14,838.1298</b> |

**Mitigated Operational**

|              | ROG            | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O                | CO2e               |
|--------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|--------------------|--------------------|
| Category     | lb/day         |                |                |               |               |               |               |                |               |               | lb/day   |                    |                    |               |                    |                    |
| Area         | 22.6916        | 1.1100e-003    | 0.1171         | 1.0000e-005   |               | 4.2000e-004   | 4.2000e-004   |                | 4.2000e-004   | 4.2000e-004   |          | 0.2464             | 0.2464             | 6.9000e-004   |                    | 0.2609             |
| Energy       | 0.0251         | 0.2286         | 0.1920         | 1.3700e-003   |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725           | 274.2725           | 5.2600e-003   | 5.0300e-003        | 275.9417           |
| Mobile       | 4.1074         | 21.7438        | 49.8400        | 0.1160        | 6.7109        | 0.3174        | 7.0283        | 1.7998         | 0.2920        | 2.0918        |          | 10,333.6888        | 10,333.6888        | 0.2997        |                    | 10,339.9814        |
| <b>Total</b> | <b>26.8242</b> | <b>21.9735</b> | <b>50.1491</b> | <b>0.1174</b> | <b>6.7109</b> | <b>0.3352</b> | <b>7.0461</b> | <b>1.7998</b>  | <b>0.3098</b> | <b>2.1096</b> |          | <b>10,608.2078</b> | <b>10,608.2078</b> | <b>0.3056</b> | <b>5.0300e-003</b> | <b>10,616.1840</b> |

|                   | ROG  | NOx   | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e  |
|-------------------|------|-------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|-------|
| Percent Reduction | 9.25 | 25.85 | 18.40 | 28.40 | 29.09         | 28.36        | 29.06      | 29.09          | 28.37         | 28.99       | 0.00     | 28.45    | 28.45     | 27.01 | 29.55 | 28.45 |

### 3.0 Construction Detail

#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 25.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |                        |
| Fugitive Dust |               |                |                |               | 0.5359        | 0.0000        | 0.5359        | 0.0811         | 0.0000        | 0.0811        |          |                        | 0.0000                 |               |     | 0.0000                 |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        |          | 4,089.284<br>1         | 4,089.284<br>1         | 1.1121        |     | 4,112.637<br>4         |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.5359</b> | <b>2.2921</b> | <b>2.8280</b> | <b>0.0811</b>  | <b>2.1365</b> | <b>2.2177</b> |          | <b>4,089.284<br/>1</b> | <b>4,089.284<br/>1</b> | <b>1.1121</b> |     | <b>4,112.637<br/>4</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0444        | 0.7071        | 0.5356        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0536        | 0.0118         | 9.7500e-003   | 0.0215        |          | 181.8462        | 181.8462        | 1.3200e-003   |     | 181.8740        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0606        | 0.0838        | 0.8837        | 1.9200e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 159.5607        | 159.5607        | 8.7000e-003   |     | 159.7434        |
| <b>Total</b> | <b>0.1050</b> | <b>0.7909</b> | <b>1.4193</b> | <b>3.7300e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>341.4069</b> | <b>341.4069</b> | <b>0.0100</b> |     | <b>341.6174</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 0.2090        | 0.0000        | 0.2090        | 0.0316         | 0.0000        | 0.0316        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 4.2876        | 45.6559        | 35.0303        | 0.0399        |               | 2.2921        | 2.2921        |                | 2.1365        | 2.1365        | 0.0000        | 4,089.2841        | 4,089.2841        | 1.1121        |     | 4,112.6374        |
| <b>Total</b>  | <b>4.2876</b> | <b>45.6559</b> | <b>35.0303</b> | <b>0.0399</b> | <b>0.2090</b> | <b>2.2921</b> | <b>2.5011</b> | <b>0.0316</b>  | <b>2.1365</b> | <b>2.1682</b> | <b>0.0000</b> | <b>4,089.2841</b> | <b>4,089.2841</b> | <b>1.1121</b> |     | <b>4,112.6374</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0444        | 0.7071        | 0.5356        | 1.8100e-003        | 0.0430        | 0.0106        | 0.0536        | 0.0118         | 9.7500e-003   | 0.0215        |          | 181.8462        | 181.8462        | 1.3200e-003   |     | 181.8740        |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.0606        | 0.0838        | 0.8837        | 1.9200e-003        | 0.1677        | 1.2400e-003   | 0.1689        | 0.0445         | 1.1400e-003   | 0.0456        |          | 159.5607        | 159.5607        | 8.7000e-003   |     | 159.7434        |
| <b>Total</b> | <b>0.1050</b> | <b>0.7909</b> | <b>1.4193</b> | <b>3.7300e-003</b> | <b>0.2106</b> | <b>0.0118</b> | <b>0.2225</b> | <b>0.0562</b>  | <b>0.0109</b> | <b>0.0671</b> |          | <b>341.4069</b> | <b>341.4069</b> | <b>0.0100</b> |     | <b>341.6174</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total     | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e              |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category      | lb/day        |                |                |               |               |               |                |                |               |               | lb/day   |                   |                   |               |     |                   |
| Fugitive Dust |               |                |                |               | 6.6171        | 0.0000        | 6.6171         | 3.3745         | 0.0000        | 3.3745        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842         |                | 3.2975        | 3.2975        |          | 6,414.9807        | 6,414.9807        | 1.9350        |     | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>6.6171</b> | <b>3.5842</b> | <b>10.2014</b> | <b>3.3745</b>  | <b>3.2975</b> | <b>6.6720</b> |          | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0808        | 0.1117        | 1.1783        | 2.5600e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 212.7476        | 212.7476        | 0.0116        |     |      | 212.9913        |
| <b>Total</b> | <b>0.0808</b> | <b>0.1117</b> | <b>1.1783</b> | <b>2.5600e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>212.7476</b> | <b>212.7476</b> | <b>0.0116</b> |     |      | <b>212.9913</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e   |                   |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|--------|-------------------|
| Category      | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |        |                   |
| Fugitive Dust |               |                |                |               | 2.5807        | 0.0000        | 2.5807        | 1.3161         | 0.0000        | 1.3161        |               |                   | 0.0000            |               |     | 0.0000 |                   |
| Off-Road      | 6.4795        | 74.8137        | 49.1374        | 0.0617        |               | 3.5842        | 3.5842        |                | 3.2975        | 3.2975        | 0.0000        | 6,414.9807        | 6,414.9807        | 1.9350        |     |        | 6,455.6154        |
| <b>Total</b>  | <b>6.4795</b> | <b>74.8137</b> | <b>49.1374</b> | <b>0.0617</b> | <b>2.5807</b> | <b>3.5842</b> | <b>6.1649</b> | <b>1.3161</b>  | <b>3.2975</b> | <b>4.6136</b> | <b>0.0000</b> | <b>6,414.9807</b> | <b>6,414.9807</b> | <b>1.9350</b> |     |        | <b>6,455.6154</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.0808        | 0.1117        | 1.1783        | 2.5600e-003        | 0.2236        | 1.6600e-003        | 0.2252        | 0.0593         | 1.5200e-003        | 0.0608        |          | 212.7476        | 212.7476        | 0.0116        |     |      | 212.9913        |
| <b>Total</b> | <b>0.0808</b> | <b>0.1117</b> | <b>1.1783</b> | <b>2.5600e-003</b> | <b>0.2236</b> | <b>1.6600e-003</b> | <b>0.2252</b> | <b>0.0593</b>  | <b>1.5200e-003</b> | <b>0.0608</b> |          | <b>212.7476</b> | <b>212.7476</b> | <b>0.0116</b> |     |      | <b>212.9913</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        |          | 2,669.2864        | 2,669.2864        | 0.6620        |     |      | 2,683.1890        |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> |          | <b>2,669.2864</b> | <b>2,669.2864</b> | <b>0.6620</b> |     |      | <b>2,683.1890</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.6320        | 16.2343        | 20.6231        | 0.0391        | 1.1372        | 0.2643        | 1.4014        | 0.3247         | 0.2430        | 0.5677        |          | 3,913.451<br>2         | 3,913.451<br>2         | 0.0293        |     |      | 3,914.065<br>5         |
| Worker       | 1.8708        | 2.5862         | 27.2766        | 0.0592        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 4,925.106<br>5         | 4,925.106<br>5         | 0.2686        |     |      | 4,930.747<br>6         |
| <b>Total</b> | <b>3.5028</b> | <b>18.8205</b> | <b>47.8997</b> | <b>0.0983</b> | <b>6.3124</b> | <b>0.3027</b> | <b>6.6151</b> | <b>1.6972</b>  | <b>0.2783</b> | <b>1.9755</b> |          | <b>8,838.557<br/>7</b> | <b>8,838.557<br/>7</b> | <b>0.2979</b> |     |      | <b>8,844.813<br/>2</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.4062        | 28.5063        | 18.5066        | 0.0268        |               | 1.9674        | 1.9674        |                | 1.8485        | 1.8485        | 0.0000        | 2,669.286<br>4         | 2,669.286<br>4         | 0.6620        |     |      | 2,683.189<br>0         |
| <b>Total</b> | <b>3.4062</b> | <b>28.5063</b> | <b>18.5066</b> | <b>0.0268</b> |               | <b>1.9674</b> | <b>1.9674</b> |                | <b>1.8485</b> | <b>1.8485</b> | <b>0.0000</b> | <b>2,669.286<br/>4</b> | <b>2,669.286<br/>4</b> | <b>0.6620</b> |     |      | <b>2,683.189<br/>0</b> |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.6320        | 16.2343        | 20.6231        | 0.0391        | 1.1372        | 0.2643        | 1.4014        | 0.3247         | 0.2430        | 0.5677        |          | 3,913.4512        | 3,913.4512        | 0.0293        |     |      | 3,914.0655        |
| Worker       | 1.8708        | 2.5862         | 27.2766        | 0.0592        | 5.1753        | 0.0384        | 5.2137        | 1.3725         | 0.0353        | 1.4078        |          | 4,925.1065        | 4,925.1065        | 0.2686        |     |      | 4,930.7476        |
| <b>Total</b> | <b>3.5028</b> | <b>18.8205</b> | <b>47.8997</b> | <b>0.0983</b> | <b>6.3124</b> | <b>0.3027</b> | <b>6.6151</b> | <b>1.6972</b>  | <b>0.2783</b> | <b>1.9755</b> |          | <b>8,838.5577</b> | <b>8,838.5577</b> | <b>0.2979</b> |     |      | <b>8,844.8132</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        |          | 2,639.8053        | 2,639.8053        | 0.6497        |     |      | 2,653.4490        |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> |          | <b>2,639.8053</b> | <b>2,639.8053</b> | <b>0.6497</b> |     |      | <b>2,653.4490</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                        |                        |               |     |      |                        |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000                 | 0.0000                 | 0.0000        |     |      | 0.0000                 |
| Vendor       | 1.5063        | 14.7524        | 19.7001        | 0.0390        | 1.1372        | 0.2356        | 1.3729        | 0.3247         | 0.2167        | 0.5414        |          | 3,848.970<br>4         | 3,848.970<br>4         | 0.0283        |     |      | 3,849.564<br>9         |
| Worker       | 1.6565        | 2.3167         | 24.4264        | 0.0592        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 4,731.235<br>3         | 4,731.235<br>3         | 0.2463        |     |      | 4,736.406<br>7         |
| <b>Total</b> | <b>3.1628</b> | <b>17.0690</b> | <b>44.1265</b> | <b>0.0982</b> | <b>6.3125</b> | <b>0.2726</b> | <b>6.5851</b> | <b>1.6972</b>  | <b>0.2508</b> | <b>1.9480</b> |          | <b>8,580.205<br/>7</b> | <b>8,580.205<br/>7</b> | <b>0.2746</b> |     |      | <b>8,585.971<br/>7</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2              | Total CO2              | CH4           | N2O | CO2e |                        |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------------|------------------------|---------------|-----|------|------------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                        |                        |               |     |      |                        |
| Off-Road     | 3.1024        | 26.4057        | 18.1291        | 0.0268        |               | 1.7812        | 1.7812        |                | 1.6730        | 1.6730        | 0.0000        | 2,639.805<br>3         | 2,639.805<br>3         | 0.6497        |     |      | 2,653.449<br>0         |
| <b>Total</b> | <b>3.1024</b> | <b>26.4057</b> | <b>18.1291</b> | <b>0.0268</b> |               | <b>1.7812</b> | <b>1.7812</b> |                | <b>1.6730</b> | <b>1.6730</b> | <b>0.0000</b> | <b>2,639.805<br/>3</b> | <b>2,639.805<br/>3</b> | <b>0.6497</b> |     |      | <b>2,653.449<br/>0</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Hauling      | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        |          | 0.0000            | 0.0000            | 0.0000        |     |      | 0.0000            |
| Vendor       | 1.5063        | 14.7524        | 19.7001        | 0.0390        | 1.1372        | 0.2356        | 1.3729        | 0.3247         | 0.2167        | 0.5414        |          | 3,848.9704        | 3,848.9704        | 0.0283        |     |      | 3,849.5649        |
| Worker       | 1.6565        | 2.3167         | 24.4264        | 0.0592        | 5.1753        | 0.0370        | 5.2122        | 1.3725         | 0.0341        | 1.4066        |          | 4,731.2353        | 4,731.2353        | 0.2463        |     |      | 4,736.4067        |
| <b>Total</b> | <b>3.1628</b> | <b>17.0690</b> | <b>44.1265</b> | <b>0.0982</b> | <b>6.3125</b> | <b>0.2726</b> | <b>6.5851</b> | <b>1.6972</b>  | <b>0.2508</b> | <b>1.9480</b> |          | <b>8,580.2057</b> | <b>8,580.2057</b> | <b>0.2746</b> |     |      | <b>8,585.9717</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day   |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        |          | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> |          | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0537        | 0.0751        | 0.7914        | 1.9200e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 153.2798        | 153.2798        | 7.9800e-003        |     |      | 153.4473        |
| <b>Total</b> | <b>0.0537</b> | <b>0.0751</b> | <b>0.7914</b> | <b>1.9200e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>153.2798</b> | <b>153.2798</b> | <b>7.9800e-003</b> |     |      | <b>153.4473</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx            | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O | CO2e |                   |
|--------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|------|-------------------|
| Category     | lb/day        |                |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |     |      |                   |
| Off-Road     | 1.9074        | 20.2964        | 14.7270        | 0.0223        |               | 1.1384        | 1.1384        |                | 1.0473        | 1.0473        | 0.0000        | 2,281.0588        | 2,281.0588        | 0.6989        |     |      | 2,295.7360        |
| Paving       | 1.0386        |                |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                   | 0.0000            |               |     |      | 0.0000            |
| <b>Total</b> | <b>2.9459</b> | <b>20.2964</b> | <b>14.7270</b> | <b>0.0223</b> |               | <b>1.1384</b> | <b>1.1384</b> |                | <b>1.0473</b> | <b>1.0473</b> | <b>0.0000</b> | <b>2,281.0588</b> | <b>2,281.0588</b> | <b>0.6989</b> |     |      | <b>2,295.7360</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|------|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     |      | 0.0000          |
| Worker       | 0.0537        | 0.0751        | 0.7914        | 1.9200e-003        | 0.1677        | 1.2000e-003        | 0.1689        | 0.0445         | 1.1000e-003        | 0.0456        |          | 153.2798        | 153.2798        | 7.9800e-003        |     |      | 153.4473        |
| <b>Total</b> | <b>0.0537</b> | <b>0.0751</b> | <b>0.7914</b> | <b>1.9200e-003</b> | <b>0.1677</b> | <b>1.2000e-003</b> | <b>0.1689</b> | <b>0.0445</b>  | <b>1.1000e-003</b> | <b>0.0456</b> |          | <b>153.2798</b> | <b>153.2798</b> | <b>7.9800e-003</b> |     |      | <b>153.4473</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        |          | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |      |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     |      | 0.0000          |
| Worker       | 0.3327        | 0.4653        | 4.9064        | 0.0119        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 950.3345        | 950.3345        | 0.0495        |     |      | 951.3733        |
| <b>Total</b> | <b>0.3327</b> | <b>0.4653</b> | <b>4.9064</b> | <b>0.0119</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>950.3345</b> | <b>950.3345</b> | <b>0.0495</b> |     |      | <b>951.3733</b> |

#### Mitigated Construction On-Site

|                 | ROG            | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e |                 |
|-----------------|----------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|------|-----------------|
| Category        | lb/day         |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |      |                 |
| Archit. Coating | 58.6247        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     |      | 0.0000          |
| Off-Road        | 0.3323         | 2.1850        | 1.8681        | 2.9700e-003        |               | 0.1733        | 0.1733        |                | 0.1733        | 0.1733        | 0.0000        | 281.4481        | 281.4481        | 0.0297        |     |      | 282.0721        |
| <b>Total</b>    | <b>58.9570</b> | <b>2.1850</b> | <b>1.8681</b> | <b>2.9700e-003</b> |               | <b>0.1733</b> | <b>0.1733</b> |                | <b>0.1733</b> | <b>0.1733</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0297</b> |     |      | <b>282.0721</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|---------------|-----|-----------------|
| Category     | lb/day        |               |               |               |               |                    |               |                |                    |               | lb/day   |                 |                 |               |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000        |     | 0.0000          |
| Worker       | 0.3327        | 0.4653        | 4.9064        | 0.0119        | 1.0395        | 7.4300e-003        | 1.0470        | 0.2757         | 6.8500e-003        | 0.2825        |          | 950.3345        | 950.3345        | 0.0495        |     | 951.3733        |
| <b>Total</b> | <b>0.3327</b> | <b>0.4653</b> | <b>4.9064</b> | <b>0.0119</b> | <b>1.0395</b> | <b>7.4300e-003</b> | <b>1.0470</b> | <b>0.2757</b>  | <b>6.8500e-003</b> | <b>0.2825</b> |          | <b>950.3345</b> | <b>950.3345</b> | <b>0.0495</b> |     | <b>951.3733</b> |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Employee Vanpool/Shuttle

Provide Ride Sharing Program

|             | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2   | Total CO2   | CH4    | N2O | CO2e        |
|-------------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-------------|-------------|--------|-----|-------------|
| Category    | lb/day |         |         |        |               |              |            |                |               |             | lb/day   |             |             |        |     |             |
| Mitigated   | 4.1074 | 21.7438 | 49.8400 | 0.1160 | 6.7109        | 0.3174       | 7.0283     | 1.7998         | 0.2920        | 2.0918      |          | 10,333.6888 | 10,333.6888 | 0.2997 |     | 10,339.9814 |
| Unmitigated | 4.6788 | 29.3064 | 61.0710 | 0.1620 | 9.4644        | 0.4428       | 9.9072     | 2.5382         | 0.4074        | 2.9456      |          | 14,437.3991 | 14,437.3991 | 0.4106 |     | 14,446.0207 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |          |        | Unmitigated | Mitigated  |
|----------------------------------|-------------------------|----------|--------|-------------|------------|
|                                  | Weekday                 | Saturday | Sunday | Annual VMT  | Annual VMT |
| Other Asphalt Surfaces           | 0.00                    | 0.00     | 0.00   |             |            |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00     | 0.00   |             |            |
| Parking Lot                      | 0.00                    | 0.00     | 0.00   |             |            |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |
| Total                            | 948.62                  | 948.62   | 948.62 | 4,400,149   | 3,120,016  |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                        | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|------------------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category               | lb/day |        |        |             |               |              |            |                |               |             | lb/day   |           |           |             |             |          |
| NaturalGas Mitigated   | 0.0251 | 0.2286 | 0.1920 | 1.3700e-003 |               | 0.0174       | 0.0174     |                | 0.0174        | 0.0174      |          | 274.2725  | 274.2725  | 5.2600e-003 | 5.0300e-003 | 275.9417 |
| NaturalGas Unmitigated | 0.0357 | 0.3246 | 0.2726 | 1.9500e-003 |               | 0.0247       | 0.0247     |                | 0.0247        | 0.0247      |          | 389.4779  | 389.4779  | 7.4600e-003 | 7.1400e-003 | 391.8482 |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |        |
|----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|--------|
| Land Use                         | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |        |
| Parking Lot                      | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 |
| Unrefrigerated Warehouse-No Pail | 3310.56        | 0.0357        | 0.3246        | 0.2726        | 1.9500e-003        |               | 0.0247        | 0.0247        |                | 0.0247        | 0.0247        |          | 389.4779        | 389.4779        | 7.4600e-003        | 7.1400e-003        | 391.8482        |        |
| Other Asphalt Surfaces           | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          | 0.0000 |
| <b>Total</b>                     |                | <b>0.0357</b> | <b>0.3246</b> | <b>0.2726</b> | <b>1.9500e-003</b> |               | <b>0.0247</b> | <b>0.0247</b> |                | <b>0.0247</b> | <b>0.0247</b> |          | <b>389.4779</b> | <b>389.4779</b> | <b>7.4600e-003</b> | <b>7.1400e-003</b> | <b>391.8482</b> |        |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                   | NaturalGas Use | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O                | CO2e            |
|-----------------------------------|----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-----------------|-----------------|--------------------|--------------------|-----------------|
| Land Use                          | kBTU/yr        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day   |                 |                 |                    |                    |                 |
| Parking Lot                       | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Unrefrigerated Warehouse-No Paint | 2.33132        | 0.0251        | 0.2286        | 0.1920        | 1.3700e-003        |               | 0.0174        | 0.0174        |                | 0.0174        | 0.0174        |          | 274.2725        | 274.2725        | 5.2600e-003        | 5.0300e-003        | 275.9417        |
| Other Asphalt Surfaces            | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces        | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000             |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             | 0.0000             | 0.0000          |
| <b>Total</b>                      |                | <b>0.0251</b> | <b>0.2286</b> | <b>0.1920</b> | <b>1.3700e-003</b> |               | <b>0.0174</b> | <b>0.0174</b> |                | <b>0.0174</b> | <b>0.0174</b> |          | <b>274.2725</b> | <b>274.2725</b> | <b>5.2600e-003</b> | <b>5.0300e-003</b> | <b>275.9417</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O | CO2e   |
|-------------|---------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category    | lb/day  |             |        |             |               |              |             |                |               |             | lb/day   |           |           |             |     |        |
| Mitigated   | 22.6916 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |
| Unmitigated | 24.8427 | 1.1100e-003 | 0.1171 | 1.0000e-005 |               | 4.2000e-004  | 4.2000e-004 |                | 4.2000e-004   | 4.2000e-004 |          | 0.2464    | 0.2464    | 6.9000e-004 |     | 0.2609 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 2.9835         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>24.8427</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG            | NOx                | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2 | NBio- CO2     | Total CO2     | CH4                | N2O | CO2e          |
|-----------------------|----------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory           | lb/day         |                    |               |                    |               |                    |                    |                |                    |                    | lb/day   |               |               |                    |     |               |
| Architectural Coating | 0.8324         |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Consumer Products     | 21.8479        |                    |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             |          |               | 0.0000        |                    |     | 0.0000        |
| Landscaping           | 0.0113         | 1.1100e-003        | 0.1171        | 1.0000e-005        |               | 4.2000e-004        | 4.2000e-004        |                | 4.2000e-004        | 4.2000e-004        |          | 0.2464        | 0.2464        | 6.9000e-004        |     | 0.2609        |
| <b>Total</b>          | <b>22.6916</b> | <b>1.1100e-003</b> | <b>0.1171</b> | <b>1.0000e-005</b> |               | <b>4.2000e-004</b> | <b>4.2000e-004</b> |                | <b>4.2000e-004</b> | <b>4.2000e-004</b> |          | <b>0.2464</b> | <b>0.2464</b> | <b>6.9000e-004</b> |     | <b>0.2609</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy  
 Use Water Efficient Irrigation System

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## **10.0 Vegetation**

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**APPENDIX C**

**AERMOD Model Printouts**

## Emission Assumptions

DPM

Emissions

Waterman

### Facility Operations

Buildout year:

2017

### Emission Factors

#### 1) Onsite Vehicle Emissions

##### a) Truck

##### (1) EMFAC2011

##### (a) Annual Meteorology

Temperature: 65 degF

Relative Humidity: 50%

##### (b) Calculations for SB County

##### (c) Truck Mix

4+ axle heavy-heavy duty diesel trucks (HHDT)

4 axle diesel trucks (MHDT)

2 axle diesel trucks (LHDT2)

(d) Onsite Truck Travel Speed: 10 mph

(e) Off-site Truck Travel Speed: 35 mph

(f) Idle speed: 0 mph

(g) Truck Idle time: 15 minutes per truck per day

#### 2) Other Parameters

(a) Width of Volume Source: 12 feet

(b) Truck Operational Schedule: 24 hours/day

|  |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
|--|-------------------|--------------------------------------|-----------------------------------|---------------------|--------------------------------|--|--|--|----------------------------------|---|---|---------------------|--|--|
| <b>Waterman</b>                              |                   | <b>Emission:</b>                     | <b>DPM</b>                        |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Processes Modeled</b>                     |                   | <b>Build-out:</b>                    | <b>2017</b>                       |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| Onsite delivery traffic                      |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| Truck idling                                 |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| Offsite delivery traffic                     |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Facilities in Operation</b>               |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Location</b>                              | <b>Truck type</b> | <b>Daily trucks</b>                  |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| North and south side of building             | HHDT              | 117                                  |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| North and south side of building             | MHDT              | 44                                   |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| North and south side of building             | LHDT              | 33                                   |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Total</b>                                 |                   | <b>194</b>                           |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Delivery Schedule:</b>                    |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| Waterman                                     |                   | 24 hrs/day, 52weeks/year             |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Emission Factors</b>                      |                   | <b>Onsite Exhaust (g/mi)</b>         | <b>Offsite Exhaust (g/mi)</b>     | <b>Idle (g/hr)</b>  |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Vehicle Class</b>                         |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| HHDT   |                   | 0.0711                               | 0.05587                           | 0.103               |                                |  |  |  |                                  |   |   |                     |  |  |
| MHDT   |                   | 0.03793                              | 0.02879                           | 0.091               |                                |  |  |  |                                  |   |   |                     |  |  |
| LHDT   |                   | 0.04865                              | 0.019098                          | 0.0185              |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Onsite Roadway Links Modeled</b>          |                   |                                      |                                   |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Link</b>                                  | <b>Truck Type</b> | <b>Emission Factor (g/mi)</b>        | <b>Trips per day (in and out)</b> | <b>Length (m)</b>   | <b>Length (mi)</b>             | <b>Daily Emissions Over the Link (g/day)</b> | <b>Emissions Over the Link (g/sec)</b> | <b>Emissions Over Link (lb/hr)</b>     | <b>Daily Emissions (lbs/day)</b> | <b>Annual Avg Emissions Over Link (tons/yr)</b> | <b>Total Daily Emissions for all Vehicles (g/sec)</b> |                     |  |  |
| Along north side of building                 | HHDT              | 0.0711                               | 117                               | 221                 | 0.14                           | 1.14E+00                                     | 1.32E-05                               | 9.06E+00                               | 2.52E-03                         | 4.59E-04  |   |                     |  |  |
| Along north side of building                 | MHDT              | 0.03793                              | 44                                | 221                 | 0.14                           | 2.29E-01                                     | 2.65E-06                               | 1.82E+00                               | 5.05E-04                         | 9.21E-05  | 1.71E-05  | 50% of trucks       |  |  |
| Along north side of building                 | LHDT              | 0.04865                              | 33                                | 221                 | 0.14                           | 2.20E-01                                     | 2.55E-06                               | 1.75E+00                               | 4.85E-04                         | 8.86E-05  |   |                     |  |  |
| To north side of building from west driveway | HHDT              | 0.0711                               | 117                               | 62                  | 0.04                           | 3.20E-01                                     | 3.71E-06                               | 2.54E+00                               | 7.06E-04                         | 1.29E-04  |   |                     |  |  |
| To north side of building from west driveway | MHDT              | 0.03793                              | 44                                | 62                  | 0.04                           | 6.43E-02                                     | 7.44E-07                               | 5.10E-01                               | 1.42E-04                         | 2.58E-05  | 4.81E-06  | 50% of trucks       |  |  |
| To north side of building from west driveway | LHDT              | 0.04865                              | 33                                | 62                  | 0.04                           | 6.18E-02                                     | 7.16E-07                               | 4.90E-01                               | 1.36E-04                         | 2.49E-05  | 6.25E-07  | west exit (13%)     |  |  |
| To north side of building from east driveway | HHDT              | 0.0711                               | 117                               | 12.4                | 0.01                           | 6.41E-02                                     | 7.42E-07                               | 5.08E-01                               | 1.41E-04                         | 2.58E-05  |   |                     |  |  |
| To north side of building from east driveway | MHDT              | 0.03793                              | 44                                | 12.4                | 0.01                           | 1.29E-02                                     | 1.49E-07                               | 1.02E-01                               | 2.83E-05                         | 5.17E-06  | 9.62E-07  | 50% of trucks       |  |  |
| To north side of building from east driveway | LHDT              | 0.04865                              | 33                                | 12.4                | 0.01                           | 1.24E-02                                     | 1.43E-07                               | 9.81E-02                               | 2.72E-05                         | 4.97E-06  | 3.56E-07  | east exit (37%)     |  |  |
| To south side of building                    | HHDT              | 0.0711                               | 117                               | 408.4               | 0.25                           | 2.11E+00                                     | 2.44E-05                               | 1.67E+01                               | 4.65E-03                         | 8.48E-04  |   |                     |  |  |
| To south side of building                    | MHDT              | 0.03793                              | 44                                | 408.4               | 0.25                           | 4.23E-01                                     | 4.90E-06                               | 3.36E+00                               | 9.33E-04                         | 1.70E-04  | 3.17E-05  | 50% of trucks       |  |  |
| To south side of building                    | LHDT              | 0.04865                              | 33                                | 408.4               | 0.25                           | 4.07E-01                                     | 4.71E-06                               | 3.23E+00                               | 8.97E-04                         | 1.64E-04  |   |                     |  |  |
| <b>Truck Idling</b>                          |                   | Idle time                            | 15 minutes                        |                     |                                |  |  |  |                                  |   |   |                     |  |  |
| <b>Building/Location</b>                     | <b>Truck Type</b> | <b>Emission Factor (g/idle-hour)</b> | <b>Idling Time (min)</b>          | <b>Daily Trucks</b> | <b>Total Emissions (g/day)</b> | <b>Max Hourly Emissions (g/sec)</b>          | <b>Max Hourly Emissions (lb/hr)</b>    | <b>Total Daily Emissions (lbs/day)</b> | <b>Total Emissions (tons/yr)</b> | <b>Total Emissions (tons/yr)</b>                |   |                     |  |  |
| To south side of building                    | HHDT              | 0.103                                | 15                                | 117                 | 3.01                           | 3.49E-05                                     | 2.77E-04                               | 6.64E-03                               | 1.21E-03                         |   |   |                     |  |  |
| To south side of building                    | MHDT              | 0.091                                | 15                                | 44                  | 1.00                           | 1.16E-05                                     | 9.19E-05                               | 2.20E-03                               | 4.02E-04                         |   | 2.41E-05  | 50% each side       |  |  |
| To south side of building                    | LHDT              | 0.0185                               | 15                                | 33                  | 0.15                           | 1.77E-06                                     | 1.40E-05                               | 3.36E-04                               | 6.14E-05                         |   | 8.04E-06  | per idling location |  |  |

| Offsite Roadway Links Modeled        |            |                        |               |            |             |                                       |                                 |  |                           |  |               |          |
|--------------------------------------|------------|------------------------|---------------|------------|-------------|---------------------------------------|---------------------------------|--|---------------------------|--|---------------|----------|
| Link                                 | Truck Type | Emission Factor (g/mi) | Trips per day | Length (m) | Length (mi) | Daily Emissions Over the Link (g/day) | Emissions Over the Link (g/sec) | Max Hourly Emissions Over Link (lb/hr) | Daily Emissions (lbs/day) | Annual Avg Emissions Over Link (tons/yr) |               |          |
| East Dwy on Dumas St to Waterman Ave | HHDT       | 0.05587                | 117           | 107.8      | 0.07        | 4.38E-01                              | 5.07E-06                        | 3.47E+00                               | 9.64E-04                  | 1.76E-04                                 | 50% of trucks |          |
| East Dwy on Dumas St to Waterman Ave | MHDT       | 0.02879                | 44            | 107.8      | 0.07        | 8.48E-02                              | 9.82E-07                        | 6.73E-01                               | 1.87E-04                  | 3.41E-05                                 |               | 3.27E-06 |
| East Dwy on Dumas St to Waterman Ave | LHDT       | 0.019098               | 33            | 107.8      | 0.07        | 4.22E-02                              | 4.88E-07                        | 3.35E-01                               | 9.30E-05                  | 1.70E-05                                 |               |          |
| West Dwy to East Dwy (Dumas St)      | HHDT       | 0.05587                | 117           | 250.8      | 0.16        | 1.02E+00                              | 1.18E-05                        | 8.08E+00                               | 2.24E-03                  | 4.09E-04                                 | 13% of trucks |          |
| West Dwy to East Dwy (Dumas St)      | MHDT       | 0.02879                | 44            | 250.8      | 0.16        | 1.97E-01                              | 2.28E-06                        | 1.56E+00                               | 4.35E-04                  | 7.93E-05                                 |               | 1.98E-06 |
| West Dwy to East Dwy (Dumas St)      | LHDT       | 0.019098               | 33            | 250.8      | 0.16        | 9.82E-02                              | 1.14E-06                        | 7.79E-01                               | 2.16E-04                  | 3.95E-05                                 |               |          |
| Waterman driveway NB to Orange Show  | HHDT       | 0.05587                | 117           | 345.9      | 0.21        | 1.40E+00                              | 1.63E-05                        | 1.11E+01                               | 3.09E-03                  | 5.65E-04                                 | 60% of trucks |          |
| Waterman driveway NB to Orange Show  | MHDT       | 0.02879                | 44            | 345.9      | 0.21        | 2.72E-01                              | 3.15E-06                        | 2.16E+00                               | 6.00E-04                  | 1.09E-04                                 |               | 1.26E-05 |
| Waterman driveway NB to Orange Show  | LHDT       | 0.019098               | 33            | 345.9      | 0.21        | 1.35E-01                              | 1.57E-06                        | 1.07E+00                               | 2.98E-04                  | 5.44E-05                                 |               |          |
| Orange Show WB from Waterman         | HHDT       | 0.05587                | 117           | 1007.6     | 0.63        | 4.09E+00                              | 4.74E-05                        | 3.24E+01                               | 9.01E-03                  | 1.64E-03                                 | 40% of trucks |          |
| Orange Show WB from Waterman         | MHDT       | 0.02879                | 44            | 1007.6     | 0.63        | 7.93E-01                              | 9.18E-06                        | 6.29E+00                               | 1.75E-03                  | 3.19E-04                                 |               | 2.44E-05 |
| Orange Show WB from Waterman         | LHDT       | 0.019098               | 33            | 1007.6     | 0.63        | 3.94E-01                              | 4.57E-06                        | 3.13E+00                               | 8.69E-04                  | 1.59E-04                                 |               |          |
| Orange Show EB from Waterman         | HHDT       | 0.05587                | 117           | 619.5      | 0.38        | 2.52E+00                              | 2.91E-05                        | 1.99E+01                               | 5.54E-03                  | 1.01E-03                                 | 10% of trucks |          |
| Orange Show EB from Waterman         | MHDT       | 0.02879                | 44            | 619.5      | 0.38        | 4.88E-01                              | 5.64E-06                        | 3.87E+00                               | 1.07E-03                  | 1.96E-04                                 |               | 3.76E-06 |
| Orange Show EB from Waterman         | LHDT       | 0.019098               | 33            | 619.5      | 0.38        | 2.43E-01                              | 2.81E-06                        | 1.92E+00                               | 5.34E-04                  | 9.75E-05                                 |               |          |
| Waterman Ave N/O Orange Show         | HHDT       | 0.05587                | 117           | 390.6      | 0.24        | 1.59E+00                              | 1.84E-05                        | 1.26E+01                               | 3.49E-03                  | 6.38E-04                                 | 10% of trucks |          |
| Waterman Ave N/O Orange Show         | MHDT       | 0.02879                | 44            | 390.6      | 0.24        | 3.07E-01                              | 3.56E-06                        | 2.44E+00                               | 6.77E-04                  | 1.24E-04                                 |               | 2.37E-06 |
| Waterman Ave N/O Orange Show         | LHDT       | 0.019098               | 33            | 390.6      | 0.24        | 1.53E-01                              | 1.77E-06                        | 1.21E+00                               | 3.37E-04                  | 6.15E-05                                 |               |          |
| Waterman driveway SB toward I-10 fwy | HHDT       | 0.05587                | 117           | 746.1      | 0.46        | 3.03E+00                              | 3.51E-05                        | 2.40E+01                               | 6.67E-03                  | 1.22E-03                                 | 40% of trucks |          |
| Waterman driveway SB toward I-10 fwy | MHDT       | 0.02879                | 44            | 746.1      | 0.46        | 5.87E-01                              | 6.80E-06                        | 4.66E+00                               | 1.29E-03                  | 2.36E-04                                 |               | 1.81E-05 |
| Waterman driveway SB toward I-10 fwy | LHDT       | 0.019098               | 33            | 746.1      | 0.46        | 2.92E-01                              | 3.38E-06                        | 2.32E+00                               | 6.43E-04                  | 1.17E-04                                 |               |          |

PROJECT TITLE:

**Waterman**

**Locations of sources and receptors**

COMMENTS:

SOURCES:

**17**

RECEPTORS:

**457**

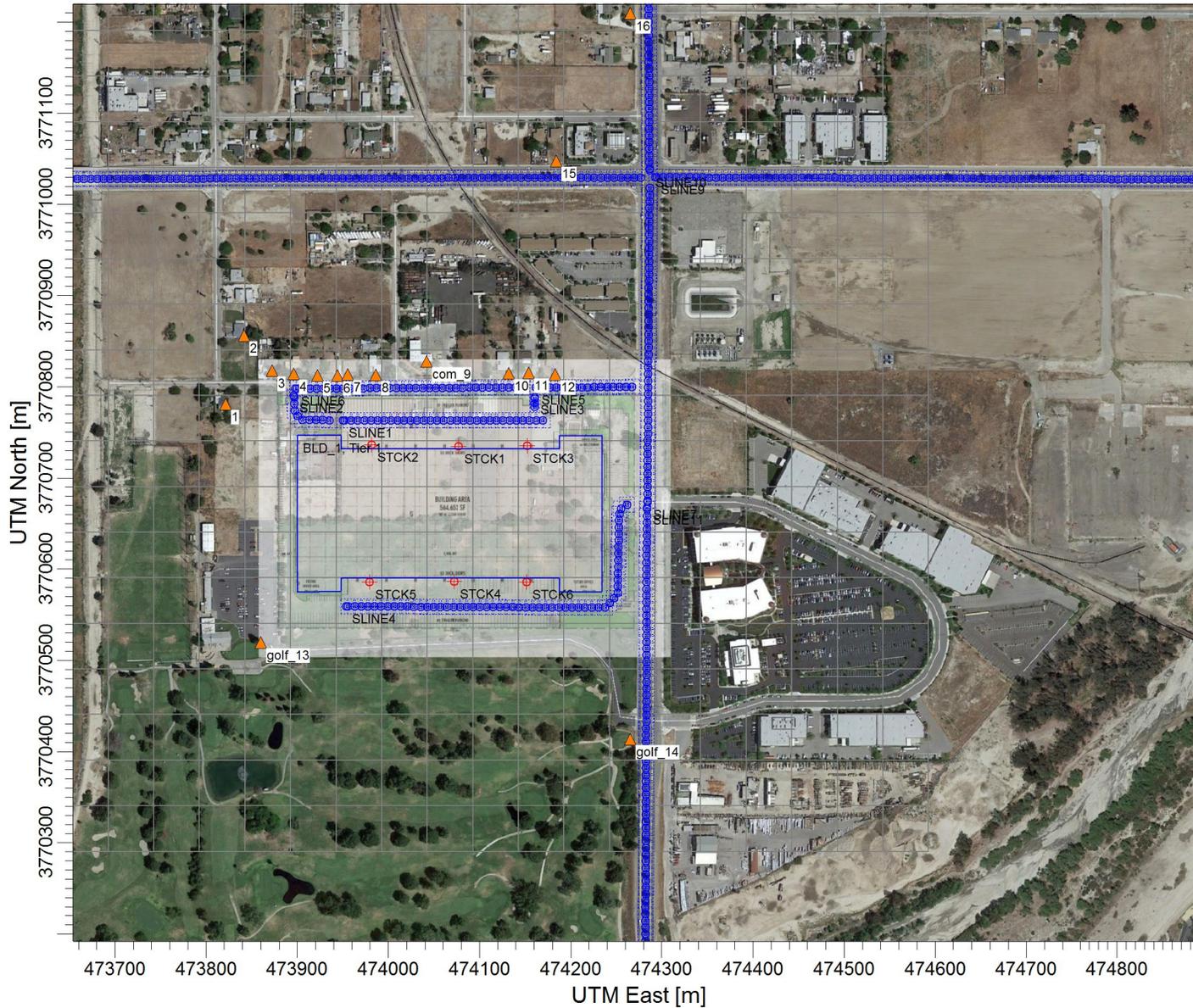
DATE:

**9/21/2015**

SCALE: 1:7,000

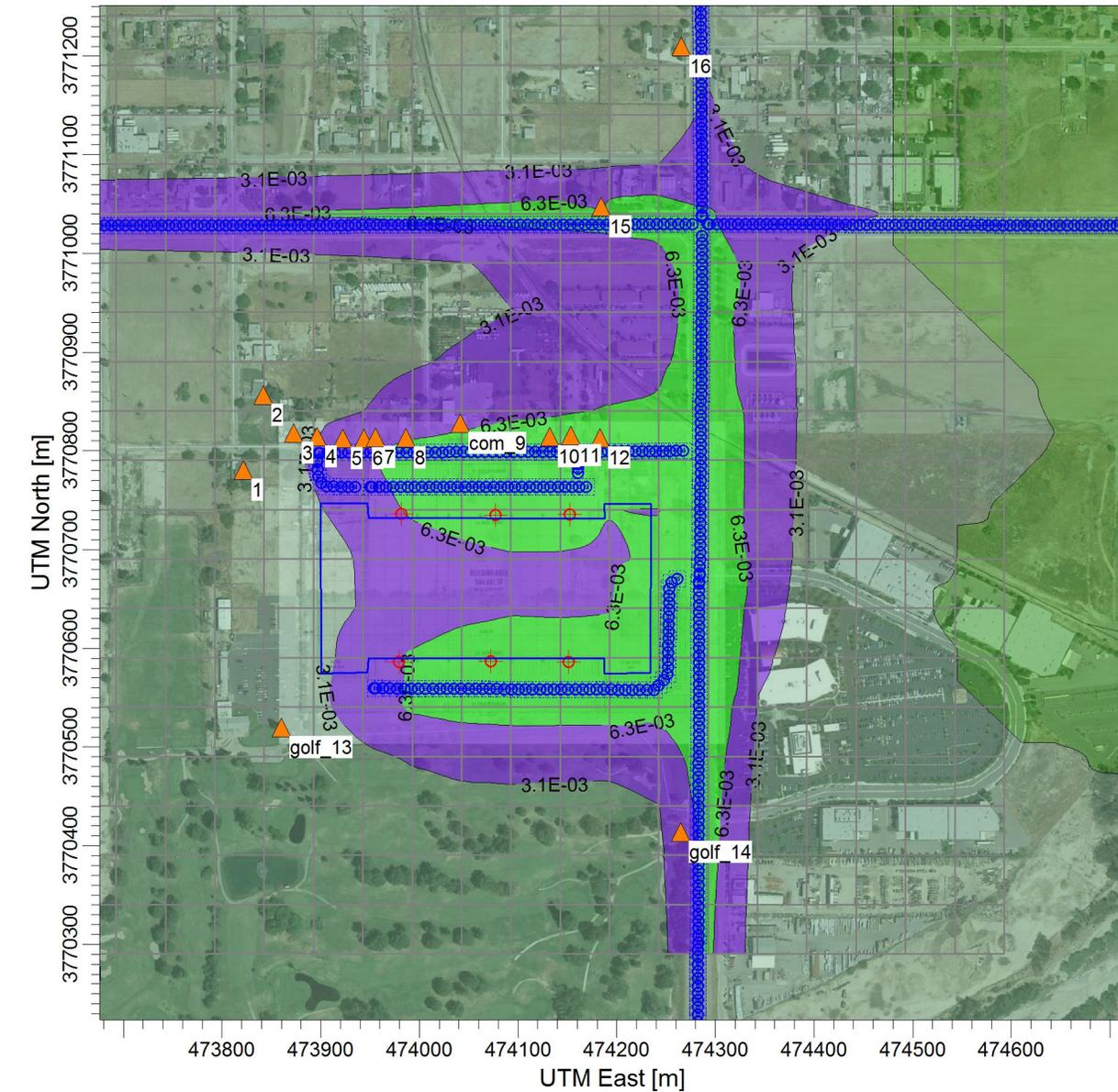
0  0.2 km

PROJECT NO.:



PROJECT TITLE:

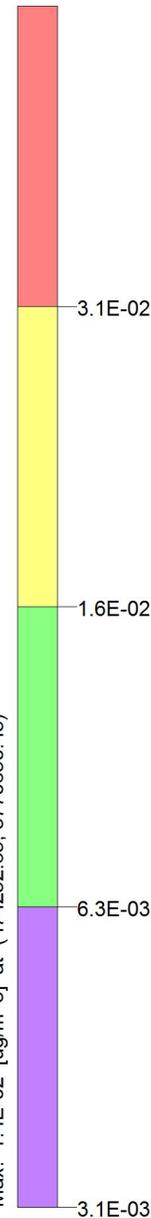
### Waterman DPM Concentrations



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL

Max: 1.4E-02 [ug/m<sup>3</sup>] at (474292.69, 3770690.45)



COMMENTS:

Cancer Risk:  
Red = 10 in 1 million  
Yellow = 5 in 1 million  
Green = 2 in 1 million  
Purple = 1 in 1 million

SOURCES:

**17**

RECEPTORS:

**457**

OUTPUT TYPE:

**Concentration**

MAX:

**1.4E-02 ug/m<sup>3</sup>**

DATE:

**9/21/2015**

SCALE:

1:7,000

0



PROJECT NO.:

**5629b**

```

** Lakes Environmental AERMOD MPI
**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.0.0
** Lakes Environmental Software Inc.
** Date: 9/21/2015
** File: C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.ADI
**
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
CO STARTING
  TITLEONE C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc
  TITLETWO DPM concentrations onsite, offsite and idling
  MODELOPT CONC FASTALL
  AVERTIME ANNUAL
  URBANOPT 219288 2015_Pop_of_City_of_San_Bernardino
  POLLUTID DPM
  RUNORNOT RUN
  ERRORFIL "5629b Waterman.err"
CO FINISHED
**
*****
** AERMOD Source Pathway
*****
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION STCK1      POINT      474076.850  3770734.870    307.000
** DESCRSRC idling north side of building
  LOCATION STCK2      POINT      473981.398  3770736.272    306.000
** DESCRSRC idling north side of building
  LOCATION STCK3      POINT      474152.095  3770735.393    307.000
** DESCRSRC idling north side of building
  LOCATION STCK4      POINT      474072.207  3770586.718    306.000
** DESCRSRC idling south side of building
  LOCATION STCK5      POINT      473979.043  3770586.200    306.000
** DESCRSRC idling south side of building
  LOCATION STCK6      POINT      474151.397  3770586.200    306.000
** DESCRSRC idling south side of building
** -----
** Line Source Represented by Separated Volume Sources

```

```

** LINE VOLUME Source ID = SLINE1
** DESCRSRC Onsite travel north side of building
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000171
** Elevated
** Building Height = 13.11
** SZINIT = 6.10
** Nodes = 2
** 473950.058, 3770763.212, 306.00, 0.00, 3.37
** 474171.065, 3770763.212, 307.00, 0.00, 3.37

```

```

** -----
LOCATION L0000001    VOLUME  473951.887 3770763.212 306.00
LOCATION L0000002    VOLUME  473959.132 3770763.212 306.00
LOCATION L0000003    VOLUME  473966.377 3770763.212 306.00
LOCATION L0000004    VOLUME  473973.622 3770763.212 306.00
LOCATION L0000005    VOLUME  473980.867 3770763.212 306.02
LOCATION L0000006    VOLUME  473988.112 3770763.212 306.16
LOCATION L0000007    VOLUME  473995.357 3770763.212 306.29
LOCATION L0000008    VOLUME  474002.602 3770763.212 306.43
LOCATION L0000009    VOLUME  474009.847 3770763.212 306.56
LOCATION L0000010    VOLUME  474017.092 3770763.212 306.67
LOCATION L0000011    VOLUME  474024.337 3770763.212 306.77
LOCATION L0000012    VOLUME  474031.582 3770763.212 306.88
LOCATION L0000013    VOLUME  474038.827 3770763.212 306.99
LOCATION L0000014    VOLUME  474046.072 3770763.212 307.00
LOCATION L0000015    VOLUME  474053.317 3770763.212 307.00
LOCATION L0000016    VOLUME  474060.562 3770763.212 307.00
LOCATION L0000017    VOLUME  474067.807 3770763.212 307.00
LOCATION L0000018    VOLUME  474075.051 3770763.212 307.00
LOCATION L0000019    VOLUME  474082.296 3770763.212 307.00
LOCATION L0000020    VOLUME  474089.541 3770763.212 307.00
LOCATION L0000021    VOLUME  474096.786 3770763.212 307.00
LOCATION L0000022    VOLUME  474104.031 3770763.212 307.00
LOCATION L0000023    VOLUME  474111.276 3770763.212 307.00
LOCATION L0000024    VOLUME  474118.521 3770763.212 307.00
LOCATION L0000025    VOLUME  474125.766 3770763.212 307.00
LOCATION L0000026    VOLUME  474133.011 3770763.212 307.00
LOCATION L0000027    VOLUME  474140.256 3770763.212 307.00
LOCATION L0000028    VOLUME  474147.501 3770763.212 307.00
LOCATION L0000029    VOLUME  474154.746 3770763.212 307.00
LOCATION L0000030    VOLUME  474161.991 3770763.212 307.00
LOCATION L0000031    VOLUME  474169.236 3770763.212 307.00

```

```

** End of LINE VOLUME Source ID = SLINE1
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Onsite travel from west driveway to docks
** PREFIX
** Length of Side = 3.66

```

```

** Configuration = Separated
** Emission Rate = 6.25E-07
** Elevated
** Building Height = 13.11
** SZINIT = 6.10
** Nodes = 4
** 473896.411, 3770790.454, 306.00, 0.00, 3.39
** 473897.330, 3770772.540, 306.00, 0.00, 3.39
** 473903.071, 3770764.043, 306.00, 0.00, 3.39
** 473936.831, 3770763.354, 306.00, 0.00, 3.39
** -----
LOCATION L0001177      VOLUME  473896.505 3770788.627 306.00
LOCATION L0001178      VOLUME  473896.878 3770781.349 306.00
LOCATION L0001179      VOLUME  473897.251 3770774.071 306.00
LOCATION L0001180      VOLUME  473900.552 3770767.772 306.00
LOCATION L0001181      VOLUME  473905.858 3770763.986 306.00
LOCATION L0001182      VOLUME  473913.144 3770763.838 306.00
LOCATION L0001183      VOLUME  473920.430 3770763.689 306.00
LOCATION L0001184      VOLUME  473927.716 3770763.540 306.00
LOCATION L0001185      VOLUME  473935.002 3770763.392 306.00
** End of LINE VOLUME Source ID = SLINE2
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Onsite travel from east driveway to northern docks
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 3.56E-07
** Elevated
** Vertical Dimension = 3.66
** SZINIT = 0.85
** Nodes = 2
** 474160.287, 3770788.387, 307.00, 0.00, 2.03
** 474160.516, 3770775.985, 307.00, 0.00, 2.03
** -----
LOCATION L0000041      VOLUME  474160.321 3770786.558 307.01
LOCATION L0000042      VOLUME  474160.402 3770782.186 307.00
LOCATION L0000043      VOLUME  474160.483 3770777.814 307.00
** End of LINE VOLUME Source ID = SLINE3
** -----
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC Onsite travel to docks on south side of building
** PREFIX
** Length of Side = 3.66
** Configuration = Separated
** Emission Rate = 0.0000317
** Elevated
** Building Height = 13.11
** SZINIT = 6.10

```

\*\* Nodes = 5

\*\* 473953.839, 3770559.348, 306.00, 0.00, 3.36

\*\* 474238.055, 3770557.852, 306.00, 0.00, 3.36

\*\* 474251.517, 3770572.437, 306.00, 0.00, 3.36

\*\* 474253.387, 3770665.181, 307.00, 0.00, 3.36

\*\* 474263.111, 3770671.538, 307.00, 0.00, 3.36

\*\*

-----

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000044 | VOLUME | 473955.667 | 3770559.338 | 306.00 |
| LOCATION | L0000045 | VOLUME | 473962.896 | 3770559.300 | 306.00 |
| LOCATION | L0000046 | VOLUME | 473970.124 | 3770559.262 | 306.00 |
| LOCATION | L0000047 | VOLUME | 473977.352 | 3770559.224 | 306.00 |
| LOCATION | L0000048 | VOLUME | 473984.581 | 3770559.186 | 306.00 |
| LOCATION | L0000049 | VOLUME | 473991.809 | 3770559.148 | 306.00 |
| LOCATION | L0000050 | VOLUME | 473999.037 | 3770559.110 | 306.00 |
| LOCATION | L0000051 | VOLUME | 474006.266 | 3770559.072 | 306.00 |
| LOCATION | L0000052 | VOLUME | 474013.494 | 3770559.034 | 306.00 |
| LOCATION | L0000053 | VOLUME | 474020.722 | 3770558.996 | 306.00 |
| LOCATION | L0000054 | VOLUME | 474027.951 | 3770558.958 | 306.00 |
| LOCATION | L0000055 | VOLUME | 474035.179 | 3770558.920 | 306.00 |
| LOCATION | L0000056 | VOLUME | 474042.407 | 3770558.882 | 306.00 |
| LOCATION | L0000057 | VOLUME | 474049.635 | 3770558.844 | 306.00 |
| LOCATION | L0000058 | VOLUME | 474056.864 | 3770558.806 | 306.00 |
| LOCATION | L0000059 | VOLUME | 474064.092 | 3770558.768 | 306.00 |
| LOCATION | L0000060 | VOLUME | 474071.320 | 3770558.730 | 306.00 |
| LOCATION | L0000061 | VOLUME | 474078.549 | 3770558.691 | 306.00 |
| LOCATION | L0000062 | VOLUME | 474085.777 | 3770558.653 | 306.00 |
| LOCATION | L0000063 | VOLUME | 474093.005 | 3770558.615 | 306.00 |
| LOCATION | L0000064 | VOLUME | 474100.234 | 3770558.577 | 306.00 |
| LOCATION | L0000065 | VOLUME | 474107.462 | 3770558.539 | 306.00 |
| LOCATION | L0000066 | VOLUME | 474114.690 | 3770558.501 | 306.00 |
| LOCATION | L0000067 | VOLUME | 474121.919 | 3770558.463 | 306.00 |
| LOCATION | L0000068 | VOLUME | 474129.147 | 3770558.425 | 306.00 |
| LOCATION | L0000069 | VOLUME | 474136.375 | 3770558.387 | 306.00 |
| LOCATION | L0000070 | VOLUME | 474143.604 | 3770558.349 | 306.00 |
| LOCATION | L0000071 | VOLUME | 474150.832 | 3770558.311 | 306.00 |
| LOCATION | L0000072 | VOLUME | 474158.060 | 3770558.273 | 306.00 |
| LOCATION | L0000073 | VOLUME | 474165.288 | 3770558.235 | 306.00 |
| LOCATION | L0000074 | VOLUME | 474172.517 | 3770558.197 | 306.00 |
| LOCATION | L0000075 | VOLUME | 474179.745 | 3770558.159 | 306.00 |
| LOCATION | L0000076 | VOLUME | 474186.973 | 3770558.121 | 306.00 |
| LOCATION | L0000077 | VOLUME | 474194.202 | 3770558.083 | 306.00 |
| LOCATION | L0000078 | VOLUME | 474201.430 | 3770558.045 | 306.00 |
| LOCATION | L0000079 | VOLUME | 474208.658 | 3770558.007 | 306.00 |
| LOCATION | L0000080 | VOLUME | 474215.887 | 3770557.969 | 306.00 |
| LOCATION | L0000081 | VOLUME | 474223.115 | 3770557.931 | 306.00 |
| LOCATION | L0000082 | VOLUME | 474230.343 | 3770557.893 | 306.00 |
| LOCATION | L0000083 | VOLUME | 474237.572 | 3770557.855 | 306.00 |
| LOCATION | L0000084 | VOLUME | 474242.630 | 3770562.808 | 306.00 |
| LOCATION | L0000085 | VOLUME | 474247.533 | 3770568.120 | 306.00 |
| LOCATION | L0000086 | VOLUME | 474251.545 | 3770573.790 | 306.01 |
| LOCATION | L0000087 | VOLUME | 474251.690 | 3770581.017 | 306.03 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000088 | VOLUME | 474251.836 | 3770588.244 | 306.05 |
| LOCATION | L0000089 | VOLUME | 474251.982 | 3770595.471 | 306.07 |
| LOCATION | L0000090 | VOLUME | 474252.128 | 3770602.698 | 306.27 |
| LOCATION | L0000091 | VOLUME | 474252.273 | 3770609.925 | 306.50 |
| LOCATION | L0000092 | VOLUME | 474252.419 | 3770617.152 | 306.72 |
| LOCATION | L0000093 | VOLUME | 474252.565 | 3770624.379 | 306.94 |
| LOCATION | L0000094 | VOLUME | 474252.710 | 3770631.606 | 307.00 |
| LOCATION | L0000095 | VOLUME | 474252.856 | 3770638.833 | 307.00 |
| LOCATION | L0000096 | VOLUME | 474253.002 | 3770646.059 | 307.00 |
| LOCATION | L0000097 | VOLUME | 474253.148 | 3770653.286 | 307.00 |
| LOCATION | L0000098 | VOLUME | 474253.293 | 3770660.513 | 307.00 |
| LOCATION | L0000099 | VOLUME | 474255.530 | 3770666.582 | 307.00 |
| LOCATION | L0000100 | VOLUME | 474261.580 | 3770670.538 | 307.00 |

\*\* End of LINE VOLUME Source ID = SLINE4

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE5

\*\* DESCRSRC Offsite east driveway on Dumas to Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 3.27E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474161.482, 3770799.030, 307.07, 0.00, 3.23

\*\* 474269.243, 3770799.984, 308.00, 0.00, 3.23

\*\* -----

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000696 | VOLUME | 474163.311 | 3770799.046 | 307.09 |
| LOCATION | L0000697 | VOLUME | 474170.251 | 3770799.108 | 307.27 |
| LOCATION | L0000698 | VOLUME | 474177.191 | 3770799.169 | 307.44 |
| LOCATION | L0000699 | VOLUME | 474184.132 | 3770799.231 | 307.62 |
| LOCATION | L0000700 | VOLUME | 474191.072 | 3770799.292 | 307.77 |
| LOCATION | L0000701 | VOLUME | 474198.012 | 3770799.354 | 307.83 |
| LOCATION | L0000702 | VOLUME | 474204.952 | 3770799.415 | 307.89 |
| LOCATION | L0000703 | VOLUME | 474211.893 | 3770799.476 | 307.94 |
| LOCATION | L0000704 | VOLUME | 474218.833 | 3770799.538 | 307.99 |
| LOCATION | L0000705 | VOLUME | 474225.773 | 3770799.599 | 308.00 |
| LOCATION | L0000706 | VOLUME | 474232.713 | 3770799.661 | 308.00 |
| LOCATION | L0000707 | VOLUME | 474239.654 | 3770799.722 | 308.00 |
| LOCATION | L0000708 | VOLUME | 474246.594 | 3770799.784 | 308.00 |
| LOCATION | L0000709 | VOLUME | 474253.534 | 3770799.845 | 308.00 |
| LOCATION | L0000710 | VOLUME | 474260.474 | 3770799.906 | 308.00 |
| LOCATION | L0000711 | VOLUME | 474267.415 | 3770799.968 | 308.00 |

\*\* End of LINE VOLUME Source ID = SLINE5

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE6

\*\* DESCRSRC offsite west driveway to east driveway along Dumas

\*\* PREFIX

\*\* Length of Side = 3.66  
\*\* Configuration = Separated  
\*\* Emission Rate = 1.98E-06  
\*\* Elevated  
\*\* Vertical Dimension = 3.66  
\*\* SZINIT = 0.85  
\*\* Nodes = 2  
\*\* 473897.689, 3770798.001, 306.00, 0.00, 3.38  
\*\* 474148.475, 3770799.321, 307.00, 0.00, 3.38

-----  
\*\* LOCATION L0000712 VOLUME 473899.518 3770798.011 306.00  
LOCATION L0000713 VOLUME 473906.786 3770798.049 306.00  
LOCATION L0000714 VOLUME 473914.055 3770798.087 306.00  
LOCATION L0000715 VOLUME 473921.323 3770798.125 306.00  
LOCATION L0000716 VOLUME 473928.592 3770798.164 306.00  
LOCATION L0000717 VOLUME 473935.860 3770798.202 306.00  
LOCATION L0000718 VOLUME 473943.129 3770798.240 306.00  
LOCATION L0000719 VOLUME 473950.397 3770798.278 306.02  
LOCATION L0000720 VOLUME 473957.666 3770798.317 306.19  
LOCATION L0000721 VOLUME 473964.934 3770798.355 306.37  
LOCATION L0000722 VOLUME 473972.203 3770798.393 306.55  
LOCATION L0000723 VOLUME 473979.471 3770798.431 306.73  
LOCATION L0000724 VOLUME 473986.740 3770798.470 306.80  
LOCATION L0000725 VOLUME 473994.008 3770798.508 306.86  
LOCATION L0000726 VOLUME 474001.277 3770798.546 306.93  
LOCATION L0000727 VOLUME 474008.545 3770798.584 306.99  
LOCATION L0000728 VOLUME 474015.814 3770798.623 307.00  
LOCATION L0000729 VOLUME 474023.082 3770798.661 307.00  
LOCATION L0000730 VOLUME 474030.351 3770798.699 307.00  
LOCATION L0000731 VOLUME 474037.619 3770798.737 307.00  
LOCATION L0000732 VOLUME 474044.888 3770798.776 307.00  
LOCATION L0000733 VOLUME 474052.156 3770798.814 307.00  
LOCATION L0000734 VOLUME 474059.425 3770798.852 307.00  
LOCATION L0000735 VOLUME 474066.693 3770798.890 307.00  
LOCATION L0000736 VOLUME 474073.962 3770798.929 307.00  
LOCATION L0000737 VOLUME 474081.230 3770798.967 307.00  
LOCATION L0000738 VOLUME 474088.499 3770799.005 307.00  
LOCATION L0000739 VOLUME 474095.767 3770799.044 307.00  
LOCATION L0000740 VOLUME 474103.036 3770799.082 307.00  
LOCATION L0000741 VOLUME 474110.304 3770799.120 307.00  
LOCATION L0000742 VOLUME 474117.573 3770799.158 307.00  
LOCATION L0000743 VOLUME 474124.841 3770799.197 307.00  
LOCATION L0000744 VOLUME 474132.109 3770799.235 307.00  
LOCATION L0000745 VOLUME 474139.378 3770799.273 307.00  
LOCATION L0000746 VOLUME 474146.646 3770799.311 307.00

\*\* End of LINE VOLUME Source ID = SLINE6

-----  
\*\* Line Source Represented by Separated Volume Sources  
\*\* LINE VOLUME Source ID = SLINE7  
\*\* DESCRSRC offsite Waterman driveway to Orange show Rd  
\*\* PREFIX

\*\* Length of Side = 3.66  
\*\* Configuration = Separated  
\*\* Emission Rate = 0.0000126  
\*\* Elevated  
\*\* Vertical Dimension = 3.66  
\*\* SZINIT = 0.85  
\*\* Nodes = 2  
\*\* 474284.155, 3770673.676, 307.11, 0.00, 3.39  
\*\* 474286.591, 3771019.582, 309.00, 0.00, 3.39

-----  
\*\* LOCATION L0000747 VOLUME 474284.168 3770675.505 307.15  
LOCATION L0000748 VOLUME 474284.219 3770682.786 307.15  
LOCATION L0000749 VOLUME 474284.271 3770690.068 307.15  
LOCATION L0000750 VOLUME 474284.322 3770697.350 307.15  
LOCATION L0000751 VOLUME 474284.373 3770704.632 307.15  
LOCATION L0000752 VOLUME 474284.424 3770711.914 307.16  
LOCATION L0000753 VOLUME 474284.476 3770719.196 307.24  
LOCATION L0000754 VOLUME 474284.527 3770726.478 307.44  
LOCATION L0000755 VOLUME 474284.578 3770733.760 307.65  
LOCATION L0000756 VOLUME 474284.630 3770741.042 307.85  
LOCATION L0000757 VOLUME 474284.681 3770748.323 308.00  
LOCATION L0000758 VOLUME 474284.732 3770755.605 308.00  
LOCATION L0000759 VOLUME 474284.783 3770762.887 308.00  
LOCATION L0000760 VOLUME 474284.835 3770770.169 308.00  
LOCATION L0000761 VOLUME 474284.886 3770777.451 308.00  
LOCATION L0000762 VOLUME 474284.937 3770784.733 308.00  
LOCATION L0000763 VOLUME 474284.989 3770792.015 308.00  
LOCATION L0000764 VOLUME 474285.040 3770799.297 308.00  
LOCATION L0000765 VOLUME 474285.091 3770806.579 308.00  
LOCATION L0000766 VOLUME 474285.142 3770813.861 308.00  
LOCATION L0000767 VOLUME 474285.194 3770821.142 308.00  
LOCATION L0000768 VOLUME 474285.245 3770828.424 308.00  
LOCATION L0000769 VOLUME 474285.296 3770835.706 308.00  
LOCATION L0000770 VOLUME 474285.347 3770842.988 308.00  
LOCATION L0000771 VOLUME 474285.399 3770850.270 308.00  
LOCATION L0000772 VOLUME 474285.450 3770857.552 308.00  
LOCATION L0000773 VOLUME 474285.501 3770864.834 308.00  
LOCATION L0000774 VOLUME 474285.553 3770872.116 308.00  
LOCATION L0000775 VOLUME 474285.604 3770879.398 308.00  
LOCATION L0000776 VOLUME 474285.655 3770886.679 308.00  
LOCATION L0000777 VOLUME 474285.706 3770893.961 308.00  
LOCATION L0000778 VOLUME 474285.758 3770901.243 308.00  
LOCATION L0000779 VOLUME 474285.809 3770908.525 308.00  
LOCATION L0000780 VOLUME 474285.860 3770915.807 308.00  
LOCATION L0000781 VOLUME 474285.912 3770923.089 308.00  
LOCATION L0000782 VOLUME 474285.963 3770930.371 308.13  
LOCATION L0000783 VOLUME 474286.014 3770937.653 308.38  
LOCATION L0000784 VOLUME 474286.065 3770944.935 308.62  
LOCATION L0000785 VOLUME 474286.117 3770952.217 308.86  
LOCATION L0000786 VOLUME 474286.168 3770959.498 309.00  
LOCATION L0000787 VOLUME 474286.219 3770966.780 309.00

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000788 | VOLUME | 474286.271 | 3770974.062 | 309.00 |
| LOCATION | L0000789 | VOLUME | 474286.322 | 3770981.344 | 309.00 |
| LOCATION | L0000790 | VOLUME | 474286.373 | 3770988.626 | 309.00 |
| LOCATION | L0000791 | VOLUME | 474286.424 | 3770995.908 | 309.00 |
| LOCATION | L0000792 | VOLUME | 474286.476 | 3771003.190 | 309.00 |
| LOCATION | L0000793 | VOLUME | 474286.527 | 3771010.472 | 309.00 |
| LOCATION | L0000794 | VOLUME | 474286.578 | 3771017.754 | 309.00 |

\*\* End of LINE VOLUME Source ID = SLINE7

\*\*

-----  
\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE8

\*\* DESCRSRC offsite Orange Show Rd WB from Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 0.0000244

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 473271.129, 3771027.155, 302.00, 0.00, 3.38

\*\* 474278.692, 3771029.435, 309.00, 0.00, 3.38

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|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000795 | VOLUME | 473272.958 | 3771027.159 | 302.00 |
| LOCATION | L0000796 | VOLUME | 473280.233 | 3771027.176 | 302.00 |
| LOCATION | L0000797 | VOLUME | 473287.507 | 3771027.192 | 302.00 |
| LOCATION | L0000798 | VOLUME | 473294.782 | 3771027.209 | 302.00 |
| LOCATION | L0000799 | VOLUME | 473302.057 | 3771027.225 | 302.00 |
| LOCATION | L0000800 | VOLUME | 473309.331 | 3771027.241 | 302.00 |
| LOCATION | L0000801 | VOLUME | 473316.606 | 3771027.258 | 302.00 |
| LOCATION | L0000802 | VOLUME | 473323.881 | 3771027.274 | 302.05 |
| LOCATION | L0000803 | VOLUME | 473331.155 | 3771027.291 | 302.14 |
| LOCATION | L0000804 | VOLUME | 473338.430 | 3771027.307 | 302.23 |
| LOCATION | L0000805 | VOLUME | 473345.705 | 3771027.324 | 302.32 |
| LOCATION | L0000806 | VOLUME | 473352.979 | 3771027.340 | 302.43 |
| LOCATION | L0000807 | VOLUME | 473360.254 | 3771027.357 | 302.59 |
| LOCATION | L0000808 | VOLUME | 473367.529 | 3771027.373 | 302.74 |
| LOCATION | L0000809 | VOLUME | 473374.803 | 3771027.390 | 302.90 |
| LOCATION | L0000810 | VOLUME | 473382.078 | 3771027.406 | 303.00 |
| LOCATION | L0000811 | VOLUME | 473389.353 | 3771027.423 | 303.00 |
| LOCATION | L0000812 | VOLUME | 473396.627 | 3771027.439 | 303.00 |
| LOCATION | L0000813 | VOLUME | 473403.902 | 3771027.455 | 303.00 |
| LOCATION | L0000814 | VOLUME | 473411.177 | 3771027.472 | 303.00 |
| LOCATION | L0000815 | VOLUME | 473418.452 | 3771027.488 | 303.00 |
| LOCATION | L0000816 | VOLUME | 473425.726 | 3771027.505 | 303.00 |
| LOCATION | L0000817 | VOLUME | 473433.001 | 3771027.521 | 303.00 |
| LOCATION | L0000818 | VOLUME | 473440.276 | 3771027.538 | 303.00 |
| LOCATION | L0000819 | VOLUME | 473447.550 | 3771027.554 | 303.00 |
| LOCATION | L0000820 | VOLUME | 473454.825 | 3771027.571 | 303.00 |
| LOCATION | L0000821 | VOLUME | 473462.100 | 3771027.587 | 303.00 |
| LOCATION | L0000822 | VOLUME | 473469.374 | 3771027.604 | 303.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000823 | VOLUME | 473476.649 | 3771027.620 | 303.09 |
| LOCATION | L0000824 | VOLUME | 473483.924 | 3771027.636 | 303.18 |
| LOCATION | L0000825 | VOLUME | 473491.198 | 3771027.653 | 303.27 |
| LOCATION | L0000826 | VOLUME | 473498.473 | 3771027.669 | 303.36 |
| LOCATION | L0000827 | VOLUME | 473505.748 | 3771027.686 | 303.50 |
| LOCATION | L0000828 | VOLUME | 473513.022 | 3771027.702 | 303.65 |
| LOCATION | L0000829 | VOLUME | 473520.297 | 3771027.719 | 303.80 |
| LOCATION | L0000830 | VOLUME | 473527.572 | 3771027.735 | 303.95 |
| LOCATION | L0000831 | VOLUME | 473534.846 | 3771027.752 | 304.00 |
| LOCATION | L0000832 | VOLUME | 473542.121 | 3771027.768 | 304.00 |
| LOCATION | L0000833 | VOLUME | 473549.396 | 3771027.785 | 304.00 |
| LOCATION | L0000834 | VOLUME | 473556.670 | 3771027.801 | 304.00 |
| LOCATION | L0000835 | VOLUME | 473563.945 | 3771027.818 | 304.00 |
| LOCATION | L0000836 | VOLUME | 473571.220 | 3771027.834 | 304.00 |
| LOCATION | L0000837 | VOLUME | 473578.494 | 3771027.850 | 304.00 |
| LOCATION | L0000838 | VOLUME | 473585.769 | 3771027.867 | 304.00 |
| LOCATION | L0000839 | VOLUME | 473593.044 | 3771027.883 | 304.00 |
| LOCATION | L0000840 | VOLUME | 473600.318 | 3771027.900 | 304.00 |
| LOCATION | L0000841 | VOLUME | 473607.593 | 3771027.916 | 304.00 |
| LOCATION | L0000842 | VOLUME | 473614.868 | 3771027.933 | 304.00 |
| LOCATION | L0000843 | VOLUME | 473622.142 | 3771027.949 | 304.08 |
| LOCATION | L0000844 | VOLUME | 473629.417 | 3771027.966 | 304.32 |
| LOCATION | L0000845 | VOLUME | 473636.692 | 3771027.982 | 304.56 |
| LOCATION | L0000846 | VOLUME | 473643.967 | 3771027.999 | 304.81 |
| LOCATION | L0000847 | VOLUME | 473651.241 | 3771028.015 | 305.00 |
| LOCATION | L0000848 | VOLUME | 473658.516 | 3771028.032 | 305.00 |
| LOCATION | L0000849 | VOLUME | 473665.791 | 3771028.048 | 305.00 |
| LOCATION | L0000850 | VOLUME | 473673.065 | 3771028.064 | 305.00 |
| LOCATION | L0000851 | VOLUME | 473680.340 | 3771028.081 | 305.00 |
| LOCATION | L0000852 | VOLUME | 473687.615 | 3771028.097 | 305.00 |
| LOCATION | L0000853 | VOLUME | 473694.889 | 3771028.114 | 305.00 |
| LOCATION | L0000854 | VOLUME | 473702.164 | 3771028.130 | 305.00 |
| LOCATION | L0000855 | VOLUME | 473709.439 | 3771028.147 | 305.00 |
| LOCATION | L0000856 | VOLUME | 473716.713 | 3771028.163 | 305.00 |
| LOCATION | L0000857 | VOLUME | 473723.988 | 3771028.180 | 305.00 |
| LOCATION | L0000858 | VOLUME | 473731.263 | 3771028.196 | 305.00 |
| LOCATION | L0000859 | VOLUME | 473738.537 | 3771028.213 | 305.00 |
| LOCATION | L0000860 | VOLUME | 473745.812 | 3771028.229 | 305.20 |
| LOCATION | L0000861 | VOLUME | 473753.087 | 3771028.246 | 305.44 |
| LOCATION | L0000862 | VOLUME | 473760.361 | 3771028.262 | 305.69 |
| LOCATION | L0000863 | VOLUME | 473767.636 | 3771028.278 | 305.93 |
| LOCATION | L0000864 | VOLUME | 473774.911 | 3771028.295 | 306.00 |
| LOCATION | L0000865 | VOLUME | 473782.185 | 3771028.311 | 306.00 |
| LOCATION | L0000866 | VOLUME | 473789.460 | 3771028.328 | 306.00 |
| LOCATION | L0000867 | VOLUME | 473796.735 | 3771028.344 | 306.00 |
| LOCATION | L0000868 | VOLUME | 473804.009 | 3771028.361 | 306.00 |
| LOCATION | L0000869 | VOLUME | 473811.284 | 3771028.377 | 306.00 |
| LOCATION | L0000870 | VOLUME | 473818.559 | 3771028.394 | 306.00 |
| LOCATION | L0000871 | VOLUME | 473825.833 | 3771028.410 | 306.00 |
| LOCATION | L0000872 | VOLUME | 473833.108 | 3771028.427 | 306.07 |
| LOCATION | L0000873 | VOLUME | 473840.383 | 3771028.443 | 306.21 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000874 | VOLUME | 473847.657 | 3771028.459 | 306.36 |
| LOCATION | L0000875 | VOLUME | 473854.932 | 3771028.476 | 306.50 |
| LOCATION | L0000876 | VOLUME | 473862.207 | 3771028.492 | 306.63 |
| LOCATION | L0000877 | VOLUME | 473869.482 | 3771028.509 | 306.73 |
| LOCATION | L0000878 | VOLUME | 473876.756 | 3771028.525 | 306.82 |
| LOCATION | L0000879 | VOLUME | 473884.031 | 3771028.542 | 306.92 |
| LOCATION | L0000880 | VOLUME | 473891.306 | 3771028.558 | 307.00 |
| LOCATION | L0000881 | VOLUME | 473898.580 | 3771028.575 | 307.00 |
| LOCATION | L0000882 | VOLUME | 473905.855 | 3771028.591 | 307.00 |
| LOCATION | L0000883 | VOLUME | 473913.130 | 3771028.608 | 307.00 |
| LOCATION | L0000884 | VOLUME | 473920.404 | 3771028.624 | 307.00 |
| LOCATION | L0000885 | VOLUME | 473927.679 | 3771028.641 | 307.00 |
| LOCATION | L0000886 | VOLUME | 473934.954 | 3771028.657 | 307.00 |
| LOCATION | L0000887 | VOLUME | 473942.228 | 3771028.673 | 307.00 |
| LOCATION | L0000888 | VOLUME | 473949.503 | 3771028.690 | 307.00 |
| LOCATION | L0000889 | VOLUME | 473956.778 | 3771028.706 | 307.00 |
| LOCATION | L0000890 | VOLUME | 473964.052 | 3771028.723 | 307.00 |
| LOCATION | L0000891 | VOLUME | 473971.327 | 3771028.739 | 307.00 |
| LOCATION | L0000892 | VOLUME | 473978.602 | 3771028.756 | 307.00 |
| LOCATION | L0000893 | VOLUME | 473985.876 | 3771028.772 | 307.20 |
| LOCATION | L0000894 | VOLUME | 473993.151 | 3771028.789 | 307.45 |
| LOCATION | L0000895 | VOLUME | 474000.426 | 3771028.805 | 307.69 |
| LOCATION | L0000896 | VOLUME | 474007.700 | 3771028.822 | 307.93 |
| LOCATION | L0000897 | VOLUME | 474014.975 | 3771028.838 | 308.00 |
| LOCATION | L0000898 | VOLUME | 474022.250 | 3771028.855 | 308.00 |
| LOCATION | L0000899 | VOLUME | 474029.524 | 3771028.871 | 308.00 |
| LOCATION | L0000900 | VOLUME | 474036.799 | 3771028.887 | 308.00 |
| LOCATION | L0000901 | VOLUME | 474044.074 | 3771028.904 | 308.00 |
| LOCATION | L0000902 | VOLUME | 474051.348 | 3771028.920 | 308.00 |
| LOCATION | L0000903 | VOLUME | 474058.623 | 3771028.937 | 308.00 |
| LOCATION | L0000904 | VOLUME | 474065.898 | 3771028.953 | 308.00 |
| LOCATION | L0000905 | VOLUME | 474073.172 | 3771028.970 | 308.00 |
| LOCATION | L0000906 | VOLUME | 474080.447 | 3771028.986 | 308.00 |
| LOCATION | L0000907 | VOLUME | 474087.722 | 3771029.003 | 308.00 |
| LOCATION | L0000908 | VOLUME | 474094.997 | 3771029.019 | 308.00 |
| LOCATION | L0000909 | VOLUME | 474102.271 | 3771029.036 | 308.00 |
| LOCATION | L0000910 | VOLUME | 474109.546 | 3771029.052 | 308.00 |
| LOCATION | L0000911 | VOLUME | 474116.821 | 3771029.069 | 308.00 |
| LOCATION | L0000912 | VOLUME | 474124.095 | 3771029.085 | 308.00 |
| LOCATION | L0000913 | VOLUME | 474131.370 | 3771029.101 | 308.00 |
| LOCATION | L0000914 | VOLUME | 474138.645 | 3771029.118 | 308.00 |
| LOCATION | L0000915 | VOLUME | 474145.919 | 3771029.134 | 308.00 |
| LOCATION | L0000916 | VOLUME | 474153.194 | 3771029.151 | 308.00 |
| LOCATION | L0000917 | VOLUME | 474160.469 | 3771029.167 | 308.00 |
| LOCATION | L0000918 | VOLUME | 474167.743 | 3771029.184 | 308.00 |
| LOCATION | L0000919 | VOLUME | 474175.018 | 3771029.200 | 308.00 |
| LOCATION | L0000920 | VOLUME | 474182.293 | 3771029.217 | 308.00 |
| LOCATION | L0000921 | VOLUME | 474189.567 | 3771029.233 | 308.00 |
| LOCATION | L0000922 | VOLUME | 474196.842 | 3771029.250 | 308.00 |
| LOCATION | L0000923 | VOLUME | 474204.117 | 3771029.266 | 308.00 |
| LOCATION | L0000924 | VOLUME | 474211.391 | 3771029.282 | 308.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000925 | VOLUME | 474218.666 | 3771029.299 | 308.00 |
| LOCATION | L0000926 | VOLUME | 474225.941 | 3771029.315 | 308.21 |
| LOCATION | L0000927 | VOLUME | 474233.215 | 3771029.332 | 308.45 |
| LOCATION | L0000928 | VOLUME | 474240.490 | 3771029.348 | 308.69 |
| LOCATION | L0000929 | VOLUME | 474247.765 | 3771029.365 | 308.93 |
| LOCATION | L0000930 | VOLUME | 474255.039 | 3771029.381 | 309.00 |
| LOCATION | L0000931 | VOLUME | 474262.314 | 3771029.398 | 309.00 |
| LOCATION | L0000932 | VOLUME | 474269.589 | 3771029.414 | 309.00 |
| LOCATION | L0000933 | VOLUME | 474276.863 | 3771029.431 | 309.00 |

\*\* End of LINE VOLUME Source ID = SLINE8

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\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE9

\*\* DESCRSRC offsite Orange Show Rd EB from Waterman

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 3.76E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474292.426, 3771029.765, 309.00, 0.00, 3.37

\*\* 474911.905, 3771027.295, 312.08, 0.00, 3.37

\*\*

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000934 | VOLUME | 474294.255 | 3771029.758 | 309.00 |
| LOCATION | L0000935 | VOLUME | 474301.500 | 3771029.729 | 309.00 |
| LOCATION | L0000936 | VOLUME | 474308.745 | 3771029.700 | 309.00 |
| LOCATION | L0000937 | VOLUME | 474315.990 | 3771029.671 | 309.00 |
| LOCATION | L0000938 | VOLUME | 474323.235 | 3771029.642 | 309.00 |
| LOCATION | L0000939 | VOLUME | 474330.479 | 3771029.613 | 309.00 |
| LOCATION | L0000940 | VOLUME | 474337.724 | 3771029.584 | 309.00 |
| LOCATION | L0000941 | VOLUME | 474344.969 | 3771029.555 | 309.00 |
| LOCATION | L0000942 | VOLUME | 474352.214 | 3771029.526 | 309.00 |
| LOCATION | L0000943 | VOLUME | 474359.459 | 3771029.498 | 309.00 |
| LOCATION | L0000944 | VOLUME | 474366.704 | 3771029.469 | 309.00 |
| LOCATION | L0000945 | VOLUME | 474373.949 | 3771029.440 | 309.00 |
| LOCATION | L0000946 | VOLUME | 474381.194 | 3771029.411 | 309.00 |
| LOCATION | L0000947 | VOLUME | 474388.439 | 3771029.382 | 309.00 |
| LOCATION | L0000948 | VOLUME | 474395.684 | 3771029.353 | 309.00 |
| LOCATION | L0000949 | VOLUME | 474402.929 | 3771029.324 | 309.11 |
| LOCATION | L0000950 | VOLUME | 474410.174 | 3771029.295 | 309.35 |
| LOCATION | L0000951 | VOLUME | 474417.419 | 3771029.266 | 309.59 |
| LOCATION | L0000952 | VOLUME | 474424.664 | 3771029.238 | 309.83 |
| LOCATION | L0000953 | VOLUME | 474431.909 | 3771029.209 | 310.00 |
| LOCATION | L0000954 | VOLUME | 474439.154 | 3771029.180 | 310.00 |
| LOCATION | L0000955 | VOLUME | 474446.399 | 3771029.151 | 310.00 |
| LOCATION | L0000956 | VOLUME | 474453.644 | 3771029.122 | 310.00 |
| LOCATION | L0000957 | VOLUME | 474460.889 | 3771029.093 | 310.00 |
| LOCATION | L0000958 | VOLUME | 474468.134 | 3771029.064 | 310.00 |
| LOCATION | L0000959 | VOLUME | 474475.379 | 3771029.035 | 310.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0000960 | VOLUME | 474482.624 | 3771029.006 | 310.00 |
| LOCATION | L0000961 | VOLUME | 474489.868 | 3771028.978 | 310.00 |
| LOCATION | L0000962 | VOLUME | 474497.113 | 3771028.949 | 310.00 |
| LOCATION | L0000963 | VOLUME | 474504.358 | 3771028.920 | 310.00 |
| LOCATION | L0000964 | VOLUME | 474511.603 | 3771028.891 | 310.00 |
| LOCATION | L0000965 | VOLUME | 474518.848 | 3771028.862 | 310.00 |
| LOCATION | L0000966 | VOLUME | 474526.093 | 3771028.833 | 310.00 |
| LOCATION | L0000967 | VOLUME | 474533.338 | 3771028.804 | 310.00 |
| LOCATION | L0000968 | VOLUME | 474540.583 | 3771028.775 | 310.00 |
| LOCATION | L0000969 | VOLUME | 474547.828 | 3771028.746 | 310.00 |
| LOCATION | L0000970 | VOLUME | 474555.073 | 3771028.718 | 310.00 |
| LOCATION | L0000971 | VOLUME | 474562.318 | 3771028.689 | 310.00 |
| LOCATION | L0000972 | VOLUME | 474569.563 | 3771028.660 | 310.00 |
| LOCATION | L0000973 | VOLUME | 474576.808 | 3771028.631 | 310.00 |
| LOCATION | L0000974 | VOLUME | 474584.053 | 3771028.602 | 310.00 |
| LOCATION | L0000975 | VOLUME | 474591.298 | 3771028.573 | 310.00 |
| LOCATION | L0000976 | VOLUME | 474598.543 | 3771028.544 | 310.00 |
| LOCATION | L0000977 | VOLUME | 474605.788 | 3771028.515 | 310.00 |
| LOCATION | L0000978 | VOLUME | 474613.033 | 3771028.486 | 310.00 |
| LOCATION | L0000979 | VOLUME | 474620.278 | 3771028.458 | 310.00 |
| LOCATION | L0000980 | VOLUME | 474627.523 | 3771028.429 | 310.00 |
| LOCATION | L0000981 | VOLUME | 474634.768 | 3771028.400 | 310.00 |
| LOCATION | L0000982 | VOLUME | 474642.012 | 3771028.371 | 310.07 |
| LOCATION | L0000983 | VOLUME | 474649.257 | 3771028.342 | 310.32 |
| LOCATION | L0000984 | VOLUME | 474656.502 | 3771028.313 | 310.56 |
| LOCATION | L0000985 | VOLUME | 474663.747 | 3771028.284 | 310.80 |
| LOCATION | L0000986 | VOLUME | 474670.992 | 3771028.255 | 311.00 |
| LOCATION | L0000987 | VOLUME | 474678.237 | 3771028.226 | 311.00 |
| LOCATION | L0000988 | VOLUME | 474685.482 | 3771028.198 | 311.00 |
| LOCATION | L0000989 | VOLUME | 474692.727 | 3771028.169 | 311.00 |
| LOCATION | L0000990 | VOLUME | 474699.972 | 3771028.140 | 311.00 |
| LOCATION | L0000991 | VOLUME | 474707.217 | 3771028.111 | 311.00 |
| LOCATION | L0000992 | VOLUME | 474714.462 | 3771028.082 | 311.00 |
| LOCATION | L0000993 | VOLUME | 474721.707 | 3771028.053 | 311.00 |
| LOCATION | L0000994 | VOLUME | 474728.952 | 3771028.024 | 311.00 |
| LOCATION | L0000995 | VOLUME | 474736.197 | 3771027.995 | 311.00 |
| LOCATION | L0000996 | VOLUME | 474743.442 | 3771027.967 | 311.00 |
| LOCATION | L0000997 | VOLUME | 474750.687 | 3771027.938 | 311.00 |
| LOCATION | L0000998 | VOLUME | 474757.932 | 3771027.909 | 311.00 |
| LOCATION | L0000999 | VOLUME | 474765.177 | 3771027.880 | 311.00 |
| LOCATION | L0001000 | VOLUME | 474772.422 | 3771027.851 | 311.00 |
| LOCATION | L0001001 | VOLUME | 474779.667 | 3771027.822 | 311.00 |
| LOCATION | L0001002 | VOLUME | 474786.912 | 3771027.793 | 311.00 |
| LOCATION | L0001003 | VOLUME | 474794.157 | 3771027.764 | 311.15 |
| LOCATION | L0001004 | VOLUME | 474801.401 | 3771027.735 | 311.39 |
| LOCATION | L0001005 | VOLUME | 474808.646 | 3771027.707 | 311.63 |
| LOCATION | L0001006 | VOLUME | 474815.891 | 3771027.678 | 311.87 |
| LOCATION | L0001007 | VOLUME | 474823.136 | 3771027.649 | 312.00 |
| LOCATION | L0001008 | VOLUME | 474830.381 | 3771027.620 | 312.00 |
| LOCATION | L0001009 | VOLUME | 474837.626 | 3771027.591 | 312.00 |
| LOCATION | L0001010 | VOLUME | 474844.871 | 3771027.562 | 312.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001011 | VOLUME | 474852.116 | 3771027.533 | 312.00 |
| LOCATION | L0001012 | VOLUME | 474859.361 | 3771027.504 | 312.00 |
| LOCATION | L0001013 | VOLUME | 474866.606 | 3771027.475 | 312.00 |
| LOCATION | L0001014 | VOLUME | 474873.851 | 3771027.447 | 312.00 |
| LOCATION | L0001015 | VOLUME | 474881.096 | 3771027.418 | 312.00 |
| LOCATION | L0001016 | VOLUME | 474888.341 | 3771027.389 | 312.00 |
| LOCATION | L0001017 | VOLUME | 474895.586 | 3771027.360 | 312.00 |
| LOCATION | L0001018 | VOLUME | 474902.831 | 3771027.331 | 312.00 |
| LOCATION | L0001019 | VOLUME | 474910.076 | 3771027.302 | 312.01 |

\*\* End of LINE VOLUME Source ID = SLINE9

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\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE10

\*\* DESCRSRC offsite Waterman Ave n/o Orange Show Rd

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 2.37E-06

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474286.472, 3771037.367, 309.00, 0.00, 3.40

\*\* 474284.302, 3771427.958, 308.94, 0.00, 3.40

\*\*

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001020 | VOLUME | 474286.462 | 3771039.196 | 309.00 |
| LOCATION | L0001021 | VOLUME | 474286.422 | 3771046.496 | 309.00 |
| LOCATION | L0001022 | VOLUME | 474286.381 | 3771053.797 | 309.00 |
| LOCATION | L0001023 | VOLUME | 474286.341 | 3771061.098 | 309.00 |
| LOCATION | L0001024 | VOLUME | 474286.300 | 3771068.398 | 309.00 |
| LOCATION | L0001025 | VOLUME | 474286.259 | 3771075.699 | 309.00 |
| LOCATION | L0001026 | VOLUME | 474286.219 | 3771082.999 | 309.00 |
| LOCATION | L0001027 | VOLUME | 474286.178 | 3771090.300 | 309.00 |
| LOCATION | L0001028 | VOLUME | 474286.138 | 3771097.601 | 309.00 |
| LOCATION | L0001029 | VOLUME | 474286.097 | 3771104.901 | 309.00 |
| LOCATION | L0001030 | VOLUME | 474286.057 | 3771112.202 | 309.00 |
| LOCATION | L0001031 | VOLUME | 474286.016 | 3771119.503 | 309.00 |
| LOCATION | L0001032 | VOLUME | 474285.976 | 3771126.803 | 309.00 |
| LOCATION | L0001033 | VOLUME | 474285.935 | 3771134.104 | 309.00 |
| LOCATION | L0001034 | VOLUME | 474285.894 | 3771141.405 | 309.00 |
| LOCATION | L0001035 | VOLUME | 474285.854 | 3771148.705 | 309.00 |
| LOCATION | L0001036 | VOLUME | 474285.813 | 3771156.006 | 309.00 |
| LOCATION | L0001037 | VOLUME | 474285.773 | 3771163.307 | 309.00 |
| LOCATION | L0001038 | VOLUME | 474285.732 | 3771170.607 | 309.00 |
| LOCATION | L0001039 | VOLUME | 474285.692 | 3771177.908 | 309.00 |
| LOCATION | L0001040 | VOLUME | 474285.651 | 3771185.208 | 309.00 |
| LOCATION | L0001041 | VOLUME | 474285.611 | 3771192.509 | 309.00 |
| LOCATION | L0001042 | VOLUME | 474285.570 | 3771199.810 | 309.00 |
| LOCATION | L0001043 | VOLUME | 474285.529 | 3771207.110 | 309.00 |
| LOCATION | L0001044 | VOLUME | 474285.489 | 3771214.411 | 309.00 |
| LOCATION | L0001045 | VOLUME | 474285.448 | 3771221.712 | 309.00 |

| LOCATION | VOLUME     |             |        |  |  |
|----------|------------|-------------|--------|--|--|
| L0001046 | 474285.408 | 3771229.012 | 309.00 |  |  |
| L0001047 | 474285.367 | 3771236.313 | 309.00 |  |  |
| L0001048 | 474285.327 | 3771243.614 | 309.00 |  |  |
| L0001049 | 474285.286 | 3771250.914 | 309.00 |  |  |
| L0001050 | 474285.246 | 3771258.215 | 309.00 |  |  |
| L0001051 | 474285.205 | 3771265.516 | 309.00 |  |  |
| L0001052 | 474285.164 | 3771272.816 | 309.00 |  |  |
| L0001053 | 474285.124 | 3771280.117 | 309.00 |  |  |
| L0001054 | 474285.083 | 3771287.417 | 309.00 |  |  |
| L0001055 | 474285.043 | 3771294.718 | 309.00 |  |  |
| L0001056 | 474285.002 | 3771302.019 | 309.00 |  |  |
| L0001057 | 474284.962 | 3771309.319 | 309.00 |  |  |
| L0001058 | 474284.921 | 3771316.620 | 309.00 |  |  |
| L0001059 | 474284.880 | 3771323.921 | 309.00 |  |  |
| L0001060 | 474284.840 | 3771331.221 | 309.00 |  |  |
| L0001061 | 474284.799 | 3771338.522 | 309.00 |  |  |
| L0001062 | 474284.759 | 3771345.823 | 309.00 |  |  |
| L0001063 | 474284.718 | 3771353.123 | 309.00 |  |  |
| L0001064 | 474284.678 | 3771360.424 | 309.00 |  |  |
| L0001065 | 474284.637 | 3771367.725 | 309.00 |  |  |
| L0001066 | 474284.597 | 3771375.025 | 309.00 |  |  |
| L0001067 | 474284.556 | 3771382.326 | 309.00 |  |  |
| L0001068 | 474284.515 | 3771389.626 | 309.00 |  |  |
| L0001069 | 474284.475 | 3771396.927 | 309.00 |  |  |
| L0001070 | 474284.434 | 3771404.228 | 309.00 |  |  |
| L0001071 | 474284.394 | 3771411.528 | 309.00 |  |  |
| L0001072 | 474284.353 | 3771418.829 | 309.00 |  |  |
| L0001073 | 474284.313 | 3771426.130 | 309.00 |  |  |

\*\* End of LINE VOLUME Source ID = SLINE10

\*\* -----

\*\* Line Source Represented by Separated Volume Sources

\*\* LINE VOLUME Source ID = SLINE11

\*\* DESCRSRC offsite Waterman driveway SB toward I-10 fwy

\*\* PREFIX

\*\* Length of Side = 3.66

\*\* Configuration = Separated

\*\* Emission Rate = 0.0000181

\*\* Elevated

\*\* Vertical Dimension = 3.66

\*\* SZINIT = 0.85

\*\* Nodes = 2

\*\* 474283.609, 3770667.605, 307.10, 0.00, 3.39

\*\* 474281.303, 3769921.475, 305.49, 0.00, 3.39

\*\* -----

| LOCATION | VOLUME     |             |        |  |  |
|----------|------------|-------------|--------|--|--|
| L0001074 | 474283.603 | 3770665.776 | 307.13 |  |  |
| L0001075 | 474283.581 | 3770658.497 | 307.13 |  |  |
| L0001076 | 474283.558 | 3770651.218 | 307.10 |  |  |
| L0001077 | 474283.536 | 3770643.939 | 307.07 |  |  |
| L0001078 | 474283.513 | 3770636.660 | 307.04 |  |  |
| L0001079 | 474283.491 | 3770629.380 | 307.01 |  |  |
| L0001080 | 474283.468 | 3770622.101 | 307.00 |  |  |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001081 | VOLUME | 474283.446 | 3770614.822 | 307.00 |
| LOCATION | L0001082 | VOLUME | 474283.423 | 3770607.543 | 307.00 |
| LOCATION | L0001083 | VOLUME | 474283.401 | 3770600.264 | 307.00 |
| LOCATION | L0001084 | VOLUME | 474283.378 | 3770592.985 | 306.89 |
| LOCATION | L0001085 | VOLUME | 474283.356 | 3770585.706 | 306.64 |
| LOCATION | L0001086 | VOLUME | 474283.333 | 3770578.426 | 306.40 |
| LOCATION | L0001087 | VOLUME | 474283.311 | 3770571.147 | 306.16 |
| LOCATION | L0001088 | VOLUME | 474283.288 | 3770563.868 | 306.00 |
| LOCATION | L0001089 | VOLUME | 474283.266 | 3770556.589 | 306.00 |
| LOCATION | L0001090 | VOLUME | 474283.243 | 3770549.310 | 306.00 |
| LOCATION | L0001091 | VOLUME | 474283.221 | 3770542.031 | 306.00 |
| LOCATION | L0001092 | VOLUME | 474283.198 | 3770534.752 | 306.00 |
| LOCATION | L0001093 | VOLUME | 474283.176 | 3770527.472 | 306.00 |
| LOCATION | L0001094 | VOLUME | 474283.153 | 3770520.193 | 306.00 |
| LOCATION | L0001095 | VOLUME | 474283.131 | 3770512.914 | 306.00 |
| LOCATION | L0001096 | VOLUME | 474283.108 | 3770505.635 | 306.00 |
| LOCATION | L0001097 | VOLUME | 474283.086 | 3770498.356 | 306.00 |
| LOCATION | L0001098 | VOLUME | 474283.063 | 3770491.077 | 306.00 |
| LOCATION | L0001099 | VOLUME | 474283.041 | 3770483.798 | 306.00 |
| LOCATION | L0001100 | VOLUME | 474283.018 | 3770476.518 | 306.00 |
| LOCATION | L0001101 | VOLUME | 474282.996 | 3770469.239 | 306.00 |
| LOCATION | L0001102 | VOLUME | 474282.973 | 3770461.960 | 306.00 |
| LOCATION | L0001103 | VOLUME | 474282.951 | 3770454.681 | 306.00 |
| LOCATION | L0001104 | VOLUME | 474282.929 | 3770447.402 | 306.00 |
| LOCATION | L0001105 | VOLUME | 474282.906 | 3770440.123 | 306.00 |
| LOCATION | L0001106 | VOLUME | 474282.884 | 3770432.844 | 306.00 |
| LOCATION | L0001107 | VOLUME | 474282.861 | 3770425.564 | 306.00 |
| LOCATION | L0001108 | VOLUME | 474282.839 | 3770418.285 | 306.00 |
| LOCATION | L0001109 | VOLUME | 474282.816 | 3770411.006 | 306.00 |
| LOCATION | L0001110 | VOLUME | 474282.794 | 3770403.727 | 306.00 |
| LOCATION | L0001111 | VOLUME | 474282.771 | 3770396.448 | 306.00 |
| LOCATION | L0001112 | VOLUME | 474282.749 | 3770389.169 | 306.00 |
| LOCATION | L0001113 | VOLUME | 474282.726 | 3770381.890 | 306.00 |
| LOCATION | L0001114 | VOLUME | 474282.704 | 3770374.610 | 306.00 |
| LOCATION | L0001115 | VOLUME | 474282.681 | 3770367.331 | 306.00 |
| LOCATION | L0001116 | VOLUME | 474282.659 | 3770360.052 | 306.00 |
| LOCATION | L0001117 | VOLUME | 474282.636 | 3770352.773 | 306.00 |
| LOCATION | L0001118 | VOLUME | 474282.614 | 3770345.494 | 306.00 |
| LOCATION | L0001119 | VOLUME | 474282.591 | 3770338.215 | 306.00 |
| LOCATION | L0001120 | VOLUME | 474282.569 | 3770330.936 | 306.00 |
| LOCATION | L0001121 | VOLUME | 474282.546 | 3770323.656 | 305.92 |
| LOCATION | L0001122 | VOLUME | 474282.524 | 3770316.377 | 305.70 |
| LOCATION | L0001123 | VOLUME | 474282.501 | 3770309.098 | 305.48 |
| LOCATION | L0001124 | VOLUME | 474282.479 | 3770301.819 | 305.26 |
| LOCATION | L0001125 | VOLUME | 474282.456 | 3770294.540 | 305.08 |
| LOCATION | L0001126 | VOLUME | 474282.434 | 3770287.261 | 305.06 |
| LOCATION | L0001127 | VOLUME | 474282.411 | 3770279.982 | 305.04 |
| LOCATION | L0001128 | VOLUME | 474282.389 | 3770272.702 | 305.02 |
| LOCATION | L0001129 | VOLUME | 474282.366 | 3770265.423 | 305.00 |
| LOCATION | L0001130 | VOLUME | 474282.344 | 3770258.144 | 305.00 |
| LOCATION | L0001131 | VOLUME | 474282.321 | 3770250.865 | 305.00 |

|          |          |        |            |             |        |
|----------|----------|--------|------------|-------------|--------|
| LOCATION | L0001132 | VOLUME | 474282.299 | 3770243.586 | 305.00 |
| LOCATION | L0001133 | VOLUME | 474282.276 | 3770236.307 | 305.00 |
| LOCATION | L0001134 | VOLUME | 474282.254 | 3770229.027 | 305.00 |
| LOCATION | L0001135 | VOLUME | 474282.231 | 3770221.748 | 305.00 |
| LOCATION | L0001136 | VOLUME | 474282.209 | 3770214.469 | 305.00 |
| LOCATION | L0001137 | VOLUME | 474282.186 | 3770207.190 | 305.00 |
| LOCATION | L0001138 | VOLUME | 474282.164 | 3770199.911 | 305.00 |
| LOCATION | L0001139 | VOLUME | 474282.141 | 3770192.632 | 305.00 |
| LOCATION | L0001140 | VOLUME | 474282.119 | 3770185.353 | 305.00 |
| LOCATION | L0001141 | VOLUME | 474282.096 | 3770178.073 | 305.00 |
| LOCATION | L0001142 | VOLUME | 474282.074 | 3770170.794 | 305.00 |
| LOCATION | L0001143 | VOLUME | 474282.051 | 3770163.515 | 305.00 |
| LOCATION | L0001144 | VOLUME | 474282.029 | 3770156.236 | 305.00 |
| LOCATION | L0001145 | VOLUME | 474282.006 | 3770148.957 | 305.00 |
| LOCATION | L0001146 | VOLUME | 474281.984 | 3770141.678 | 305.00 |
| LOCATION | L0001147 | VOLUME | 474281.961 | 3770134.399 | 305.00 |
| LOCATION | L0001148 | VOLUME | 474281.939 | 3770127.119 | 305.00 |
| LOCATION | L0001149 | VOLUME | 474281.916 | 3770119.840 | 305.00 |
| LOCATION | L0001150 | VOLUME | 474281.894 | 3770112.561 | 305.00 |
| LOCATION | L0001151 | VOLUME | 474281.871 | 3770105.282 | 305.00 |
| LOCATION | L0001152 | VOLUME | 474281.849 | 3770098.003 | 305.00 |
| LOCATION | L0001153 | VOLUME | 474281.826 | 3770090.724 | 305.00 |
| LOCATION | L0001154 | VOLUME | 474281.804 | 3770083.445 | 305.00 |
| LOCATION | L0001155 | VOLUME | 474281.781 | 3770076.165 | 305.00 |
| LOCATION | L0001156 | VOLUME | 474281.759 | 3770068.886 | 305.00 |
| LOCATION | L0001157 | VOLUME | 474281.736 | 3770061.607 | 305.00 |
| LOCATION | L0001158 | VOLUME | 474281.714 | 3770054.328 | 305.00 |
| LOCATION | L0001159 | VOLUME | 474281.691 | 3770047.049 | 305.00 |
| LOCATION | L0001160 | VOLUME | 474281.669 | 3770039.770 | 305.00 |
| LOCATION | L0001161 | VOLUME | 474281.646 | 3770032.491 | 305.00 |
| LOCATION | L0001162 | VOLUME | 474281.624 | 3770025.211 | 305.00 |
| LOCATION | L0001163 | VOLUME | 474281.601 | 3770017.932 | 305.00 |
| LOCATION | L0001164 | VOLUME | 474281.579 | 3770010.653 | 305.00 |
| LOCATION | L0001165 | VOLUME | 474281.556 | 3770003.374 | 305.00 |
| LOCATION | L0001166 | VOLUME | 474281.534 | 3769996.095 | 305.00 |
| LOCATION | L0001167 | VOLUME | 474281.511 | 3769988.816 | 305.00 |
| LOCATION | L0001168 | VOLUME | 474281.489 | 3769981.537 | 305.00 |
| LOCATION | L0001169 | VOLUME | 474281.466 | 3769974.257 | 305.00 |
| LOCATION | L0001170 | VOLUME | 474281.444 | 3769966.978 | 305.00 |
| LOCATION | L0001171 | VOLUME | 474281.421 | 3769959.699 | 305.00 |
| LOCATION | L0001172 | VOLUME | 474281.399 | 3769952.420 | 305.00 |
| LOCATION | L0001173 | VOLUME | 474281.376 | 3769945.141 | 305.00 |
| LOCATION | L0001174 | VOLUME | 474281.354 | 3769937.862 | 305.00 |
| LOCATION | L0001175 | VOLUME | 474281.331 | 3769930.583 | 305.19 |
| LOCATION | L0001176 | VOLUME | 474281.309 | 3769923.303 | 305.44 |

\*\* End of LINE VOLUME Source ID = SLINE11

\*\* Source Parameters \*\*

|          |       |          |       |         |          |       |
|----------|-------|----------|-------|---------|----------|-------|
| SRCPARAM | STCK1 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK2 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK3 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK4 | 8.04E-06 | 3.658 | 366.000 | 51.81600 | 0.091 |

|          |                                |               |       |         |          |       |
|----------|--------------------------------|---------------|-------|---------|----------|-------|
| SRCPARAM | STCK5                          | 8.04E-06      | 3.658 | 366.000 | 51.81600 | 0.091 |
| SRCPARAM | STCK6                          | 8.04E-06      | 3.658 | 366.000 | 51.81600 | 0.091 |
| **       | LINE VOLUME Source ID = SLINE1 |               |       |         |          |       |
| SRCPARAM | L0000001                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000002                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000003                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000004                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000005                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000006                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000007                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000008                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000009                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000010                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000011                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000012                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000013                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000014                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000015                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000016                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000017                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000018                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000019                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000020                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000021                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000022                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000023                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000024                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000025                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000026                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000027                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000028                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000029                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000030                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| SRCPARAM | L0000031                       | 0.0000005516  | 0.00  | 3.37    | 6.10     |       |
| **       | -----                          |               |       |         |          |       |
| **       | LINE VOLUME Source ID = SLINE2 |               |       |         |          |       |
| SRCPARAM | L0001177                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001178                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001179                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001180                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001181                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001182                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001183                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001184                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| SRCPARAM | L0001185                       | 0.00000006944 | 0.00  | 3.39    | 6.10     |       |
| **       | -----                          |               |       |         |          |       |
| **       | LINE VOLUME Source ID = SLINE3 |               |       |         |          |       |
| SRCPARAM | L0000041                       | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| SRCPARAM | L0000042                       | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| SRCPARAM | L0000043                       | 0.0000001187  | 0.00  | 2.03    | 0.85     |       |
| **       | -----                          |               |       |         |          |       |



|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000094 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000095 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000096 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000097 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000098 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000099 | 0.0000005561 | 0.00 | 3.36 | 6.10 |
| SRCPARAM | L0000100 | 0.0000005561 | 0.00 | 3.36 | 6.10 |

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\*\* LINE VOLUME Source ID = SLINE5

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000696 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000697 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000698 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000699 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000700 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000701 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000702 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000703 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000704 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000705 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000706 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000707 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000708 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000709 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000710 | 0.0000002044 | 0.00 | 3.23 | 0.85 |
| SRCPARAM | L0000711 | 0.0000002044 | 0.00 | 3.23 | 0.85 |

\*\* -----

\*\* LINE VOLUME Source ID = SLINE6

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000712 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000713 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000714 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000715 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000716 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000717 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000718 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000719 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000720 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000721 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000722 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000723 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000724 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000725 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000726 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000727 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000728 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000729 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000730 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000731 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000732 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000733 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000734 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000735 | 0.00000005657 | 0.00 | 3.38 | 0.85 |

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000736 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000737 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000738 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000739 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000740 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000741 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000742 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000743 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000744 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000745 | 0.00000005657 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000746 | 0.00000005657 | 0.00 | 3.38 | 0.85 |

\*\*

\*\* LINE VOLUME Source ID = SLINE7

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000747 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000748 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000749 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000750 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000751 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000752 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000753 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000754 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000755 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000756 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000757 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000758 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000759 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000760 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000761 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000762 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000763 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000764 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000765 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000766 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000767 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000768 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000769 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000770 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000771 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000772 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000773 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000774 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000775 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000776 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000777 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000778 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000779 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000780 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000781 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000782 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000783 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000784 | 0.0000002625 | 0.00 | 3.39 | 0.85 |

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000785 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000786 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000787 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000788 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000789 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000790 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000791 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000792 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000793 | 0.0000002625 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0000794 | 0.0000002625 | 0.00 | 3.39 | 0.85 |

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\*\* LINE VOLUME Source ID = SLINE8

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0000795 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000796 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000797 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000798 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000799 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000800 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000801 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000802 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000803 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000804 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000805 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000806 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000807 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000808 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000809 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000810 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000811 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000812 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000813 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000814 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000815 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000816 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000817 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000818 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000819 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000820 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000821 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000822 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000823 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000824 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000825 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000826 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000827 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000828 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000829 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000830 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000831 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000832 | 0.0000001755 | 0.00 | 3.38 | 0.85 |
| SRCPARAM | L0000833 | 0.0000001755 | 0.00 | 3.38 | 0.85 |







|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0000985 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000986 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000987 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000988 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000989 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000990 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000991 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000992 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000993 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000994 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000995 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000996 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000997 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000998 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0000999 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001000 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001001 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001002 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001003 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001004 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001005 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001006 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001007 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001008 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001009 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001010 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001011 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001012 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001013 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001014 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001015 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001016 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001017 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001018 | 0.00000004372 | 0.00 | 3.37 | 0.85 |
| SRCPARAM | L0001019 | 0.00000004372 | 0.00 | 3.37 | 0.85 |

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\*\* LINE VOLUME Source ID = SLINE10

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0001020 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001021 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001022 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001023 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001024 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001025 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001026 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001027 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001028 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001029 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001030 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001031 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001032 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001033 | 0.00000004389 | 0.00 | 3.40 | 0.85 |

|          |          |               |      |      |      |
|----------|----------|---------------|------|------|------|
| SRCPARAM | L0001034 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001035 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001036 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001037 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001038 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001039 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001040 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001041 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001042 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001043 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001044 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001045 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001046 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001047 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001048 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001049 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001050 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001051 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001052 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001053 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001054 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001055 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001056 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001057 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001058 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001059 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001060 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001061 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001062 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001063 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001064 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001065 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001066 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001067 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001068 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001069 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001070 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001071 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001072 | 0.00000004389 | 0.00 | 3.40 | 0.85 |
| SRCPARAM | L0001073 | 0.00000004389 | 0.00 | 3.40 | 0.85 |

\*\*

\*\* LINE VOLUME Source ID = SLINE11

|          |          |              |      |      |      |
|----------|----------|--------------|------|------|------|
| SRCPARAM | L0001074 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001075 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001076 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001077 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001078 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001079 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001080 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001081 | 0.0000001757 | 0.00 | 3.39 | 0.85 |
| SRCPARAM | L0001082 | 0.0000001757 | 0.00 | 3.39 | 0.85 |









|           |       |         |         |         |         |         |         |
|-----------|-------|---------|---------|---------|---------|---------|---------|
| BUILDLLEN | STCK4 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK4 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK4 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK4 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK5 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK5 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK5 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK5 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK5 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK5 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK6 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK6 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK6 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| BUILDLLEN | STCK6 | 226.89  | 275.43  | 315.60  | 346.18  | 366.25  | 375.19  |
| BUILDLLEN | STCK6 | 372.72  | 358.93  | 334.60  | 359.00  | 372.85  | 375.37  |
| BUILDLLEN | STCK6 | 366.48  | 346.46  | 315.91  | 275.77  | 227.24  | 172.17  |
| XBADJ     | STCK1 | -188.45 | -210.96 | -227.06 | -236.26 | -238.28 | -233.06 |
| XBADJ     | STCK1 | -220.76 | -201.75 | -176.97 | -176.36 | -170.38 | -159.24 |
| XBADJ     | STCK1 | -143.25 | -122.91 | -98.83  | -71.76  | -42.50  | -11.95  |
| XBADJ     | STCK1 | -38.43  | -64.47  | -88.54  | -109.93 | -127.97 | -142.13 |
| XBADJ     | STCK1 | -151.96 | -157.19 | -157.63 | -182.64 | -202.46 | -216.13 |
| XBADJ     | STCK1 | -223.23 | -223.55 | -217.08 | -204.01 | -184.74 | -160.22 |
| XBADJ     | STCK2 | -173.26 | -179.63 | -180.55 | -175.98 | -166.06 | -151.10 |
| XBADJ     | STCK2 | -131.54 | -107.99 | -81.52  | -82.11  | -80.21  | -75.87  |
| XBADJ     | STCK2 | -69.23  | -60.48  | -49.90  | -37.80  | -24.55  | -10.55  |
| XBADJ     | STCK2 | -53.63  | -95.80  | -135.05 | -170.21 | -200.19 | -224.09 |
| XBADJ     | STCK2 | -241.18 | -250.94 | -253.08 | -276.88 | -292.63 | -299.49 |
| XBADJ     | STCK2 | -297.25 | -285.98 | -266.02 | -237.97 | -202.69 | -161.62 |
| XBADJ     | STCK3 | -202.03 | -237.19 | -265.13 | -285.03 | -296.26 | -298.49 |
| XBADJ     | STCK3 | -291.65 | -275.95 | -252.22 | -250.37 | -240.92 | -224.14 |
| XBADJ     | STCK3 | -200.56 | -170.88 | -136.01 | -97.00  | -55.05  | -11.43  |
| XBADJ     | STCK3 | -24.85  | -38.24  | -50.47  | -61.16  | -69.99  | -76.70  |
| XBADJ     | STCK3 | -81.07  | -82.99  | -82.38  | -108.62 | -131.93 | -151.22 |
| XBADJ     | STCK3 | -165.92 | -175.58 | -179.90 | -178.76 | -172.19 | -160.74 |
| XBADJ     | STCK4 | -41.75  | -70.16  | -96.44  | -119.79 | -139.50 | -154.97 |
| XBADJ     | STCK4 | -165.73 | -171.45 | -172.33 | -197.51 | -216.69 | -229.29 |
| XBADJ     | STCK4 | -234.92 | -233.42 | -224.82 | -209.39 | -187.59 | -160.10 |
| XBADJ     | STCK4 | -185.14 | -205.27 | -219.16 | -226.40 | -226.75 | -220.22 |
| XBADJ     | STCK4 | -207.00 | -187.48 | -162.27 | -161.48 | -156.15 | -146.07 |
| XBADJ     | STCK4 | -131.56 | -113.04 | -91.10  | -66.38  | -39.65  | -12.07  |
| XBADJ     | STCK5 | -25.06  | -37.80  | -49.40  | -59.50  | -67.79  | -74.02  |
| XBADJ     | STCK5 | -78.00  | -79.61  | -79.16  | -105.85 | -129.32 | -148.86 |
| XBADJ     | STCK5 | -163.88 | -173.93 | -178.68 | -178.01 | -171.93 | -160.62 |
| XBADJ     | STCK5 | -201.83 | -237.62 | -266.20 | -286.68 | -298.46 | -301.17 |

|       |       |         |         |         |         |         |         |
|-------|-------|---------|---------|---------|---------|---------|---------|
| XBADJ | STCK5 | -294.72 | -279.33 | -255.44 | -253.15 | -243.52 | -226.50 |
| XBADJ | STCK5 | -202.60 | -172.53 | -137.23 | -97.76  | -55.31  | -11.55  |
| XBADJ | STCK6 | -54.99  | -96.76  | -135.58 | -170.29 | -199.82 | -223.29 |
| XBADJ | STCK6 | -239.96 | -249.35 | -251.52 | -275.59 | -291.29 | -298.13 |
| XBADJ | STCK6 | -295.92 | -284.72 | -264.86 | -236.96 | -201.86 | -160.62 |
| XBADJ | STCK6 | -171.90 | -178.67 | -180.02 | -175.89 | -166.42 | -151.90 |
| XBADJ | STCK6 | -132.76 | -109.58 | -83.08  | -83.41  | -81.56  | -77.23  |
| XBADJ | STCK6 | -70.56  | -61.74  | -51.05  | -38.81  | -25.38  | -11.55  |
| YBADJ | STCK1 | -3.14   | -16.04  | -28.45  | -39.99  | -50.32  | -59.12  |
| YBADJ | STCK1 | -66.13  | -71.12  | -74.14  | -75.01  | -73.25  | -69.26  |
| YBADJ | STCK1 | -63.17  | -55.15  | -45.47  | -34.40  | -22.28  | -9.67   |
| YBADJ | STCK1 | 3.14    | 16.04   | 28.45   | 39.99   | 50.32   | 59.12   |
| YBADJ | STCK1 | 66.13   | 71.12   | 74.14   | 75.01   | 73.25   | 69.26   |
| YBADJ | STCK1 | 63.17   | 55.15   | 45.47   | 34.40   | 22.28   | 9.67    |
| YBADJ | STCK2 | -97.38  | -106.21 | -111.81 | -114.01 | -112.75 | -108.06 |
| YBADJ | STCK2 | -100.09 | -89.07  | -75.54  | -59.82  | -41.92  | -22.75  |
| YBADJ | STCK2 | -2.88   | 17.06   | 36.50   | 54.82   | 71.48   | 85.78   |
| YBADJ | STCK2 | 97.38   | 106.21  | 111.81  | 114.01  | 112.75  | 108.06  |
| YBADJ | STCK2 | 100.09  | 89.07   | 75.54   | 59.82   | 41.92   | 22.75   |
| YBADJ | STCK2 | 2.88    | -17.06  | -36.50  | -54.82  | -71.48  | -85.78  |
| YBADJ | STCK3 | 70.87   | 54.50   | 36.46   | 17.32   | -2.35   | -21.95  |
| YBADJ | STCK3 | -40.88  | -58.57  | -74.66  | -88.59  | -99.47  | -107.33 |
| YBADJ | STCK3 | -111.93 | -113.13 | -110.89 | -105.29 | -96.48  | -84.92  |
| YBADJ | STCK3 | -70.87  | -54.50  | -36.46  | -17.32  | 2.35    | 21.95   |
| YBADJ | STCK3 | 40.88   | 58.57   | 74.66   | 88.59   | 99.47   | 107.33  |
| YBADJ | STCK3 | 111.93  | 113.13  | 110.89  | 105.29  | 96.48   | 84.92   |
| YBADJ | STCK4 | 18.01   | 30.27   | 41.61   | 51.68   | 60.19   | 66.86   |
| YBADJ | STCK4 | 71.50   | 73.97   | 74.01   | 71.69   | 67.55   | 61.36   |
| YBADJ | STCK4 | 53.31   | 43.63   | 32.63   | 20.63   | 8.01    | -5.03   |
| YBADJ | STCK4 | -18.01  | -30.27  | -41.61  | -51.68  | -60.19  | -66.86  |
| YBADJ | STCK4 | -71.50  | -73.97  | -74.01  | -71.69  | -67.55  | -61.36  |
| YBADJ | STCK4 | -53.31  | -43.63  | -32.63  | -20.63  | -8.01   | 5.03    |
| YBADJ | STCK5 | -73.65  | -57.10  | -38.82  | -19.36  | 0.70    | 20.73   |
| YBADJ | STCK5 | 40.13   | 58.31   | 74.53   | 88.38   | 99.91   | 108.40  |
| YBADJ | STCK5 | 113.59  | 115.34  | 113.57  | 108.36  | 99.86   | 88.14   |
| YBADJ | STCK5 | 73.65   | 57.10   | 38.82   | 19.36   | -0.70   | -20.73  |
| YBADJ | STCK5 | -40.13  | -58.31  | -74.53  | -88.38  | -99.91  | -108.40 |
| YBADJ | STCK5 | -113.59 | -115.34 | -113.57 | -108.36 | -99.86  | -88.14  |
| YBADJ | STCK6 | 96.09   | 104.86  | 110.45  | 112.68  | 111.49  | 106.91  |
| YBADJ | STCK6 | 99.08   | 88.24   | 74.53   | 58.45   | 40.96   | 22.22   |
| YBADJ | STCK6 | 2.80    | -16.70  | -35.69  | -53.60  | -69.88  | -84.22  |
| YBADJ | STCK6 | -96.09  | -104.86 | -110.45 | -112.68 | -111.49 | -106.91 |
| YBADJ | STCK6 | -99.08  | -88.24  | -74.53  | -58.45  | -40.96  | -22.22  |
| YBADJ | STCK6 | -2.80   | 16.70   | 35.69   | 53.60   | 69.88   | 84.22   |

```

URBANSRC ALL
SRCGROUP ALL
SO FINISHED
**
*****
** AERMOD Receptor Pathway
*****
**
**
RE STARTING
  INCLUDED "5629b Waterman.rou"
RE FINISHED
**
*****
** AERMOD Meteorology Pathway
*****
**
**
ME STARTING
  SURFFILE "C:\Users\Kate Wilson\Desktop\Met data\snbo8.sfc"
  PROFFILE "C:\Users\Kate Wilson\Desktop\Met data\snbo8.PFL"
  SURFDATA 0 2007
  UAIRDATA 3190 2007
  SITEDATA 99999 2007
  PROFBASE 305.0 METERS
ME FINISHED
**
*****
** AERMOD Output Pathway
*****
**
**
OU STARTING
** Auto-Generated Plotfiles
  PLOTFILE ANNUAL ALL "5629b Waterman.AD\AN00GALL.PLT" 31
  SUMMFILE "5629b Waterman.sum"
OU FINISHED

```

\*\*\* Message Summary For AERMOD Model Setup \*\*\*

----- Summary of Total Messages -----

```

A Total of          0 Fatal Error Message(s)
A Total of          6 Warning Message(s)
A Total of          0 Informational Message(s)

```

```

***** FATAL ERROR MESSAGES *****
*** NONE ***

```

```

***** WARNING MESSAGES *****
SO W320      812      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      813      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      814      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      815      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      816      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS
SO W320      817      PPARM: Input Parameter May Be Out-of-Range for Parameter      VS

```

```

*****
*** SETUP Finishes Successfully ***
*****

```

```

*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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```

```

**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL      URBAN

```

```

***      MODEL SETUP OPTIONS SUMMARY      ***

```

```

-- -- -- -- --
**Model Is Setup For Calculation of Average CONCentration Values.

```

```

-- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT = F
**Model Uses NO WET DEPLETION.  WETDPLT = F

```

```

**Model Uses URBAN Dispersion Algorithm for the SBL for 587 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 219288.0 ; Urban Roughness Length = 1.000 m

```

```

**Model Allows User-Specified Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

```

```

**Other Options Specified:
FASTALL - Use effective sigma-y to optimize meander for
          POINT and VOLUME sources, and hybrid approach
          to optimize AREA sources (formerly TOXICS option)
TEMP_Sub - Meteorological data includes TEMP substitutions

```

```

**Model Assumes No FLAGPOLE Receptor Heights.

```

\*\*The User Specified a Pollutant Type of: DPM

\*\*Model Calculates ANNUAL Averages Only

\*\*This Run Includes: 587 Source(s); 1 Source Group(s); and 457 Receptor(s)

with: 6 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 581 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 OPENPIT source(s)

\*\*Model Set To Continue RUNNING After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 14134

\*\*Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)  
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 305.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 4.6 MB of RAM.

\*\*Detailed Error/Message File: 5629b Waterman.err  
\*\*File for Summary of Results: 5629b Waterman.sum

\*\*\* AERMOD - VERSION 15181 \*\*\* \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc \*\*\* 09/21/15  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* POINT SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | STACK HEIGHT (METERS) | STACK TEMP. (DEG.K) | STACK EXIT VEL. (M/SEC) | STACK DIAMETER (METERS) | BLDG EXISTS | URBAN SOURCE | CAP/ HOR | EMIS RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-----------------------|---------------------|-------------------------|-------------------------|-------------|--------------|----------|--------------------------|
| STCK1     | 0                  | 0.80400E-05               | 474076.8   | 3770734.9  | 307.0               | 3.66                  | 366.00              | 51.82                   | 0.09                    | YES         | YES          | NO       |                          |
| STCK2     | 0                  | 0.80400E-05               | 473981.4   | 3770736.3  | 306.0               | 3.66                  | 366.00              | 51.82                   | 0.09                    | YES         | YES          | NO       |                          |

|       |   |             |          |           |       |      |        |       |      |     |     |    |
|-------|---|-------------|----------|-----------|-------|------|--------|-------|------|-----|-----|----|
| STCK3 | 0 | 0.80400E-05 | 474152.1 | 3770735.4 | 307.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK4 | 0 | 0.80400E-05 | 474072.2 | 3770586.7 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK5 | 0 | 0.80400E-05 | 473979.0 | 3770586.2 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |
| STCK6 | 0 | 0.80400E-05 | 474151.4 | 3770586.2 | 306.0 | 3.66 | 366.00 | 51.82 | 0.09 | YES | YES | NO |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000001  | 0                  | 0.55160E-06               | 473951.9   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000002  | 0                  | 0.55160E-06               | 473959.1   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000003  | 0                  | 0.55160E-06               | 473966.4   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000004  | 0                  | 0.55160E-06               | 473973.6   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000005  | 0                  | 0.55160E-06               | 473980.9   | 3770763.2  | 306.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000006  | 0                  | 0.55160E-06               | 473988.1   | 3770763.2  | 306.2               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000007  | 0                  | 0.55160E-06               | 473995.4   | 3770763.2  | 306.3               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000008  | 0                  | 0.55160E-06               | 474002.6   | 3770763.2  | 306.4               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000009  | 0                  | 0.55160E-06               | 474009.8   | 3770763.2  | 306.6               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000010  | 0                  | 0.55160E-06               | 474017.1   | 3770763.2  | 306.7               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000011  | 0                  | 0.55160E-06               | 474024.3   | 3770763.2  | 306.8               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000012  | 0                  | 0.55160E-06               | 474031.6   | 3770763.2  | 306.9               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000013  | 0                  | 0.55160E-06               | 474038.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000014  | 0                  | 0.55160E-06               | 474046.1   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000015  | 0                  | 0.55160E-06               | 474053.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000016  | 0                  | 0.55160E-06               | 474060.6   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000017  | 0                  | 0.55160E-06               | 474067.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000018  | 0                  | 0.55160E-06               | 474075.1   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000019  | 0                  | 0.55160E-06               | 474082.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000020  | 0                  | 0.55160E-06               | 474089.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000021  | 0                  | 0.55160E-06               | 474096.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000022  | 0                  | 0.55160E-06               | 474104.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000023  | 0                  | 0.55160E-06               | 474111.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000024  | 0                  | 0.55160E-06               | 474118.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000025  | 0                  | 0.55160E-06               | 474125.8   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000026  | 0                  | 0.55160E-06               | 474133.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000027  | 0                  | 0.55160E-06               | 474140.3   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000028  | 0                  | 0.55160E-06               | 474147.5   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000029  | 0                  | 0.55160E-06               | 474154.7   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000030  | 0                  | 0.55160E-06               | 474162.0   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0000031  | 0                  | 0.55160E-06               | 474169.2   | 3770763.2  | 307.0               | 0.00                    | 3.37              | 6.10              | YES          |                              |
| L0001177  | 0                  | 0.69440E-07               | 473896.5   | 3770788.6  | 306.0               | 0.00                    | 3.39              | 6.10              | YES          |                              |
| L0001178  | 0                  | 0.69440E-07               | 473896.9   | 3770781.3  | 306.0               | 0.00                    | 3.39              | 6.10              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0001179 | 0 | 0.69440E-07 | 473897.3 | 3770774.1 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001180 | 0 | 0.69440E-07 | 473900.6 | 3770767.8 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001181 | 0 | 0.69440E-07 | 473905.9 | 3770764.0 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001182 | 0 | 0.69440E-07 | 473913.1 | 3770763.8 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001183 | 0 | 0.69440E-07 | 473920.4 | 3770763.7 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001184 | 0 | 0.69440E-07 | 473927.7 | 3770763.5 | 306.0 | 0.00 | 3.39 | 6.10 | YES |
| L0001185 | 0 | 0.69440E-07 | 473935.0 | 3770763.4 | 306.0 | 0.00 | 3.39 | 6.10 | YES |

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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000041  | 0                  | 0.11870E-06               | 474160.3   | 3770786.6  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000042  | 0                  | 0.11870E-06               | 474160.4   | 3770782.2  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000043  | 0                  | 0.11870E-06               | 474160.5   | 3770777.8  | 307.0               | 0.00                    | 2.03              | 0.85              | YES          |                              |
| L0000044  | 0                  | 0.55610E-06               | 473955.7   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000045  | 0                  | 0.55610E-06               | 473962.9   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000046  | 0                  | 0.55610E-06               | 473970.1   | 3770559.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000047  | 0                  | 0.55610E-06               | 473977.4   | 3770559.2  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000048  | 0                  | 0.55610E-06               | 473984.6   | 3770559.2  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000049  | 0                  | 0.55610E-06               | 473991.8   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000050  | 0                  | 0.55610E-06               | 473999.0   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000051  | 0                  | 0.55610E-06               | 474006.3   | 3770559.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000052  | 0                  | 0.55610E-06               | 474013.5   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000053  | 0                  | 0.55610E-06               | 474020.7   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000054  | 0                  | 0.55610E-06               | 474028.0   | 3770559.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000055  | 0                  | 0.55610E-06               | 474035.2   | 3770558.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000056  | 0                  | 0.55610E-06               | 474042.4   | 3770558.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000057  | 0                  | 0.55610E-06               | 474049.6   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000058  | 0                  | 0.55610E-06               | 474056.9   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000059  | 0                  | 0.55610E-06               | 474064.1   | 3770558.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000060  | 0                  | 0.55610E-06               | 474071.3   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000061  | 0                  | 0.55610E-06               | 474078.5   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000062  | 0                  | 0.55610E-06               | 474085.8   | 3770558.7  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000063  | 0                  | 0.55610E-06               | 474093.0   | 3770558.6  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000064  | 0                  | 0.55610E-06               | 474100.2   | 3770558.6  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000065  | 0                  | 0.55610E-06               | 474107.5   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000066  | 0                  | 0.55610E-06               | 474114.7   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000067  | 0                  | 0.55610E-06               | 474121.9   | 3770558.5  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000068  | 0                  | 0.55610E-06               | 474129.1   | 3770558.4  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000069  | 0                  | 0.55610E-06               | 474136.4   | 3770558.4  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |
| L0000070  | 0                  | 0.55610E-06               | 474143.6   | 3770558.3  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000071 | 0 | 0.55610E-06 | 474150.8 | 3770558.3 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000072 | 0 | 0.55610E-06 | 474158.1 | 3770558.3 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000073 | 0 | 0.55610E-06 | 474165.3 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000074 | 0 | 0.55610E-06 | 474172.5 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000075 | 0 | 0.55610E-06 | 474179.7 | 3770558.2 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000076 | 0 | 0.55610E-06 | 474187.0 | 3770558.1 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000077 | 0 | 0.55610E-06 | 474194.2 | 3770558.1 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000078 | 0 | 0.55610E-06 | 474201.4 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000079 | 0 | 0.55610E-06 | 474208.7 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |
| L0000080 | 0 | 0.55610E-06 | 474215.9 | 3770558.0 | 306.0 | 0.00 | 3.36 | 6.10 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE |         |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|---------------|---------|
|           |                    |                           |            |            |                     |                         |                   |                   |              | SCALAR        | VARY BY |
| L0000081  | 0                  | 0.55610E-06               | 474223.1   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000082  | 0                  | 0.55610E-06               | 474230.3   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000083  | 0                  | 0.55610E-06               | 474237.6   | 3770557.9  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000084  | 0                  | 0.55610E-06               | 474242.6   | 3770562.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000085  | 0                  | 0.55610E-06               | 474247.5   | 3770568.1  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000086  | 0                  | 0.55610E-06               | 474251.5   | 3770573.8  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000087  | 0                  | 0.55610E-06               | 474251.7   | 3770581.0  | 306.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000088  | 0                  | 0.55610E-06               | 474251.8   | 3770588.2  | 306.1               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000089  | 0                  | 0.55610E-06               | 474252.0   | 3770595.5  | 306.1               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000090  | 0                  | 0.55610E-06               | 474252.1   | 3770602.7  | 306.3               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000091  | 0                  | 0.55610E-06               | 474252.3   | 3770609.9  | 306.5               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000092  | 0                  | 0.55610E-06               | 474252.4   | 3770617.2  | 306.7               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000093  | 0                  | 0.55610E-06               | 474252.6   | 3770624.4  | 306.9               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000094  | 0                  | 0.55610E-06               | 474252.7   | 3770631.6  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000095  | 0                  | 0.55610E-06               | 474252.9   | 3770638.8  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000096  | 0                  | 0.55610E-06               | 474253.0   | 3770646.1  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000097  | 0                  | 0.55610E-06               | 474253.1   | 3770653.3  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000098  | 0                  | 0.55610E-06               | 474253.3   | 3770660.5  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000099  | 0                  | 0.55610E-06               | 474255.5   | 3770666.6  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000100  | 0                  | 0.55610E-06               | 474261.6   | 3770670.5  | 307.0               | 0.00                    | 3.36              | 6.10              | YES          |               |         |
| L0000696  | 0                  | 0.20440E-06               | 474163.3   | 3770799.0  | 307.1               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000697  | 0                  | 0.20440E-06               | 474170.3   | 3770799.1  | 307.3               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000698  | 0                  | 0.20440E-06               | 474177.2   | 3770799.2  | 307.4               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000699  | 0                  | 0.20440E-06               | 474184.1   | 3770799.2  | 307.6               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000700  | 0                  | 0.20440E-06               | 474191.1   | 3770799.3  | 307.8               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000701  | 0                  | 0.20440E-06               | 474198.0   | 3770799.4  | 307.8               | 0.00                    | 3.23              | 0.85              | YES          |               |         |
| L0000702  | 0                  | 0.20440E-06               | 474205.0   | 3770799.4  | 307.9               | 0.00                    | 3.23              | 0.85              | YES          |               |         |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000703 | 0 | 0.20440E-06 | 474211.9 | 3770799.5 | 307.9 | 0.00 | 3.23 | 0.85 | YES |
| L0000704 | 0 | 0.20440E-06 | 474218.8 | 3770799.5 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000705 | 0 | 0.20440E-06 | 474225.8 | 3770799.6 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000706 | 0 | 0.20440E-06 | 474232.7 | 3770799.7 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000707 | 0 | 0.20440E-06 | 474239.7 | 3770799.7 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000708 | 0 | 0.20440E-06 | 474246.6 | 3770799.8 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000709 | 0 | 0.20440E-06 | 474253.5 | 3770799.8 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000710 | 0 | 0.20440E-06 | 474260.5 | 3770799.9 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000711 | 0 | 0.20440E-06 | 474267.4 | 3770800.0 | 308.0 | 0.00 | 3.23 | 0.85 | YES |
| L0000712 | 0 | 0.56570E-07 | 473899.5 | 3770798.0 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000713 | 0 | 0.56570E-07 | 473906.8 | 3770798.0 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000714 | 0 | 0.56570E-07 | 473914.1 | 3770798.1 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000715 | 0 | 0.56570E-07 | 473921.3 | 3770798.1 | 306.0 | 0.00 | 3.38 | 0.85 | YES |

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 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000716  | 0                  | 0.56570E-07               | 473928.6   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000717  | 0                  | 0.56570E-07               | 473935.9   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000718  | 0                  | 0.56570E-07               | 473943.1   | 3770798.2  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000719  | 0                  | 0.56570E-07               | 473950.4   | 3770798.3  | 306.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000720  | 0                  | 0.56570E-07               | 473957.7   | 3770798.3  | 306.2               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000721  | 0                  | 0.56570E-07               | 473964.9   | 3770798.4  | 306.4               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000722  | 0                  | 0.56570E-07               | 473972.2   | 3770798.4  | 306.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000723  | 0                  | 0.56570E-07               | 473979.5   | 3770798.4  | 306.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000724  | 0                  | 0.56570E-07               | 473986.7   | 3770798.5  | 306.8               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000725  | 0                  | 0.56570E-07               | 473994.0   | 3770798.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000726  | 0                  | 0.56570E-07               | 474001.3   | 3770798.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000727  | 0                  | 0.56570E-07               | 474008.5   | 3770798.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000728  | 0                  | 0.56570E-07               | 474015.8   | 3770798.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000729  | 0                  | 0.56570E-07               | 474023.1   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000730  | 0                  | 0.56570E-07               | 474030.4   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000731  | 0                  | 0.56570E-07               | 474037.6   | 3770798.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000732  | 0                  | 0.56570E-07               | 474044.9   | 3770798.8  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000733  | 0                  | 0.56570E-07               | 474052.2   | 3770798.8  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000734  | 0                  | 0.56570E-07               | 474059.4   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000735  | 0                  | 0.56570E-07               | 474066.7   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000736  | 0                  | 0.56570E-07               | 474074.0   | 3770798.9  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000737  | 0                  | 0.56570E-07               | 474081.2   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000738  | 0                  | 0.56570E-07               | 474088.5   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000739  | 0                  | 0.56570E-07               | 474095.8   | 3770799.0  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000740 | 0 | 0.56570E-07 | 474103.0 | 3770799.1 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000741 | 0 | 0.56570E-07 | 474110.3 | 3770799.1 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000742 | 0 | 0.56570E-07 | 474117.6 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000743 | 0 | 0.56570E-07 | 474124.8 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000744 | 0 | 0.56570E-07 | 474132.1 | 3770799.2 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000745 | 0 | 0.56570E-07 | 474139.4 | 3770799.3 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000746 | 0 | 0.56570E-07 | 474146.6 | 3770799.3 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000747 | 0 | 0.26250E-06 | 474284.2 | 3770675.5 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000748 | 0 | 0.26250E-06 | 474284.2 | 3770682.8 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000749 | 0 | 0.26250E-06 | 474284.3 | 3770690.1 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000750 | 0 | 0.26250E-06 | 474284.3 | 3770697.3 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000751 | 0 | 0.26250E-06 | 474284.4 | 3770704.6 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000752 | 0 | 0.26250E-06 | 474284.4 | 3770711.9 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000753 | 0 | 0.26250E-06 | 474284.5 | 3770719.2 | 307.2 | 0.00 | 3.39 | 0.85 | YES |
| L0000754 | 0 | 0.26250E-06 | 474284.5 | 3770726.5 | 307.4 | 0.00 | 3.39 | 0.85 | YES |
| L0000755 | 0 | 0.26250E-06 | 474284.6 | 3770733.8 | 307.7 | 0.00 | 3.39 | 0.85 | YES |

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 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | PART. CATS. | NUMBER EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|-------------|----------------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000756  | 0           | 0.26250E-06                      | 474284.6   | 3770741.0  | 307.9               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000757  | 0           | 0.26250E-06                      | 474284.7   | 3770748.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000758  | 0           | 0.26250E-06                      | 474284.7   | 3770755.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000759  | 0           | 0.26250E-06                      | 474284.8   | 3770762.9  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000760  | 0           | 0.26250E-06                      | 474284.8   | 3770770.2  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000761  | 0           | 0.26250E-06                      | 474284.9   | 3770777.5  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000762  | 0           | 0.26250E-06                      | 474284.9   | 3770784.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000763  | 0           | 0.26250E-06                      | 474285.0   | 3770792.0  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000764  | 0           | 0.26250E-06                      | 474285.0   | 3770799.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000765  | 0           | 0.26250E-06                      | 474285.1   | 3770806.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000766  | 0           | 0.26250E-06                      | 474285.1   | 3770813.9  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000767  | 0           | 0.26250E-06                      | 474285.2   | 3770821.1  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000768  | 0           | 0.26250E-06                      | 474285.2   | 3770828.4  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000769  | 0           | 0.26250E-06                      | 474285.3   | 3770835.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000770  | 0           | 0.26250E-06                      | 474285.3   | 3770843.0  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000771  | 0           | 0.26250E-06                      | 474285.4   | 3770850.3  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000772  | 0           | 0.26250E-06                      | 474285.5   | 3770857.6  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000773  | 0           | 0.26250E-06                      | 474285.5   | 3770864.8  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000774  | 0           | 0.26250E-06                      | 474285.6   | 3770872.1  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000775  | 0           | 0.26250E-06                      | 474285.6   | 3770879.4  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0000776  | 0           | 0.26250E-06                      | 474285.7   | 3770886.7  | 308.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000777 | 0 | 0.26250E-06 | 474285.7 | 3770894.0 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000778 | 0 | 0.26250E-06 | 474285.8 | 3770901.2 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000779 | 0 | 0.26250E-06 | 474285.8 | 3770908.5 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000780 | 0 | 0.26250E-06 | 474285.9 | 3770915.8 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000781 | 0 | 0.26250E-06 | 474285.9 | 3770923.1 | 308.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000782 | 0 | 0.26250E-06 | 474286.0 | 3770930.4 | 308.1 | 0.00 | 3.39 | 0.85 | YES |
| L0000783 | 0 | 0.26250E-06 | 474286.0 | 3770937.7 | 308.4 | 0.00 | 3.39 | 0.85 | YES |
| L0000784 | 0 | 0.26250E-06 | 474286.1 | 3770944.9 | 308.6 | 0.00 | 3.39 | 0.85 | YES |
| L0000785 | 0 | 0.26250E-06 | 474286.1 | 3770952.2 | 308.9 | 0.00 | 3.39 | 0.85 | YES |
| L0000786 | 0 | 0.26250E-06 | 474286.2 | 3770959.5 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000787 | 0 | 0.26250E-06 | 474286.2 | 3770966.8 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000788 | 0 | 0.26250E-06 | 474286.3 | 3770974.1 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000789 | 0 | 0.26250E-06 | 474286.3 | 3770981.3 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000790 | 0 | 0.26250E-06 | 474286.4 | 3770988.6 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000791 | 0 | 0.26250E-06 | 474286.4 | 3770995.9 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000792 | 0 | 0.26250E-06 | 474286.5 | 3771003.2 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000793 | 0 | 0.26250E-06 | 474286.5 | 3771010.5 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000794 | 0 | 0.26250E-06 | 474286.6 | 3771017.8 | 309.0 | 0.00 | 3.39 | 0.85 | YES |
| L0000795 | 0 | 0.17550E-06 | 473273.0 | 3771027.2 | 302.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL        URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X Y      |           | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|----------|-----------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|           |                    |                           | (METERS) | (METERS)  |                     |                         |                   |                   |              |                              |
| L0000796  | 0                  | 0.17550E-06               | 473280.2 | 3771027.2 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000797  | 0                  | 0.17550E-06               | 473287.5 | 3771027.2 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000798  | 0                  | 0.17550E-06               | 473294.8 | 3771027.2 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000799  | 0                  | 0.17550E-06               | 473302.1 | 3771027.2 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000800  | 0                  | 0.17550E-06               | 473309.3 | 3771027.2 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000801  | 0                  | 0.17550E-06               | 473316.6 | 3771027.3 | 302.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000802  | 0                  | 0.17550E-06               | 473323.9 | 3771027.3 | 302.1               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000803  | 0                  | 0.17550E-06               | 473331.2 | 3771027.3 | 302.1               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000804  | 0                  | 0.17550E-06               | 473338.4 | 3771027.3 | 302.2               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000805  | 0                  | 0.17550E-06               | 473345.7 | 3771027.3 | 302.3               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000806  | 0                  | 0.17550E-06               | 473353.0 | 3771027.3 | 302.4               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000807  | 0                  | 0.17550E-06               | 473360.3 | 3771027.4 | 302.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000808  | 0                  | 0.17550E-06               | 473367.5 | 3771027.4 | 302.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000809  | 0                  | 0.17550E-06               | 473374.8 | 3771027.4 | 302.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000810  | 0                  | 0.17550E-06               | 473382.1 | 3771027.4 | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000811  | 0                  | 0.17550E-06               | 473389.4 | 3771027.4 | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000812  | 0                  | 0.17550E-06               | 473396.6 | 3771027.4 | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000813  | 0                  | 0.17550E-06               | 473403.9 | 3771027.5 | 303.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000814 | 0 | 0.17550E-06 | 473411.2 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000815 | 0 | 0.17550E-06 | 473418.5 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000816 | 0 | 0.17550E-06 | 473425.7 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000817 | 0 | 0.17550E-06 | 473433.0 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000818 | 0 | 0.17550E-06 | 473440.3 | 3771027.5 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000819 | 0 | 0.17550E-06 | 473447.5 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000820 | 0 | 0.17550E-06 | 473454.8 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000821 | 0 | 0.17550E-06 | 473462.1 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000822 | 0 | 0.17550E-06 | 473469.4 | 3771027.6 | 303.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000823 | 0 | 0.17550E-06 | 473476.6 | 3771027.6 | 303.1 | 0.00 | 3.38 | 0.85 | YES |
| L0000824 | 0 | 0.17550E-06 | 473483.9 | 3771027.6 | 303.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000825 | 0 | 0.17550E-06 | 473491.2 | 3771027.7 | 303.3 | 0.00 | 3.38 | 0.85 | YES |
| L0000826 | 0 | 0.17550E-06 | 473498.5 | 3771027.7 | 303.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000827 | 0 | 0.17550E-06 | 473505.7 | 3771027.7 | 303.5 | 0.00 | 3.38 | 0.85 | YES |
| L0000828 | 0 | 0.17550E-06 | 473513.0 | 3771027.7 | 303.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000829 | 0 | 0.17550E-06 | 473520.3 | 3771027.7 | 303.8 | 0.00 | 3.38 | 0.85 | YES |
| L0000830 | 0 | 0.17550E-06 | 473527.6 | 3771027.7 | 303.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000831 | 0 | 0.17550E-06 | 473534.8 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000832 | 0 | 0.17550E-06 | 473542.1 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000833 | 0 | 0.17550E-06 | 473549.4 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000834 | 0 | 0.17550E-06 | 473556.7 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000835 | 0 | 0.17550E-06 | 473563.9 | 3771027.8 | 304.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE           | RELEASE         | INIT.       | INIT.       | URBAN SOURCE | EMISSION RATE |         |
|-----------|--------------------|---------------------------|------------|------------|----------------|-----------------|-------------|-------------|--------------|---------------|---------|
|           |                    |                           |            |            | ELEV. (METERS) | HEIGHT (METERS) | SY (METERS) | SZ (METERS) |              | SCALAR        | VARY BY |
| L0000836  | 0                  | 0.17550E-06               | 473571.2   | 3771027.8  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000837  | 0                  | 0.17550E-06               | 473578.5   | 3771027.8  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000838  | 0                  | 0.17550E-06               | 473585.8   | 3771027.9  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000839  | 0                  | 0.17550E-06               | 473593.0   | 3771027.9  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000840  | 0                  | 0.17550E-06               | 473600.3   | 3771027.9  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000841  | 0                  | 0.17550E-06               | 473607.6   | 3771027.9  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000842  | 0                  | 0.17550E-06               | 473614.9   | 3771027.9  | 304.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000843  | 0                  | 0.17550E-06               | 473622.1   | 3771027.9  | 304.1          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000844  | 0                  | 0.17550E-06               | 473629.4   | 3771028.0  | 304.3          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000845  | 0                  | 0.17550E-06               | 473636.7   | 3771028.0  | 304.6          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000846  | 0                  | 0.17550E-06               | 473644.0   | 3771028.0  | 304.8          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000847  | 0                  | 0.17550E-06               | 473651.2   | 3771028.0  | 305.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000848  | 0                  | 0.17550E-06               | 473658.5   | 3771028.0  | 305.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000849  | 0                  | 0.17550E-06               | 473665.8   | 3771028.0  | 305.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |
| L0000850  | 0                  | 0.17550E-06               | 473673.1   | 3771028.1  | 305.0          | 0.00            | 3.38        | 0.85        | YES          |               |         |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000851 | 0 | 0.17550E-06 | 473680.3 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000852 | 0 | 0.17550E-06 | 473687.6 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000853 | 0 | 0.17550E-06 | 473694.9 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000854 | 0 | 0.17550E-06 | 473702.2 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000855 | 0 | 0.17550E-06 | 473709.4 | 3771028.1 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000856 | 0 | 0.17550E-06 | 473716.7 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000857 | 0 | 0.17550E-06 | 473724.0 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000858 | 0 | 0.17550E-06 | 473731.3 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000859 | 0 | 0.17550E-06 | 473738.5 | 3771028.2 | 305.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000860 | 0 | 0.17550E-06 | 473745.8 | 3771028.2 | 305.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000861 | 0 | 0.17550E-06 | 473753.1 | 3771028.2 | 305.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000862 | 0 | 0.17550E-06 | 473760.4 | 3771028.3 | 305.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000863 | 0 | 0.17550E-06 | 473767.6 | 3771028.3 | 305.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000864 | 0 | 0.17550E-06 | 473774.9 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000865 | 0 | 0.17550E-06 | 473782.2 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000866 | 0 | 0.17550E-06 | 473789.5 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000867 | 0 | 0.17550E-06 | 473796.7 | 3771028.3 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000868 | 0 | 0.17550E-06 | 473804.0 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000869 | 0 | 0.17550E-06 | 473811.3 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000870 | 0 | 0.17550E-06 | 473818.6 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000871 | 0 | 0.17550E-06 | 473825.8 | 3771028.4 | 306.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000872 | 0 | 0.17550E-06 | 473833.1 | 3771028.4 | 306.1 | 0.00 | 3.38 | 0.85 | YES |
| L0000873 | 0 | 0.17550E-06 | 473840.4 | 3771028.4 | 306.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000874 | 0 | 0.17550E-06 | 473847.7 | 3771028.5 | 306.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000875 | 0 | 0.17550E-06 | 473854.9 | 3771028.5 | 306.5 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

\*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000876  | 0                  | 0.17550E-06               | 473862.2   | 3771028.5  | 306.6               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000877  | 0                  | 0.17550E-06               | 473869.5   | 3771028.5  | 306.7               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000878  | 0                  | 0.17550E-06               | 473876.8   | 3771028.5  | 306.8               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000879  | 0                  | 0.17550E-06               | 473884.0   | 3771028.5  | 306.9               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000880  | 0                  | 0.17550E-06               | 473891.3   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000881  | 0                  | 0.17550E-06               | 473898.6   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000882  | 0                  | 0.17550E-06               | 473905.9   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000883  | 0                  | 0.17550E-06               | 473913.1   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000884  | 0                  | 0.17550E-06               | 473920.4   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000885  | 0                  | 0.17550E-06               | 473927.7   | 3771028.6  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000886  | 0                  | 0.17550E-06               | 473935.0   | 3771028.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000887  | 0                  | 0.17550E-06               | 473942.2   | 3771028.7  | 307.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000888 | 0 | 0.17550E-06 | 473949.5 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000889 | 0 | 0.17550E-06 | 473956.8 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000890 | 0 | 0.17550E-06 | 473964.1 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000891 | 0 | 0.17550E-06 | 473971.3 | 3771028.7 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000892 | 0 | 0.17550E-06 | 473978.6 | 3771028.8 | 307.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000893 | 0 | 0.17550E-06 | 473985.9 | 3771028.8 | 307.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000894 | 0 | 0.17550E-06 | 473993.2 | 3771028.8 | 307.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000895 | 0 | 0.17550E-06 | 474000.4 | 3771028.8 | 307.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000896 | 0 | 0.17550E-06 | 474007.7 | 3771028.8 | 307.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000897 | 0 | 0.17550E-06 | 474015.0 | 3771028.8 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000898 | 0 | 0.17550E-06 | 474022.2 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000899 | 0 | 0.17550E-06 | 474029.5 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000900 | 0 | 0.17550E-06 | 474036.8 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000901 | 0 | 0.17550E-06 | 474044.1 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000902 | 0 | 0.17550E-06 | 474051.3 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000903 | 0 | 0.17550E-06 | 474058.6 | 3771028.9 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000904 | 0 | 0.17550E-06 | 474065.9 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000905 | 0 | 0.17550E-06 | 474073.2 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000906 | 0 | 0.17550E-06 | 474080.4 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000907 | 0 | 0.17550E-06 | 474087.7 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000908 | 0 | 0.17550E-06 | 474095.0 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000909 | 0 | 0.17550E-06 | 474102.3 | 3771029.0 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000910 | 0 | 0.17550E-06 | 474109.5 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000911 | 0 | 0.17550E-06 | 474116.8 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000912 | 0 | 0.17550E-06 | 474124.1 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000913 | 0 | 0.17550E-06 | 474131.4 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000914 | 0 | 0.17550E-06 | 474138.6 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000915 | 0 | 0.17550E-06 | 474145.9 | 3771029.1 | 308.0 | 0.00 | 3.38 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

\*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X Y      |           | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|----------|-----------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|           |                    |                           | (METERS) | (METERS)  |                     |                         |                   |                   |              |                              |
| L0000916  | 0                  | 0.17550E-06               | 474153.2 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000917  | 0                  | 0.17550E-06               | 474160.5 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000918  | 0                  | 0.17550E-06               | 474167.7 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000919  | 0                  | 0.17550E-06               | 474175.0 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000920  | 0                  | 0.17550E-06               | 474182.3 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000921  | 0                  | 0.17550E-06               | 474189.6 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000922  | 0                  | 0.17550E-06               | 474196.8 | 3771029.2 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000923  | 0                  | 0.17550E-06               | 474204.1 | 3771029.3 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |
| L0000924  | 0                  | 0.17550E-06               | 474211.4 | 3771029.3 | 308.0               | 0.00                    | 3.38              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000925 | 0 | 0.17550E-06 | 474218.7 | 3771029.3 | 308.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000926 | 0 | 0.17550E-06 | 474225.9 | 3771029.3 | 308.2 | 0.00 | 3.38 | 0.85 | YES |
| L0000927 | 0 | 0.17550E-06 | 474233.2 | 3771029.3 | 308.4 | 0.00 | 3.38 | 0.85 | YES |
| L0000928 | 0 | 0.17550E-06 | 474240.5 | 3771029.3 | 308.7 | 0.00 | 3.38 | 0.85 | YES |
| L0000929 | 0 | 0.17550E-06 | 474247.8 | 3771029.4 | 308.9 | 0.00 | 3.38 | 0.85 | YES |
| L0000930 | 0 | 0.17550E-06 | 474255.0 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000931 | 0 | 0.17550E-06 | 474262.3 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000932 | 0 | 0.17550E-06 | 474269.6 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000933 | 0 | 0.17550E-06 | 474276.9 | 3771029.4 | 309.0 | 0.00 | 3.38 | 0.85 | YES |
| L0000934 | 0 | 0.43720E-07 | 474294.3 | 3771029.8 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000935 | 0 | 0.43720E-07 | 474301.5 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000936 | 0 | 0.43720E-07 | 474308.7 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000937 | 0 | 0.43720E-07 | 474316.0 | 3771029.7 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000938 | 0 | 0.43720E-07 | 474323.2 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000939 | 0 | 0.43720E-07 | 474330.5 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000940 | 0 | 0.43720E-07 | 474337.7 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000941 | 0 | 0.43720E-07 | 474345.0 | 3771029.6 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000942 | 0 | 0.43720E-07 | 474352.2 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000943 | 0 | 0.43720E-07 | 474359.5 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000944 | 0 | 0.43720E-07 | 474366.7 | 3771029.5 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000945 | 0 | 0.43720E-07 | 474373.9 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000946 | 0 | 0.43720E-07 | 474381.2 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000947 | 0 | 0.43720E-07 | 474388.4 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000948 | 0 | 0.43720E-07 | 474395.7 | 3771029.4 | 309.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000949 | 0 | 0.43720E-07 | 474402.9 | 3771029.3 | 309.1 | 0.00 | 3.37 | 0.85 | YES |
| L0000950 | 0 | 0.43720E-07 | 474410.2 | 3771029.3 | 309.4 | 0.00 | 3.37 | 0.85 | YES |
| L0000951 | 0 | 0.43720E-07 | 474417.4 | 3771029.3 | 309.6 | 0.00 | 3.37 | 0.85 | YES |
| L0000952 | 0 | 0.43720E-07 | 474424.7 | 3771029.2 | 309.8 | 0.00 | 3.37 | 0.85 | YES |
| L0000953 | 0 | 0.43720E-07 | 474431.9 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000954 | 0 | 0.43720E-07 | 474439.2 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000955 | 0 | 0.43720E-07 | 474446.4 | 3771029.2 | 310.0 | 0.00 | 3.37 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR | VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|----------------------|---------|
|           |                    |                           |            |            |                     |                         |                   |                   |              |                      |         |
| L0000956  | 0                  | 0.43720E-07               | 474453.6   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |
| L0000957  | 0                  | 0.43720E-07               | 474460.9   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |
| L0000958  | 0                  | 0.43720E-07               | 474468.1   | 3771029.1  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |
| L0000959  | 0                  | 0.43720E-07               | 474475.4   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |
| L0000960  | 0                  | 0.43720E-07               | 474482.6   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |
| L0000961  | 0                  | 0.43720E-07               | 474489.9   | 3771029.0  | 310.0               | 0.00                    | 3.37              | 0.85              | YES          |                      |         |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000962 | 0 | 0.43720E-07 | 474497.1 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000963 | 0 | 0.43720E-07 | 474504.4 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000964 | 0 | 0.43720E-07 | 474511.6 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000965 | 0 | 0.43720E-07 | 474518.8 | 3771028.9 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000966 | 0 | 0.43720E-07 | 474526.1 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000967 | 0 | 0.43720E-07 | 474533.3 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000968 | 0 | 0.43720E-07 | 474540.6 | 3771028.8 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000969 | 0 | 0.43720E-07 | 474547.8 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000970 | 0 | 0.43720E-07 | 474555.1 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000971 | 0 | 0.43720E-07 | 474562.3 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000972 | 0 | 0.43720E-07 | 474569.6 | 3771028.7 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000973 | 0 | 0.43720E-07 | 474576.8 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000974 | 0 | 0.43720E-07 | 474584.1 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000975 | 0 | 0.43720E-07 | 474591.3 | 3771028.6 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000976 | 0 | 0.43720E-07 | 474598.5 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000977 | 0 | 0.43720E-07 | 474605.8 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000978 | 0 | 0.43720E-07 | 474613.0 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000979 | 0 | 0.43720E-07 | 474620.3 | 3771028.5 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000980 | 0 | 0.43720E-07 | 474627.5 | 3771028.4 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000981 | 0 | 0.43720E-07 | 474634.8 | 3771028.4 | 310.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000982 | 0 | 0.43720E-07 | 474642.0 | 3771028.4 | 310.1 | 0.00 | 3.37 | 0.85 | YES |
| L0000983 | 0 | 0.43720E-07 | 474649.3 | 3771028.3 | 310.3 | 0.00 | 3.37 | 0.85 | YES |
| L0000984 | 0 | 0.43720E-07 | 474656.5 | 3771028.3 | 310.6 | 0.00 | 3.37 | 0.85 | YES |
| L0000985 | 0 | 0.43720E-07 | 474663.7 | 3771028.3 | 310.8 | 0.00 | 3.37 | 0.85 | YES |
| L0000986 | 0 | 0.43720E-07 | 474671.0 | 3771028.3 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000987 | 0 | 0.43720E-07 | 474678.2 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000988 | 0 | 0.43720E-07 | 474685.5 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000989 | 0 | 0.43720E-07 | 474692.7 | 3771028.2 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000990 | 0 | 0.43720E-07 | 474700.0 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000991 | 0 | 0.43720E-07 | 474707.2 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000992 | 0 | 0.43720E-07 | 474714.5 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000993 | 0 | 0.43720E-07 | 474721.7 | 3771028.1 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000994 | 0 | 0.43720E-07 | 474729.0 | 3771028.0 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0000995 | 0 | 0.43720E-07 | 474736.2 | 3771028.0 | 311.0 | 0.00 | 3.37 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0000996  | 0                  | 0.43720E-07               | 474743.4   | 3771028.0  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |
| L0000997  | 0                  | 0.43720E-07               | 474750.7   | 3771027.9  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |
| L0000998  | 0                  | 0.43720E-07               | 474757.9   | 3771027.9  | 311.0               | 0.00                    | 3.37              | 0.85              | YES          |                              |

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0000999 | 0 | 0.43720E-07 | 474765.2 | 3771027.9 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001000 | 0 | 0.43720E-07 | 474772.4 | 3771027.9 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001001 | 0 | 0.43720E-07 | 474779.7 | 3771027.8 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001002 | 0 | 0.43720E-07 | 474786.9 | 3771027.8 | 311.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001003 | 0 | 0.43720E-07 | 474794.2 | 3771027.8 | 311.2 | 0.00 | 3.37 | 0.85 | YES |
| L0001004 | 0 | 0.43720E-07 | 474801.4 | 3771027.7 | 311.4 | 0.00 | 3.37 | 0.85 | YES |
| L0001005 | 0 | 0.43720E-07 | 474808.6 | 3771027.7 | 311.6 | 0.00 | 3.37 | 0.85 | YES |
| L0001006 | 0 | 0.43720E-07 | 474815.9 | 3771027.7 | 311.9 | 0.00 | 3.37 | 0.85 | YES |
| L0001007 | 0 | 0.43720E-07 | 474823.1 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001008 | 0 | 0.43720E-07 | 474830.4 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001009 | 0 | 0.43720E-07 | 474837.6 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001010 | 0 | 0.43720E-07 | 474844.9 | 3771027.6 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001011 | 0 | 0.43720E-07 | 474852.1 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001012 | 0 | 0.43720E-07 | 474859.4 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001013 | 0 | 0.43720E-07 | 474866.6 | 3771027.5 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001014 | 0 | 0.43720E-07 | 474873.9 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001015 | 0 | 0.43720E-07 | 474881.1 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001016 | 0 | 0.43720E-07 | 474888.3 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001017 | 0 | 0.43720E-07 | 474895.6 | 3771027.4 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001018 | 0 | 0.43720E-07 | 474902.8 | 3771027.3 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001019 | 0 | 0.43720E-07 | 474910.1 | 3771027.3 | 312.0 | 0.00 | 3.37 | 0.85 | YES |
| L0001020 | 0 | 0.43890E-07 | 474286.5 | 3771039.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001021 | 0 | 0.43890E-07 | 474286.4 | 3771046.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001022 | 0 | 0.43890E-07 | 474286.4 | 3771053.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001023 | 0 | 0.43890E-07 | 474286.3 | 3771061.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001024 | 0 | 0.43890E-07 | 474286.3 | 3771068.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001025 | 0 | 0.43890E-07 | 474286.3 | 3771075.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001026 | 0 | 0.43890E-07 | 474286.2 | 3771083.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001027 | 0 | 0.43890E-07 | 474286.2 | 3771090.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001028 | 0 | 0.43890E-07 | 474286.1 | 3771097.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001029 | 0 | 0.43890E-07 | 474286.1 | 3771104.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001030 | 0 | 0.43890E-07 | 474286.1 | 3771112.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001031 | 0 | 0.43890E-07 | 474286.0 | 3771119.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001032 | 0 | 0.43890E-07 | 474286.0 | 3771126.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001033 | 0 | 0.43890E-07 | 474285.9 | 3771134.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001034 | 0 | 0.43890E-07 | 474285.9 | 3771141.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001035 | 0 | 0.43890E-07 | 474285.9 | 3771148.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*

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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | PART. CATS. | NUMBER (GRAMS/SEC) | EMISSION RATE | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|-------------|--------------------|---------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
|-----------|-------------|--------------------|---------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|

|          |   |             |          |           |       |      |      |      |     |
|----------|---|-------------|----------|-----------|-------|------|------|------|-----|
| L0001036 | 0 | 0.43890E-07 | 474285.8 | 3771156.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001037 | 0 | 0.43890E-07 | 474285.8 | 3771163.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001038 | 0 | 0.43890E-07 | 474285.7 | 3771170.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001039 | 0 | 0.43890E-07 | 474285.7 | 3771177.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001040 | 0 | 0.43890E-07 | 474285.7 | 3771185.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001041 | 0 | 0.43890E-07 | 474285.6 | 3771192.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001042 | 0 | 0.43890E-07 | 474285.6 | 3771199.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001043 | 0 | 0.43890E-07 | 474285.5 | 3771207.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001044 | 0 | 0.43890E-07 | 474285.5 | 3771214.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001045 | 0 | 0.43890E-07 | 474285.4 | 3771221.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001046 | 0 | 0.43890E-07 | 474285.4 | 3771229.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001047 | 0 | 0.43890E-07 | 474285.4 | 3771236.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001048 | 0 | 0.43890E-07 | 474285.3 | 3771243.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001049 | 0 | 0.43890E-07 | 474285.3 | 3771250.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001050 | 0 | 0.43890E-07 | 474285.2 | 3771258.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001051 | 0 | 0.43890E-07 | 474285.2 | 3771265.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001052 | 0 | 0.43890E-07 | 474285.2 | 3771272.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001053 | 0 | 0.43890E-07 | 474285.1 | 3771280.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001054 | 0 | 0.43890E-07 | 474285.1 | 3771287.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001055 | 0 | 0.43890E-07 | 474285.0 | 3771294.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001056 | 0 | 0.43890E-07 | 474285.0 | 3771302.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001057 | 0 | 0.43890E-07 | 474285.0 | 3771309.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001058 | 0 | 0.43890E-07 | 474284.9 | 3771316.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001059 | 0 | 0.43890E-07 | 474284.9 | 3771323.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001060 | 0 | 0.43890E-07 | 474284.8 | 3771331.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001061 | 0 | 0.43890E-07 | 474284.8 | 3771338.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001062 | 0 | 0.43890E-07 | 474284.8 | 3771345.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001063 | 0 | 0.43890E-07 | 474284.7 | 3771353.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001064 | 0 | 0.43890E-07 | 474284.7 | 3771360.4 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001065 | 0 | 0.43890E-07 | 474284.6 | 3771367.7 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001066 | 0 | 0.43890E-07 | 474284.6 | 3771375.0 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001067 | 0 | 0.43890E-07 | 474284.6 | 3771382.3 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001068 | 0 | 0.43890E-07 | 474284.5 | 3771389.6 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001069 | 0 | 0.43890E-07 | 474284.5 | 3771396.9 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001070 | 0 | 0.43890E-07 | 474284.4 | 3771404.2 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001071 | 0 | 0.43890E-07 | 474284.4 | 3771411.5 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001072 | 0 | 0.43890E-07 | 474284.4 | 3771418.8 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001073 | 0 | 0.43890E-07 | 474284.3 | 3771426.1 | 309.0 | 0.00 | 3.40 | 0.85 | YES |
| L0001074 | 0 | 0.17570E-06 | 474283.6 | 3770665.8 | 307.1 | 0.00 | 3.39 | 0.85 | YES |
| L0001075 | 0 | 0.17570E-06 | 474283.6 | 3770658.5 | 307.1 | 0.00 | 3.39 | 0.85 | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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 \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE | NUMBER PART. | EMISSION RATE (GRAMS/SEC) | X | Y | BASE ELEV. | RELEASE HEIGHT | INIT. SY | INIT. SZ | URBAN SOURCE | EMISSION RATE SCALAR | EMISSION RATE VARY |
|--------|--------------|---------------------------|---|---|------------|----------------|----------|----------|--------------|----------------------|--------------------|
|--------|--------------|---------------------------|---|---|------------|----------------|----------|----------|--------------|----------------------|--------------------|

| ID       | CATS. | (METERS)    | (METERS) | (METERS)  | (METERS) | (METERS) | (METERS) | (METERS) | BY  |
|----------|-------|-------------|----------|-----------|----------|----------|----------|----------|-----|
| L0001076 | 0     | 0.17570E-06 | 474283.6 | 3770651.2 | 307.1    | 0.00     | 3.39     | 0.85     | YES |
| L0001077 | 0     | 0.17570E-06 | 474283.5 | 3770643.9 | 307.1    | 0.00     | 3.39     | 0.85     | YES |
| L0001078 | 0     | 0.17570E-06 | 474283.5 | 3770636.7 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001079 | 0     | 0.17570E-06 | 474283.5 | 3770629.4 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001080 | 0     | 0.17570E-06 | 474283.5 | 3770622.1 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001081 | 0     | 0.17570E-06 | 474283.4 | 3770614.8 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001082 | 0     | 0.17570E-06 | 474283.4 | 3770607.5 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001083 | 0     | 0.17570E-06 | 474283.4 | 3770600.3 | 307.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001084 | 0     | 0.17570E-06 | 474283.4 | 3770593.0 | 306.9    | 0.00     | 3.39     | 0.85     | YES |
| L0001085 | 0     | 0.17570E-06 | 474283.4 | 3770585.7 | 306.6    | 0.00     | 3.39     | 0.85     | YES |
| L0001086 | 0     | 0.17570E-06 | 474283.3 | 3770578.4 | 306.4    | 0.00     | 3.39     | 0.85     | YES |
| L0001087 | 0     | 0.17570E-06 | 474283.3 | 3770571.1 | 306.2    | 0.00     | 3.39     | 0.85     | YES |
| L0001088 | 0     | 0.17570E-06 | 474283.3 | 3770563.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001089 | 0     | 0.17570E-06 | 474283.3 | 3770556.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001090 | 0     | 0.17570E-06 | 474283.2 | 3770549.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001091 | 0     | 0.17570E-06 | 474283.2 | 3770542.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001092 | 0     | 0.17570E-06 | 474283.2 | 3770534.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001093 | 0     | 0.17570E-06 | 474283.2 | 3770527.5 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001094 | 0     | 0.17570E-06 | 474283.2 | 3770520.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001095 | 0     | 0.17570E-06 | 474283.1 | 3770512.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001096 | 0     | 0.17570E-06 | 474283.1 | 3770505.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001097 | 0     | 0.17570E-06 | 474283.1 | 3770498.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001098 | 0     | 0.17570E-06 | 474283.1 | 3770491.1 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001099 | 0     | 0.17570E-06 | 474283.0 | 3770483.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001100 | 0     | 0.17570E-06 | 474283.0 | 3770476.5 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001101 | 0     | 0.17570E-06 | 474283.0 | 3770469.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001102 | 0     | 0.17570E-06 | 474283.0 | 3770462.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001103 | 0     | 0.17570E-06 | 474283.0 | 3770454.7 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001104 | 0     | 0.17570E-06 | 474282.9 | 3770447.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001105 | 0     | 0.17570E-06 | 474282.9 | 3770440.1 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001106 | 0     | 0.17570E-06 | 474282.9 | 3770432.8 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001107 | 0     | 0.17570E-06 | 474282.9 | 3770425.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001108 | 0     | 0.17570E-06 | 474282.8 | 3770418.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001109 | 0     | 0.17570E-06 | 474282.8 | 3770411.0 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001110 | 0     | 0.17570E-06 | 474282.8 | 3770403.7 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001111 | 0     | 0.17570E-06 | 474282.8 | 3770396.4 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001112 | 0     | 0.17570E-06 | 474282.7 | 3770389.2 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001113 | 0     | 0.17570E-06 | 474282.7 | 3770381.9 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001114 | 0     | 0.17570E-06 | 474282.7 | 3770374.6 | 306.0    | 0.00     | 3.39     | 0.85     | YES |
| L0001115 | 0     | 0.17570E-06 | 474282.7 | 3770367.3 | 306.0    | 0.00     | 3.39     | 0.85     | YES |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
 \*\*\* AERMET - VERSION 14134 \*\*\*

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0001116  | 0                  | 0.17570E-06               | 474282.7   | 3770360.1  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001117  | 0                  | 0.17570E-06               | 474282.6   | 3770352.8  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001118  | 0                  | 0.17570E-06               | 474282.6   | 3770345.5  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001119  | 0                  | 0.17570E-06               | 474282.6   | 3770338.2  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001120  | 0                  | 0.17570E-06               | 474282.6   | 3770330.9  | 306.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001121  | 0                  | 0.17570E-06               | 474282.5   | 3770323.7  | 305.9               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001122  | 0                  | 0.17570E-06               | 474282.5   | 3770316.4  | 305.7               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001123  | 0                  | 0.17570E-06               | 474282.5   | 3770309.1  | 305.5               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001124  | 0                  | 0.17570E-06               | 474282.5   | 3770301.8  | 305.3               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001125  | 0                  | 0.17570E-06               | 474282.5   | 3770294.5  | 305.1               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001126  | 0                  | 0.17570E-06               | 474282.4   | 3770287.3  | 305.1               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001127  | 0                  | 0.17570E-06               | 474282.4   | 3770280.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001128  | 0                  | 0.17570E-06               | 474282.4   | 3770272.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001129  | 0                  | 0.17570E-06               | 474282.4   | 3770265.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001130  | 0                  | 0.17570E-06               | 474282.3   | 3770258.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001131  | 0                  | 0.17570E-06               | 474282.3   | 3770250.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001132  | 0                  | 0.17570E-06               | 474282.3   | 3770243.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001133  | 0                  | 0.17570E-06               | 474282.3   | 3770236.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001134  | 0                  | 0.17570E-06               | 474282.3   | 3770229.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001135  | 0                  | 0.17570E-06               | 474282.2   | 3770221.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001136  | 0                  | 0.17570E-06               | 474282.2   | 3770214.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001137  | 0                  | 0.17570E-06               | 474282.2   | 3770207.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001138  | 0                  | 0.17570E-06               | 474282.2   | 3770199.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001139  | 0                  | 0.17570E-06               | 474282.1   | 3770192.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001140  | 0                  | 0.17570E-06               | 474282.1   | 3770185.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001141  | 0                  | 0.17570E-06               | 474282.1   | 3770178.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001142  | 0                  | 0.17570E-06               | 474282.1   | 3770170.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001143  | 0                  | 0.17570E-06               | 474282.1   | 3770163.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001144  | 0                  | 0.17570E-06               | 474282.0   | 3770156.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001145  | 0                  | 0.17570E-06               | 474282.0   | 3770149.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001146  | 0                  | 0.17570E-06               | 474282.0   | 3770141.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001147  | 0                  | 0.17570E-06               | 474282.0   | 3770134.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001148  | 0                  | 0.17570E-06               | 474281.9   | 3770127.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001149  | 0                  | 0.17570E-06               | 474281.9   | 3770119.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001150  | 0                  | 0.17570E-06               | 474281.9   | 3770112.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001151  | 0                  | 0.17570E-06               | 474281.9   | 3770105.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001152  | 0                  | 0.17570E-06               | 474281.8   | 3770098.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001153  | 0                  | 0.17570E-06               | 474281.8   | 3770090.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001154  | 0                  | 0.17570E-06               | 474281.8   | 3770083.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001155  | 0                  | 0.17570E-06               | 474281.8   | 3770076.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |

\*\*\* AERMOD - VERSION 15181 \*\*\*  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* VOLUME SOURCE DATA \*\*\*

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|-----------|--------------------|---------------------------|------------|------------|---------------------|-------------------------|-------------------|-------------------|--------------|------------------------------|
| L0001156  | 0                  | 0.17570E-06               | 474281.8   | 3770068.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001157  | 0                  | 0.17570E-06               | 474281.7   | 3770061.6  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001158  | 0                  | 0.17570E-06               | 474281.7   | 3770054.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001159  | 0                  | 0.17570E-06               | 474281.7   | 3770047.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001160  | 0                  | 0.17570E-06               | 474281.7   | 3770039.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001161  | 0                  | 0.17570E-06               | 474281.6   | 3770032.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001162  | 0                  | 0.17570E-06               | 474281.6   | 3770025.2  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001163  | 0                  | 0.17570E-06               | 474281.6   | 3770017.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001164  | 0                  | 0.17570E-06               | 474281.6   | 3770010.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001165  | 0                  | 0.17570E-06               | 474281.6   | 3770003.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001166  | 0                  | 0.17570E-06               | 474281.5   | 3769996.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001167  | 0                  | 0.17570E-06               | 474281.5   | 3769988.8  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001168  | 0                  | 0.17570E-06               | 474281.5   | 3769981.5  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001169  | 0                  | 0.17570E-06               | 474281.5   | 3769974.3  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001170  | 0                  | 0.17570E-06               | 474281.4   | 3769967.0  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001171  | 0                  | 0.17570E-06               | 474281.4   | 3769959.7  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001172  | 0                  | 0.17570E-06               | 474281.4   | 3769952.4  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001173  | 0                  | 0.17570E-06               | 474281.4   | 3769945.1  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001174  | 0                  | 0.17570E-06               | 474281.4   | 3769937.9  | 305.0               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001175  | 0                  | 0.17570E-06               | 474281.3   | 3769930.6  | 305.2               | 0.00                    | 3.39              | 0.85              | YES          |                              |
| L0001176  | 0                  | 0.17570E-06               | 474281.3   | 3769923.3  | 305.4               | 0.00                    | 3.39              | 0.85              | YES          |                              |

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\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

| SRCGROUP ID | SOURCE IDs   |
|-------------|--|
| ALL         | STCK1 , STCK2 , STCK3 , STCK4 , STCK5 , STCK6 , L0000001 , L0000002 ,<br>L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 ,<br>L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 ,<br>L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , |



L0000782 , L0000783 , L0000784 , L0000785 , L0000786 , L0000787 , L0000788 , L0000789 ,  
 L0000790 , L0000791 , L0000792 , L0000793 , L0000794 , L0000795 , L0000796 , L0000797 ,  
 L0000798 , L0000799 , L0000800 , L0000801 , L0000802 , L0000803 , L0000804 , L0000805 ,  
 L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 , L0000813 ,  
 L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 , L0000821 ,  
 L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 , L0000829 ,  
 L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 , L0000837 ,  
 L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 , L0000845 ,  
 L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 , L0000853 ,  
 L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 , L0000861 ,  
 L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 , L0000869 ,  
 L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 , L0000877 ,  
 L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 , L0000885 ,  
 L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 , L0000893 ,  
 L0000894 , L0000895 , L0000896 , L0000897 , L0000898 , L0000899 , L0000900 , L0000901 ,  
 L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 , L0000908 , L0000909 ,

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL            URBAN

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

SRCGROUP ID  
-----

SOURCE IDs  
-----

L0000910 , L0000911 , L0000912 , L0000913 , L0000914 , L0000915 , L0000916 , L0000917 ,  
 L0000918 , L0000919 , L0000920 , L0000921 , L0000922 , L0000923 , L0000924 , L0000925 ,  
 L0000926 , L0000927 , L0000928 , L0000929 , L0000930 , L0000931 , L0000932 , L0000933 ,

L0000934 , L0000935 , L0000936 , L0000937 , L0000938 , L0000939 , L0000940 , L0000941 ,  
 L0000942 , L0000943 , L0000944 , L0000945 , L0000946 , L0000947 , L0000948 , L0000949 ,  
 L0000950 , L0000951 , L0000952 , L0000953 , L0000954 , L0000955 , L0000956 , L0000957 ,  
 L0000958 , L0000959 , L0000960 , L0000961 , L0000962 , L0000963 , L0000964 , L0000965 ,  
 L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 , L0000972 , L0000973 ,  
 L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 , L0000980 , L0000981 ,  
 L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 , L0000988 , L0000989 ,  
 L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 , L0000996 , L0000997 ,  
 L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 , L0001004 , L0001005 ,  
 L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 , L0001012 , L0001013 ,  
 L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 , L0001020 , L0001021 ,  
 L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 , L0001028 , L0001029 ,  
 L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 , L0001036 , L0001037 ,  
 L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 , L0001044 , L0001045 ,  
 L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 , L0001052 , L0001053 ,  
 L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 , L0001060 , L0001061 ,  
 L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 , L0001068 , L0001069 ,

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

SRCGROUP ID  
-----

SOURCE IDs  
-----

L0001070 , L0001071 , L0001072 , L0001073 , L0001074 , L0001075 , L0001076 , L0001077 ,  
 L0001078 , L0001079 , L0001080 , L0001081 , L0001082 , L0001083 , L0001084 , L0001085 ,  
 L0001086 , L0001087 , L0001088 , L0001089 , L0001090 , L0001091 , L0001092 , L0001093 ,





L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 , L0000813 ,  
 L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 , L0000821 ,  
 L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 , L0000829 ,  
 L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 , L0000837 ,  
 L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 , L0000845 ,  
 L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 , L0000853 ,  
 L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 , L0000861 ,  
 L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 , L0000869 ,  
 L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 , L0000877 ,  
 L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 , L0000885 ,  
 L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 , L0000893 ,  
 L0000894 , L0000895 , L0000896 , L0000897 , L0000898 , L0000899 , L0000900 , L0000901 ,  
 L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 , L0000908 , L0000909 ,

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 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* SOURCE IDs DEFINED AS URBAN SOURCES \*\*\*

| URBAN ID | URBAN POP | SOURCE IDs |            |            |            |            |            |            |       |
|----------|-----------|------------|------------|------------|------------|------------|------------|------------|-------|
| -----    | -----     | -----      | -----      | -----      | -----      | -----      | -----      | -----      | ----- |
| L0000910 |           | , L0000911 | , L0000912 | , L0000913 | , L0000914 | , L0000915 | , L0000916 | , L0000917 | ,     |
| L0000918 |           | , L0000919 | , L0000920 | , L0000921 | , L0000922 | , L0000923 | , L0000924 | , L0000925 | ,     |
| L0000926 |           | , L0000927 | , L0000928 | , L0000929 | , L0000930 | , L0000931 | , L0000932 | , L0000933 | ,     |
| L0000934 |           | , L0000935 | , L0000936 | , L0000937 | , L0000938 | , L0000939 | , L0000940 | , L0000941 | ,     |
| L0000942 |           | , L0000943 | , L0000944 | , L0000945 | , L0000946 | , L0000947 | , L0000948 | , L0000949 | ,     |
| L0000950 |           | , L0000951 | , L0000952 | , L0000953 | , L0000954 | , L0000955 | , L0000956 | , L0000957 | ,     |
| L0000958 |           | , L0000959 | , L0000960 | , L0000961 | , L0000962 | , L0000963 | , L0000964 | , L0000965 | ,     |

L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 , L0000972 , L0000973 ,  
 L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 , L0000980 , L0000981 ,  
 L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 , L0000988 , L0000989 ,  
 L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 , L0000996 , L0000997 ,  
 L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 , L0001004 , L0001005 ,  
 L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 , L0001012 , L0001013 ,  
 L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 , L0001020 , L0001021 ,  
 L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 , L0001028 , L0001029 ,  
 L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 , L0001036 , L0001037 ,  
 L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 , L0001044 , L0001045 ,  
 L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 , L0001052 , L0001053 ,  
 L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 , L0001060 , L0001061 ,  
 L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 , L0001068 , L0001069 ,

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 \*\*\* AERMET - VERSION 14134 \*\*\*    \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* SOURCE IDs DEFINED AS URBAN SOURCES \*\*\*

| URBAN ID | URBAN POP | SOURCE IDs |            |            |            |            |            |            |
|----------|-----------|------------|------------|------------|------------|------------|------------|------------|
| -----    | -----     | -----      | -----      | -----      | -----      | -----      | -----      | -----      |
| L0001070 |           | , L0001071 | , L0001072 | , L0001073 | , L0001074 | , L0001075 | , L0001076 | , L0001077 |
| L0001078 |           | , L0001079 | , L0001080 | , L0001081 | , L0001082 | , L0001083 | , L0001084 | , L0001085 |
| L0001086 |           | , L0001087 | , L0001088 | , L0001089 | , L0001090 | , L0001091 | , L0001092 | , L0001093 |
| L0001094 |           | , L0001095 | , L0001096 | , L0001097 | , L0001098 | , L0001099 | , L0001100 | , L0001101 |
| L0001102 |           | , L0001103 | , L0001104 | , L0001105 | , L0001106 | , L0001107 | , L0001108 | , L0001109 |
| L0001110 |           | , L0001111 | , L0001112 | , L0001113 | , L0001114 | , L0001115 | , L0001116 | , L0001117 |

L0001118 , L0001119 , L0001120 , L0001121 , L0001122 , L0001123 , L0001124 , L0001125 ,  
 L0001126 , L0001127 , L0001128 , L0001129 , L0001130 , L0001131 , L0001132 , L0001133 ,  
 L0001134 , L0001135 , L0001136 , L0001137 , L0001138 , L0001139 , L0001140 , L0001141 ,  
 L0001142 , L0001143 , L0001144 , L0001145 , L0001146 , L0001147 , L0001148 , L0001149 ,  
 L0001150 , L0001151 , L0001152 , L0001153 , L0001154 , L0001155 , L0001156 , L0001157 ,  
 L0001158 , L0001159 , L0001160 , L0001161 , L0001162 , L0001163 , L0001164 , L0001165 ,  
 L0001166 , L0001167 , L0001168 , L0001169 , L0001170 , L0001171 , L0001172 , L0001173 ,  
 L0001174 , L0001175 , L0001176 ,

\*\*\* AERMOD - VERSION 15181 \*\*\*    \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
 \*\*\* AERMET - VERSION 14134 \*\*\*    \*\*\* DPM concentrations onsite, offsite and idling

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\*\*MODELOPTs:    NonDEFAULT CONC            ELEV            FASTALL    URBAN

\*\*\* DIRECTION SPECIFIC BUILDING DIMENSIONS \*\*\*

SOURCE ID: STCK1

| IFV | BH    | BW     | BL     | XADJ    | YADJ   | IFV | BH    | BW     | BL     | XADJ    | YADJ   |
|-----|-------|--------|--------|---------|--------|-----|-------|--------|--------|---------|--------|
| 1   | 13.1, | 359.0, | 226.9, | -188.5, | -3.1,  | 2   | 13.1, | 372.9, | 275.4, | -211.0, | -16.0, |
| 3   | 13.1, | 375.4, | 315.6, | -227.1, | -28.4, | 4   | 13.1, | 366.5, | 346.2, | -236.3, | -40.0, |
| 5   | 13.1, | 346.5, | 366.2, | -238.3, | -50.3, | 6   | 13.1, | 315.9, | 375.2, | -233.1, | -59.1, |
| 7   | 13.1, | 275.8, | 372.7, | -220.8, | -66.1, | 8   | 13.1, | 227.2, | 358.9, | -201.8, | -71.1, |
| 9   | 13.1, | 172.2, | 334.6, | -177.0, | -74.1, | 10  | 13.1, | 226.9, | 359.0, | -176.4, | -75.0, |
| 11  | 13.1, | 275.4, | 372.9, | -170.4, | -73.2, | 12  | 13.1, | 315.6, | 375.4, | -159.2, | -69.3, |
| 13  | 13.1, | 346.2, | 366.5, | -143.2, | -63.2, | 14  | 13.1, | 366.2, | 346.5, | -122.9, | -55.1, |
| 15  | 13.1, | 375.2, | 315.9, | -98.8,  | -45.5, | 16  | 13.1, | 372.7, | 275.8, | -71.8,  | -34.4, |
| 17  | 13.1, | 358.9, | 227.2, | -42.5,  | -22.3, | 18  | 13.1, | 334.6, | 172.2, | -12.0,  | -9.7,  |
| 19  | 13.1, | 359.0, | 226.9, | -38.4,  | 3.1,   | 20  | 13.1, | 372.9, | 275.4, | -64.5,  | 16.0,  |
| 21  | 13.1, | 375.4, | 315.6, | -88.5,  | 28.4,  | 22  | 13.1, | 366.5, | 346.2, | -109.9, | 40.0,  |
| 23  | 13.1, | 346.5, | 366.2, | -128.0, | 50.3,  | 24  | 13.1, | 315.9, | 375.2, | -142.1, | 59.1,  |
| 25  | 13.1, | 275.8, | 372.7, | -152.0, | 66.1,  | 26  | 13.1, | 227.2, | 358.9, | -157.2, | 71.1,  |
| 27  | 13.1, | 172.2, | 334.6, | -157.6, | 74.1,  | 28  | 13.1, | 226.9, | 359.0, | -182.6, | 75.0,  |
| 29  | 13.1, | 275.4, | 372.9, | -202.5, | 73.2,  | 30  | 13.1, | 315.6, | 375.4, | -216.1, | 69.3,  |
| 31  | 13.1, | 346.2, | 366.5, | -223.2, | 63.2,  | 32  | 13.1, | 366.2, | 346.5, | -223.6, | 55.1,  |
| 33  | 13.1, | 375.2, | 315.9, | -217.1, | 45.5,  | 34  | 13.1, | 372.7, | 275.8, | -204.0, | 34.4,  |
| 35  | 13.1, | 358.9, | 227.2, | -184.7, | 22.3,  | 36  | 13.1, | 334.6, | 172.2, | -160.2, | 9.7,   |

SOURCE ID: STCK2

| IFV | BH    | BW     | BL     | XADJ    | YADJ    | IFV | BH    | BW     | BL     | XADJ    | YADJ    |
|-----|-------|--------|--------|---------|---------|-----|-------|--------|--------|---------|---------|
| 1   | 13.1, | 359.0, | 226.9, | -173.3, | -97.4,  | 2   | 13.1, | 372.9, | 275.4, | -179.6, | -106.2, |
| 3   | 13.1, | 375.4, | 315.6, | -180.6, | -111.8, | 4   | 13.1, | 366.5, | 346.2, | -176.0, | -114.0, |
| 5   | 13.1, | 346.5, | 366.2, | -166.1, | -112.8, | 6   | 13.1, | 315.9, | 375.2, | -151.1, | -108.1, |

|    |       |        |        |         |         |    |       |        |        |         |        |
|----|-------|--------|--------|---------|---------|----|-------|--------|--------|---------|--------|
| 7  | 13.1, | 275.8, | 372.7, | -131.5, | -100.1, | 8  | 13.1, | 227.2, | 358.9, | -108.0, | -89.1, |
| 9  | 13.1, | 172.2, | 334.6, | -81.5,  | -75.5,  | 10 | 13.1, | 226.9, | 359.0, | -82.1,  | -59.8, |
| 11 | 13.1, | 275.4, | 372.9, | -80.2,  | -41.9,  | 12 | 13.1, | 315.6, | 375.4, | -75.9,  | -22.8, |
| 13 | 13.1, | 346.2, | 366.5, | -69.2,  | -2.9,   | 14 | 13.1, | 366.2, | 346.5, | -60.5,  | 17.1,  |
| 15 | 13.1, | 375.2, | 315.9, | -49.9,  | 36.5,   | 16 | 13.1, | 372.7, | 275.8, | -37.8,  | 54.8,  |
| 17 | 13.1, | 358.9, | 227.2, | -24.6,  | 71.5,   | 18 | 13.1, | 334.6, | 172.2, | -10.6,  | 85.8,  |
| 19 | 13.1, | 359.0, | 226.9, | -53.6,  | 97.4,   | 20 | 13.1, | 372.9, | 275.4, | -95.8,  | 106.2, |
| 21 | 13.1, | 375.4, | 315.6, | -135.1, | 111.8,  | 22 | 13.1, | 366.5, | 346.2, | -170.2, | 114.0, |
| 23 | 13.1, | 346.5, | 366.2, | -200.2, | 112.8,  | 24 | 13.1, | 315.9, | 375.2, | -224.1, | 108.1, |
| 25 | 13.1, | 275.8, | 372.7, | -241.2, | 100.1,  | 26 | 13.1, | 227.2, | 358.9, | -250.9, | 89.1,  |
| 27 | 13.1, | 172.2, | 334.6, | -253.1, | 75.5,   | 28 | 13.1, | 226.9, | 359.0, | -276.9, | 59.8,  |
| 29 | 13.1, | 275.4, | 372.9, | -292.6, | 41.9,   | 30 | 13.1, | 315.6, | 375.4, | -299.5, | 22.8,  |
| 31 | 13.1, | 346.2, | 366.5, | -297.2, | 2.9,    | 32 | 13.1, | 366.2, | 346.5, | -286.0, | -17.1, |
| 33 | 13.1, | 375.2, | 315.9, | -266.0, | -36.5,  | 34 | 13.1, | 372.7, | 275.8, | -238.0, | -54.8, |
| 35 | 13.1, | 358.9, | 227.2, | -202.7, | -71.5,  | 36 | 13.1, | 334.6, | 172.2, | -161.6, | -85.8, |

SOURCE ID: STCK3

| IFV | BH    | BW     | BL     | XADJ    | YADJ    | IFV | BH    | BW     | BL     | XADJ    | YADJ    |
|-----|-------|--------|--------|---------|---------|-----|-------|--------|--------|---------|---------|
| 1   | 13.1, | 359.0, | 226.9, | -202.0, | 70.9,   | 2   | 13.1, | 372.9, | 275.4, | -237.2, | 54.5,   |
| 3   | 13.1, | 375.4, | 315.6, | -265.1, | 36.5,   | 4   | 13.1, | 366.5, | 346.2, | -285.0, | 17.3,   |
| 5   | 13.1, | 346.5, | 366.2, | -296.3, | -2.3,   | 6   | 13.1, | 315.9, | 375.2, | -298.5, | -21.9,  |
| 7   | 13.1, | 275.8, | 372.7, | -291.7, | -40.9,  | 8   | 13.1, | 227.2, | 358.9, | -275.9, | -58.6,  |
| 9   | 13.1, | 172.2, | 334.6, | -252.2, | -74.7,  | 10  | 13.1, | 226.9, | 359.0, | -250.4, | -88.6,  |
| 11  | 13.1, | 275.4, | 372.9, | -240.9, | -99.5,  | 12  | 13.1, | 315.6, | 375.4, | -224.1, | -107.3, |
| 13  | 13.1, | 346.2, | 366.5, | -200.6, | -111.9, | 14  | 13.1, | 366.2, | 346.5, | -170.9, | -113.1, |
| 15  | 13.1, | 375.2, | 315.9, | -136.0, | -110.9, | 16  | 13.1, | 372.7, | 275.8, | -97.0,  | -105.3, |
| 17  | 13.1, | 358.9, | 227.2, | -55.0,  | -96.5,  | 18  | 13.1, | 334.6, | 172.2, | -11.4,  | -84.9,  |
| 19  | 13.1, | 359.0, | 226.9, | -24.9,  | -70.9,  | 20  | 13.1, | 372.9, | 275.4, | -38.2,  | -54.5,  |
| 21  | 13.1, | 375.4, | 315.6, | -50.5,  | -36.5,  | 22  | 13.1, | 366.5, | 346.2, | -61.2,  | -17.3,  |
| 23  | 13.1, | 346.5, | 366.2, | -70.0,  | 2.3,    | 24  | 13.1, | 315.9, | 375.2, | -76.7,  | 21.9,   |
| 25  | 13.1, | 275.8, | 372.7, | -81.1,  | 40.9,   | 26  | 13.1, | 227.2, | 358.9, | -83.0,  | 58.6,   |
| 27  | 13.1, | 172.2, | 334.6, | -82.4,  | 74.7,   | 28  | 13.1, | 226.9, | 359.0, | -108.6, | 88.6,   |
| 29  | 13.1, | 275.4, | 372.9, | -131.9, | 99.5,   | 30  | 13.1, | 315.6, | 375.4, | -151.2, | 107.3,  |
| 31  | 13.1, | 346.2, | 366.5, | -165.9, | 111.9,  | 32  | 13.1, | 366.2, | 346.5, | -175.6, | 113.1,  |
| 33  | 13.1, | 375.2, | 315.9, | -179.9, | 110.9,  | 34  | 13.1, | 372.7, | 275.8, | -178.8, | 105.3,  |
| 35  | 13.1, | 358.9, | 227.2, | -172.2, | 96.5,   | 36  | 13.1, | 334.6, | 172.2, | -160.7, | 84.9,   |

SOURCE ID: STCK4

| IFV | BH    | BW     | BL     | XADJ    | YADJ   | IFV | BH    | BW     | BL     | XADJ    | YADJ   |
|-----|-------|--------|--------|---------|--------|-----|-------|--------|--------|---------|--------|
| 1   | 13.1, | 359.0, | 226.9, | -41.8,  | 18.0,  | 2   | 13.1, | 372.9, | 275.4, | -70.2,  | 30.3,  |
| 3   | 13.1, | 375.4, | 315.6, | -96.4,  | 41.6,  | 4   | 13.1, | 366.5, | 346.2, | -119.8, | 51.7,  |
| 5   | 13.1, | 346.5, | 366.2, | -139.5, | 60.2,  | 6   | 13.1, | 315.9, | 375.2, | -155.0, | 66.9,  |
| 7   | 13.1, | 275.8, | 372.7, | -165.7, | 71.5,  | 8   | 13.1, | 227.2, | 358.9, | -171.5, | 74.0,  |
| 9   | 13.1, | 172.2, | 334.6, | -172.3, | 74.0,  | 10  | 13.1, | 226.9, | 359.0, | -197.5, | 71.7,  |
| 11  | 13.1, | 275.4, | 372.9, | -216.7, | 67.5,  | 12  | 13.1, | 315.6, | 375.4, | -229.3, | 61.4,  |
| 13  | 13.1, | 346.2, | 366.5, | -234.9, | 53.3,  | 14  | 13.1, | 366.2, | 346.5, | -233.4, | 43.6,  |
| 15  | 13.1, | 375.2, | 315.9, | -224.8, | 32.6,  | 16  | 13.1, | 372.7, | 275.8, | -209.4, | 20.6,  |
| 17  | 13.1, | 358.9, | 227.2, | -187.6, | 8.0,   | 18  | 13.1, | 334.6, | 172.2, | -160.1, | -5.0,  |
| 19  | 13.1, | 359.0, | 226.9, | -185.1, | -18.0, | 20  | 13.1, | 372.9, | 275.4, | -205.3, | -30.3, |

|    |       |        |        |         |        |    |       |        |        |         |        |
|----|-------|--------|--------|---------|--------|----|-------|--------|--------|---------|--------|
| 21 | 13.1, | 375.4, | 315.6, | -219.2, | -41.6, | 22 | 13.1, | 366.5, | 346.2, | -226.4, | -51.7, |
| 23 | 13.1, | 346.5, | 366.2, | -226.8, | -60.2, | 24 | 13.1, | 315.9, | 375.2, | -220.2, | -66.9, |
| 25 | 13.1, | 275.8, | 372.7, | -207.0, | -71.5, | 26 | 13.1, | 227.2, | 358.9, | -187.5, | -74.0, |
| 27 | 13.1, | 172.2, | 334.6, | -162.3, | -74.0, | 28 | 13.1, | 226.9, | 359.0, | -161.5, | -71.7, |
| 29 | 13.1, | 275.4, | 372.9, | -156.2, | -67.5, | 30 | 13.1, | 315.6, | 375.4, | -146.1, | -61.4, |
| 31 | 13.1, | 346.2, | 366.5, | -131.6, | -53.3, | 32 | 13.1, | 366.2, | 346.5, | -113.0, | -43.6, |
| 33 | 13.1, | 375.2, | 315.9, | -91.1,  | -32.6, | 34 | 13.1, | 372.7, | 275.8, | -66.4,  | -20.6, |
| 35 | 13.1, | 358.9, | 227.2, | -39.6,  | -8.0,  | 36 | 13.1, | 334.6, | 172.2, | -12.1,  | 5.0,   |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling

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 \*\*\* 17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* DIRECTION SPECIFIC BUILDING DIMENSIONS \*\*\*

SOURCE ID: STCK5

| IFV | BH    | BW     | BL     | XADJ    | YADJ    | IFV | BH    | BW     | BL     | XADJ    | YADJ    |
|-----|-------|--------|--------|---------|---------|-----|-------|--------|--------|---------|---------|
| 1   | 13.1, | 359.0, | 226.9, | -25.1,  | -73.6,  | 2   | 13.1, | 372.9, | 275.4, | -37.8,  | -57.1,  |
| 3   | 13.1, | 375.4, | 315.6, | -49.4,  | -38.8,  | 4   | 13.1, | 366.5, | 346.2, | -59.5,  | -19.4,  |
| 5   | 13.1, | 346.5, | 366.2, | -67.8,  | 0.7,    | 6   | 13.1, | 315.9, | 375.2, | -74.0,  | 20.7,   |
| 7   | 13.1, | 275.8, | 372.7, | -78.0,  | 40.1,   | 8   | 13.1, | 227.2, | 358.9, | -79.6,  | 58.3,   |
| 9   | 13.1, | 172.2, | 334.6, | -79.2,  | 74.5,   | 10  | 13.1, | 226.9, | 359.0, | -105.8, | 88.4,   |
| 11  | 13.1, | 275.4, | 372.9, | -129.3, | 99.9,   | 12  | 13.1, | 315.6, | 375.4, | -148.9, | 108.4,  |
| 13  | 13.1, | 346.2, | 366.5, | -163.9, | 113.6,  | 14  | 13.1, | 366.2, | 346.5, | -173.9, | 115.3,  |
| 15  | 13.1, | 375.2, | 315.9, | -178.7, | 113.6,  | 16  | 13.1, | 372.7, | 275.8, | -178.0, | 108.4,  |
| 17  | 13.1, | 358.9, | 227.2, | -171.9, | 99.9,   | 18  | 13.1, | 334.6, | 172.2, | -160.6, | 88.1,   |
| 19  | 13.1, | 359.0, | 226.9, | -201.8, | 73.6,   | 20  | 13.1, | 372.9, | 275.4, | -237.6, | 57.1,   |
| 21  | 13.1, | 375.4, | 315.6, | -266.2, | 38.8,   | 22  | 13.1, | 366.5, | 346.2, | -286.7, | 19.4,   |
| 23  | 13.1, | 346.5, | 366.2, | -298.5, | -0.7,   | 24  | 13.1, | 315.9, | 375.2, | -301.2, | -20.7,  |
| 25  | 13.1, | 275.8, | 372.7, | -294.7, | -40.1,  | 26  | 13.1, | 227.2, | 358.9, | -279.3, | -58.3,  |
| 27  | 13.1, | 172.2, | 334.6, | -255.4, | -74.5,  | 28  | 13.1, | 226.9, | 359.0, | -253.2, | -88.4,  |
| 29  | 13.1, | 275.4, | 372.9, | -243.5, | -99.9,  | 30  | 13.1, | 315.6, | 375.4, | -226.5, | -108.4, |
| 31  | 13.1, | 346.2, | 366.5, | -202.6, | -113.6, | 32  | 13.1, | 366.2, | 346.5, | -172.5, | -115.3, |
| 33  | 13.1, | 375.2, | 315.9, | -137.2, | -113.6, | 34  | 13.1, | 372.7, | 275.8, | -97.8,  | -108.4, |
| 35  | 13.1, | 358.9, | 227.2, | -55.3,  | -99.9,  | 36  | 13.1, | 334.6, | 172.2, | -11.6,  | -88.1,  |

SOURCE ID: STCK6

| IFV | BH    | BW     | BL     | XADJ    | YADJ   | IFV | BH    | BW     | BL     | XADJ    | YADJ   |
|-----|-------|--------|--------|---------|--------|-----|-------|--------|--------|---------|--------|
| 1   | 13.1, | 359.0, | 226.9, | -55.0,  | 96.1,  | 2   | 13.1, | 372.9, | 275.4, | -96.8,  | 104.9, |
| 3   | 13.1, | 375.4, | 315.6, | -135.6, | 110.5, | 4   | 13.1, | 366.5, | 346.2, | -170.3, | 112.7, |
| 5   | 13.1, | 346.5, | 366.2, | -199.8, | 111.5, | 6   | 13.1, | 315.9, | 375.2, | -223.3, | 106.9, |
| 7   | 13.1, | 275.8, | 372.7, | -240.0, | 99.1,  | 8   | 13.1, | 227.2, | 358.9, | -249.4, | 88.2,  |
| 9   | 13.1, | 172.2, | 334.6, | -251.5, | 74.5,  | 10  | 13.1, | 226.9, | 359.0, | -275.6, | 58.4,  |
| 11  | 13.1, | 275.4, | 372.9, | -291.3, | 41.0,  | 12  | 13.1, | 315.6, | 375.4, | -298.1, | 22.2,  |
| 13  | 13.1, | 346.2, | 366.5, | -295.9, | 2.8,   | 14  | 13.1, | 366.2, | 346.5, | -284.7, | -16.7, |
| 15  | 13.1, | 375.2, | 315.9, | -264.9, | -35.7, | 16  | 13.1, | 372.7, | 275.8, | -237.0, | -53.6, |
| 17  | 13.1, | 358.9, | 227.2, | -201.9, | -69.9, | 18  | 13.1, | 334.6, | 172.2, | -160.6, | -84.2, |

|    |       |        |        |         |         |    |       |        |        |         |         |
|----|-------|--------|--------|---------|---------|----|-------|--------|--------|---------|---------|
| 19 | 13.1, | 359.0, | 226.9, | -171.9, | -96.1,  | 20 | 13.1, | 372.9, | 275.4, | -178.7, | -104.9, |
| 21 | 13.1, | 375.4, | 315.6, | -180.0, | -110.5, | 22 | 13.1, | 366.5, | 346.2, | -175.9, | -112.7, |
| 23 | 13.1, | 346.5, | 366.2, | -166.4, | -111.5, | 24 | 13.1, | 315.9, | 375.2, | -151.9, | -106.9, |
| 25 | 13.1, | 275.8, | 372.7, | -132.8, | -99.1,  | 26 | 13.1, | 227.2, | 358.9, | -109.6, | -88.2,  |
| 27 | 13.1, | 172.2, | 334.6, | -83.1,  | -74.5,  | 28 | 13.1, | 226.9, | 359.0, | -83.4,  | -58.4,  |
| 29 | 13.1, | 275.4, | 372.9, | -81.6,  | -41.0,  | 30 | 13.1, | 315.6, | 375.4, | -77.2,  | -22.2,  |
| 31 | 13.1, | 346.2, | 366.5, | -70.6,  | -2.8,   | 32 | 13.1, | 366.2, | 346.5, | -61.7,  | 16.7,   |
| 33 | 13.1, | 375.2, | 315.9, | -51.0,  | 35.7,   | 34 | 13.1, | 372.7, | 275.8, | -38.8,  | 53.6,   |
| 35 | 13.1, | 358.9, | 227.2, | -25.4,  | 69.9,   | 36 | 13.1, | 334.6, | 172.2, | -11.6,  | 84.2,   |

```

*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
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                                                                                                     PAGE 28

```

```
**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL  URBAN
```

```
*** GRIDDED RECEPTOR NETWORK SUMMARY ***
```

```
*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***
```

```
*** X-COORDINATES OF GRID ***
(METERS)
```

```
473592.7, 473642.7, 473692.7, 473742.7, 473792.7, 473842.7, 473892.7, 473942.7, 473992.7, 474042.7,
474092.7, 474142.7, 474192.7, 474242.7, 474292.7, 474342.7, 474392.7, 474442.7, 474492.7, 474542.7,
474592.7,
```

```
*** Y-COORDINATES OF GRID ***
(METERS)
```

```
3770290.4, 3770340.4, 3770390.4, 3770440.4, 3770490.4, 3770540.4, 3770590.4, 3770640.4, 3770690.4, 3770740.4,
3770790.4, 3770840.4, 3770890.4, 3770940.4, 3770990.4, 3771040.4, 3771090.4, 3771140.4, 3771190.4, 3771240.4,
3771290.4,
```

```

*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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```

```
**MODELOPTs:  NonDEFAULT CONC      ELEV      FASTALL  URBAN
```

```
*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***
```

```
* ELEVATION HEIGHTS IN METERS *
```

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 304.00           | 304.00    | 304.40    | 305.00    | 305.00    | 305.00    | 306.00    | 306.00    | 306.40    |
| 3771240.45          | 304.00           | 304.00    | 305.00    | 305.00    | 305.00    | 305.70    | 306.00    | 306.00    | 306.40    |
| 3771190.45          | 304.00           | 304.00    | 305.00    | 305.00    | 305.20    | 306.00    | 306.00    | 306.20    | 307.00    |
| 3771140.45          | 304.00           | 304.70    | 305.00    | 305.00    | 305.80    | 306.00    | 306.00    | 306.80    | 307.00    |

|            |        |        |        |        |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3771090.45 | 304.00 | 304.80 | 305.00 | 305.10 | 305.90 | 306.00 | 306.10 | 307.00 | 307.20 |
| 3771040.45 | 304.00 | 304.80 | 305.00 | 305.10 | 306.00 | 306.10 | 307.00 | 307.00 | 307.40 |
| 3770990.45 | 303.20 | 304.80 | 305.00 | 305.90 | 306.00 | 306.10 | 307.00 | 307.00 | 307.10 |
| 3770940.45 | 303.10 | 304.40 | 305.00 | 305.10 | 306.00 | 306.00 | 306.10 | 307.00 | 307.00 |
| 3770890.45 | 304.00 | 304.80 | 305.00 | 305.10 | 306.00 | 306.00 | 306.00 | 306.60 | 307.00 |
| 3770840.45 | 304.00 | 304.80 | 305.00 | 305.00 | 305.80 | 306.00 | 306.00 | 306.00 | 307.00 |
| 3770790.45 | 304.00 | 304.80 | 305.00 | 305.00 | 305.40 | 306.00 | 306.00 | 306.00 | 306.70 |
| 3770740.45 | 303.10 | 304.00 | 305.00 | 305.00 | 305.00 | 305.40 | 306.00 | 306.00 | 306.00 |
| 3770690.45 | 302.10 | 302.90 | 304.50 | 305.00 | 305.00 | 305.10 | 306.00 | 306.00 | 306.00 |
| 3770640.45 | 302.00 | 302.00 | 302.20 | 303.50 | 304.80 | 305.00 | 305.50 | 306.00 | 306.00 |
| 3770590.45 | 302.00 | 302.00 | 302.00 | 302.90 | 304.60 | 305.00 | 305.10 | 306.00 | 306.00 |
| 3770540.45 | 302.00 | 302.00 | 302.00 | 302.10 | 303.80 | 305.00 | 305.00 | 305.80 | 306.00 |
| 3770490.45 | 302.00 | 302.00 | 302.00 | 302.10 | 303.80 | 305.00 | 305.00 | 305.40 | 306.00 |
| 3770440.45 | 302.00 | 302.00 | 302.00 | 302.30 | 303.80 | 305.00 | 305.00 | 305.00 | 305.30 |
| 3770390.45 | 302.00 | 302.70 | 302.40 | 303.00 | 303.80 | 304.50 | 305.00 | 305.00 | 305.00 |
| 3770340.45 | 302.60 | 303.00 | 303.00 | 303.00 | 303.90 | 304.40 | 305.00 | 305.00 | 304.80 |
| 3770290.45 | 302.10 | 302.80 | 302.80 | 303.00 | 303.00 | 304.10 | 304.60 | 304.80 | 304.00 |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* NETWORK ID: UCART1    ;    NETWORK TYPE: GRIDCART \*\*\*

\* ELEVATION HEIGHTS IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 474042.69        | 474092.69 | 474142.69 | 474192.69 | 474242.69 | 474292.69 | 474342.69 | 474392.69 | 474442.69 |
| 3771290.45          | 307.00           | 307.00    | 308.00    | 308.00    | 308.00    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3771240.45          | 307.00           | 307.00    | 308.00    | 308.00    | 308.00    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3771190.45          | 307.00           | 307.80    | 308.00    | 308.00    | 308.00    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3771140.45          | 307.10           | 308.00    | 308.00    | 308.00    | 308.70    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3771090.45          | 308.00           | 308.00    | 308.00    | 308.00    | 308.80    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3771040.45          | 308.00           | 308.00    | 308.00    | 308.00    | 308.80    | 309.00    | 309.00    | 309.00    | 310.00    |
| 3770990.45          | 308.00           | 308.00    | 308.00    | 308.00    | 308.10    | 309.00    | 309.00    | 309.00    | 309.50    |
| 3770940.45          | 307.50           | 308.00    | 308.00    | 308.00    | 308.00    | 308.50    | 309.00    | 309.00    | 309.00    |
| 3770890.45          | 307.00           | 307.80    | 308.00    | 308.00    | 308.00    | 308.00    | 308.10    | 309.00    | 309.00    |
| 3770840.45          | 307.00           | 307.10    | 308.00    | 308.00    | 308.00    | 308.00    | 308.00    | 308.80    | 309.00    |
| 3770790.45          | 307.00           | 307.00    | 307.00    | 307.50    | 308.00    | 308.00    | 308.00    | 308.40    | 309.00    |
| 3770740.45          | 307.00           | 307.00    | 307.00    | 307.00    | 307.60    | 307.90    | 308.00    | 308.80    | 309.00    |
| 3770690.45          | 307.00           | 307.00    | 307.00    | 307.00    | 307.00    | 307.40    | 308.00    | 308.80    | 309.00    |
| 3770640.45          | 306.50           | 306.50    | 306.50    | 307.00    | 307.00    | 307.20    | 308.00    | 308.80    | 309.00    |
| 3770590.45          | 306.00           | 306.00    | 306.00    | 306.00    | 306.00    | 306.80    | 307.80    | 308.60    | 309.00    |
| 3770540.45          | 306.00           | 306.00    | 306.00    | 306.00    | 306.00    | 306.00    | 306.20    | 307.80    | 308.50    |
| 3770490.45          | 306.00           | 306.00    | 306.00    | 306.00    | 306.00    | 306.00    | 306.00    | 306.00    | 307.40    |
| 3770440.45          | 305.80           | 305.80    | 305.80    | 305.80    | 306.00    | 306.00    | 306.00    | 306.00    | 307.00    |
| 3770390.45          | 305.00           | 305.00    | 305.00    | 305.00    | 305.80    | 306.00    | 306.00    | 306.00    | 307.00    |
| 3770340.45          | 305.00           | 305.00    | 305.00    | 305.00    | 305.40    | 306.00    | 306.00    | 306.00    | 307.40    |

3770290.45 | 305.00 305.00 305.00 305.00 305.00 305.30 306.00 306.00 307.10

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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\* ELEVATION HEIGHTS IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 310.00           | 310.00    | 310.40    |
| 3771240.45          | 310.00           | 310.00    | 310.20    |
| 3771190.45          | 310.00           | 310.00    | 310.00    |
| 3771140.45          | 310.00           | 310.00    | 310.00    |
| 3771090.45          | 310.00           | 310.00    | 310.00    |
| 3771040.45          | 310.00           | 310.00    | 310.00    |
| 3770990.45          | 310.00           | 310.00    | 310.00    |
| 3770940.45          | 309.50           | 310.00    | 310.00    |
| 3770890.45          | 309.00           | 309.60    | 310.00    |
| 3770840.45          | 309.00           | 309.00    | 310.00    |
| 3770790.45          | 309.00           | 309.00    | 309.70    |
| 3770740.45          | 309.20           | 309.80    | 310.00    |
| 3770690.45          | 309.20           | 310.00    | 310.40    |
| 3770640.45          | 310.00           | 310.00    | 311.00    |
| 3770590.45          | 310.00           | 310.00    | 310.30    |
| 3770540.45          | 310.00           | 310.00    | 310.00    |
| 3770490.45          | 308.50           | 309.40    | 309.70    |
| 3770440.45          | 307.80           | 308.60    | 309.00    |
| 3770390.45          | 307.10           | 308.00    | 308.50    |
| 3770340.45          | 307.50           | 307.40    | 308.00    |
| 3770290.45          | 307.10           | 307.20    | 307.30    |

\*\*\* AERMOD - VERSION 15181 \*\*\* \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc \*\*\* 09/21/15  
\*\*\* AERMET - VERSION 14134 \*\*\* \*\*\* DPM concentrations onsite, offsite and idling \*\*\* 17:22:52  
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\* HILL HEIGHT SCALES IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 304.00           | 304.00    | 304.40    | 305.00    | 305.00    | 305.00    | 306.00    | 306.00    | 306.40    |



|            |        |        |        |        |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3770440.45 | 305.80 | 305.80 | 305.80 | 305.80 | 306.00 | 306.00 | 306.00 | 306.00 | 307.00 |
| 3770390.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.80 | 306.00 | 306.00 | 306.00 | 307.00 |
| 3770340.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.40 | 306.00 | 306.00 | 306.00 | 307.40 |
| 3770290.45 | 305.00 | 305.00 | 305.00 | 305.00 | 305.00 | 305.30 | 306.00 | 306.00 | 307.10 |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* NETWORK ID: UCART1    ;    NETWORK TYPE: GRIDCART \*\*\*

\* HILL HEIGHT SCALES IN METERS \*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 310.00           | 310.00    | 310.40    |
| 3771240.45          | 310.00           | 310.00    | 310.20    |
| 3771190.45          | 310.00           | 310.00    | 310.00    |
| 3771140.45          | 310.00           | 310.00    | 310.00    |
| 3771090.45          | 310.00           | 310.00    | 310.00    |
| 3771040.45          | 310.00           | 310.00    | 310.00    |
| 3770990.45          | 310.00           | 310.00    | 310.00    |
| 3770940.45          | 309.50           | 310.00    | 310.00    |
| 3770890.45          | 309.00           | 309.60    | 310.00    |
| 3770840.45          | 309.00           | 309.00    | 310.00    |
| 3770790.45          | 309.00           | 309.00    | 309.70    |
| 3770740.45          | 309.20           | 309.80    | 310.00    |
| 3770690.45          | 309.20           | 310.00    | 310.40    |
| 3770640.45          | 310.00           | 310.00    | 311.00    |
| 3770590.45          | 310.00           | 310.00    | 310.30    |
| 3770540.45          | 310.00           | 310.00    | 310.00    |
| 3770490.45          | 308.50           | 309.40    | 309.70    |
| 3770440.45          | 307.80           | 308.60    | 309.00    |
| 3770390.45          | 307.10           | 308.00    | 308.50    |
| 3770340.45          | 307.50           | 307.40    | 308.00    |
| 3770290.45          | 307.10           | 307.20    | 307.30    |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL      URBAN

\*\*\* DISCRETE CARTESIAN RECEPTORS \*\*\*  
 (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)  
 (METERS)

|                        |        |        |       |                        |        |        |       |
|------------------------|--------|--------|-------|------------------------|--------|--------|-------|
| ( 473821.8, 3770780.8, | 305.8, | 305.8, | 0.0); | ( 473841.7, 3770856.2, | 306.0, | 306.0, | 0.0); |
| ( 473872.5, 3770817.8, | 306.0, | 306.0, | 0.0); | ( 473896.4, 3770814.3, | 306.0, | 306.0, | 0.0); |





|          |      |      |       |        |        |       |     |      |      |      |      |      |      |     |       |     |
|----------|------|------|-------|--------|--------|-------|-----|------|------|------|------|------|------|-----|-------|-----|
| 07 01 01 | 1 21 | -4.9 | 0.077 | -9.000 | -9.000 | -999. | 52. | 8.1  | 0.32 | 1.00 | 1.00 | 1.30 | 190. | 9.1 | 289.9 | 5.5 |
| 07 01 01 | 1 22 | -2.4 | 0.054 | -9.000 | -9.000 | -999. | 30. | 5.6  | 0.32 | 1.00 | 1.00 | 0.90 | 188. | 9.1 | 289.2 | 5.5 |
| 07 01 01 | 1 23 | -9.5 | 0.107 | -9.000 | -9.000 | -999. | 84. | 11.3 | 0.32 | 1.00 | 1.00 | 1.80 | 162. | 9.1 | 289.9 | 5.5 |
| 07 01 01 | 1 24 | -9.5 | 0.107 | -9.000 | -9.000 | -999. | 84. | 11.3 | 0.32 | 1.00 | 1.00 | 1.80 | 42.  | 9.1 | 289.2 | 5.5 |

First hour of profile data

| YR MO DY HR | HEIGHT | F | WDIR  | WSPD   | AMB_TMP | sigmaA | sigmaW | sigmaV |
|-------------|--------|---|-------|--------|---------|--------|--------|--------|
| 07 01 01 01 | 5.5    | 0 | -999. | -99.00 | 279.9   | 99.0   | -99.00 | -99.00 |
| 07 01 01 01 | 9.1    | 1 | 27.   | 0.50   | -999.0  | 99.0   | -99.00 | -99.00 |

F indicates top of profile (=1) or below (=0)

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\*\*MODELOPTs:    NonDEFAULT CONC      ELEV      FASTALL    URBAN

\*\*\* THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER    5 YEARS FOR SOURCE GROUP: ALL      \*\*\*  
 INCLUDING SOURCE(S):    STCK1      , STCK2      , STCK3      , STCK4      , STCK5      ,  
 STCK6      , L0000001      , L0000002      , L0000003      , L0000004      , L0000005      , L0000006      , L0000007      ,  
 L0000008      , L0000009      , L0000010      , L0000011      , L0000012      , L0000013      , L0000014      , L0000015      ,  
 L0000016      , L0000017      , L0000018      , L0000019      , L0000020      , L0000021      , L0000022      , . . .      ,

\*\*\* NETWORK ID: UCART1    ;    NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM      IN MICROGRAMS/M\*\*3      \*\*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |           |           |           |           |           |           |
|---------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                     | 473592.69        | 473642.69 | 473692.69 | 473742.69 | 473792.69 | 473842.69 | 473892.69 | 473942.69 | 473992.69 |
| 3771290.45          | 0.00057          | 0.00060   | 0.00063   | 0.00066   | 0.00068   | 0.00071   | 0.00075   | 0.00079   | 0.00084   |
| 3771240.45          | 0.00068          | 0.00071   | 0.00075   | 0.00078   | 0.00081   | 0.00084   | 0.00088   | 0.00093   | 0.00100   |
| 3771190.45          | 0.00084          | 0.00088   | 0.00092   | 0.00095   | 0.00099   | 0.00103   | 0.00108   | 0.00113   | 0.00121   |
| 3771140.45          | 0.00112          | 0.00116   | 0.00120   | 0.00124   | 0.00128   | 0.00133   | 0.00138   | 0.00146   | 0.00155   |
| 3771090.45          | 0.00170          | 0.00175   | 0.00180   | 0.00185   | 0.00190   | 0.00196   | 0.00202   | 0.00212   | 0.00224   |
| 3771040.45          | 0.00585          | 0.00593   | 0.00604   | 0.00610   | 0.00623   | 0.00632   | 0.00648   | 0.00664   | 0.00682   |
| 3770990.45          | 0.00196          | 0.00202   | 0.00208   | 0.00215   | 0.00223   | 0.00231   | 0.00242   | 0.00258   | 0.00279   |
| 3770940.45          | 0.00116          | 0.00123   | 0.00130   | 0.00139   | 0.00150   | 0.00163   | 0.00179   | 0.00202   | 0.00237   |
| 3770890.45          | 0.00095          | 0.00103   | 0.00111   | 0.00122   | 0.00137   | 0.00156   | 0.00184   | 0.00227   | 0.00289   |
| 3770840.45          | 0.00087          | 0.00095   | 0.00106   | 0.00119   | 0.00138   | 0.00168   | 0.00229   | 0.00309   | 0.00417   |
| 3770790.45          | 0.00083          | 0.00092   | 0.00104   | 0.00120   | 0.00144   | 0.00188   | 0.00350   | 0.00562   | 0.00817   |
| 3770740.45          | 0.00080          | 0.00091   | 0.00104   | 0.00123   | 0.00150   | 0.00204   | 0.00278   | 0.00457   | 0.00676   |
| 3770690.45          | 0.00079          | 0.00090   | 0.00104   | 0.00124   | 0.00156   | 0.00199   | 0.00233   | 0.00329   | 0.00447   |
| 3770640.45          | 0.00078          | 0.00089   | 0.00103   | 0.00124   | 0.00158   | 0.00201   | 0.00229   | 0.00326   | 0.00457   |
| 3770590.45          | 0.00077          | 0.00088   | 0.00102   | 0.00122   | 0.00153   | 0.00210   | 0.00241   | 0.00401   | 0.00664   |
| 3770540.45          | 0.00075          | 0.00086   | 0.00100   | 0.00119   | 0.00147   | 0.00198   | 0.00264   | 0.00435   | 0.00675   |
| 3770490.45          | 0.00074          | 0.00084   | 0.00098   | 0.00115   | 0.00140   | 0.00174   | 0.00233   | 0.00277   | 0.00328   |
| 3770440.45          | 0.00072          | 0.00082   | 0.00094   | 0.00109   | 0.00129   | 0.00154   | 0.00184   | 0.00220   | 0.00250   |
| 3770390.45          | 0.00069          | 0.00078   | 0.00089   | 0.00102   | 0.00118   | 0.00136   | 0.00155   | 0.00173   | 0.00190   |

|            |         |         |         |         |         |         |         |         |         |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3770340.45 | 0.00066 | 0.00074 | 0.00084 | 0.00094 | 0.00107 | 0.00121 | 0.00134 | 0.00145 | 0.00154 |
| 3770290.45 | 0.00063 | 0.00070 | 0.00078 | 0.00087 | 0.00097 | 0.00107 | 0.00117 | 0.00125 | 0.00130 |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
*** AERMET - VERSION 14134 ***   *** DPM concentrations onsite, offsite and idling   ***   17:22:52
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
      INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,
STCK6 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 ,
L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,
L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , . . .

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\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM IN MICROGRAMS/M\*\*3 \*\*

| Y-COORD (METERS) | 474042.69 | 474092.69 | 474142.69 | 474192.69 | 474242.69 | 474292.69 | 474342.69 | 474392.69 | 474442.69 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|

|            |         |         |         |         |         |         |         |         |         |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3771290.45 | 0.00091 | 0.00098 | 0.00106 | 0.00117 | 0.00140 | 0.00245 | 0.00141 | 0.00126 | 0.00117 |
| 3771240.45 | 0.00107 | 0.00116 | 0.00125 | 0.00137 | 0.00161 | 0.00274 | 0.00161 | 0.00144 | 0.00132 |
| 3771190.45 | 0.00130 | 0.00141 | 0.00152 | 0.00165 | 0.00188 | 0.00298 | 0.00186 | 0.00165 | 0.00150 |
| 3771140.45 | 0.00167 | 0.00179 | 0.00193 | 0.00208 | 0.00230 | 0.00336 | 0.00220 | 0.00193 | 0.00172 |
| 3771090.45 | 0.00239 | 0.00255 | 0.00272 | 0.00290 | 0.00312 | 0.00406 | 0.00273 | 0.00232 | 0.00202 |
| 3771040.45 | 0.00709 | 0.00734 | 0.00760 | 0.00787 | 0.00822 | 0.00665 | 0.00448 | 0.00375 | 0.00331 |
| 3770990.45 | 0.00305 | 0.00332 | 0.00360 | 0.00391 | 0.00468 | 0.01067 | 0.00386 | 0.00284 | 0.00231 |
| 3770940.45 | 0.00274 | 0.00310 | 0.00343 | 0.00378 | 0.00473 | 0.00853 | 0.00399 | 0.00279 | 0.00218 |
| 3770890.45 | 0.00339 | 0.00390 | 0.00431 | 0.00457 | 0.00534 | 0.00881 | 0.00416 | 0.00283 | 0.00214 |
| 3770840.45 | 0.00479 | 0.00538 | 0.00584 | 0.00650 | 0.00689 | 0.01180 | 0.00427 | 0.00284 | 0.00211 |
| 3770790.45 | 0.00951 | 0.01026 | 0.01102 | 0.01244 | 0.01135 | 0.01172 | 0.00426 | 0.00280 | 0.00204 |
| 3770740.45 | 0.00763 | 0.00830 | 0.00831 | 0.00627 | 0.00612 | 0.01127 | 0.00427 | 0.00273 | 0.00195 |
| 3770690.45 | 0.00537 | 0.00594 | 0.00590 | 0.00544 | 0.00701 | 0.01429 | 0.00431 | 0.00263 | 0.00183 |
| 3770640.45 | 0.00552 | 0.00596 | 0.00586 | 0.00602 | 0.01131 | 0.01193 | 0.00408 | 0.00243 | 0.00168 |
| 3770590.45 | 0.00761 | 0.00795 | 0.00794 | 0.00804 | 0.01263 | 0.01117 | 0.00357 | 0.00216 | 0.00152 |
| 3770540.45 | 0.00752 | 0.00778 | 0.00776 | 0.00773 | 0.00708 | 0.00926 | 0.00299 | 0.00190 | 0.00137 |
| 3770490.45 | 0.00360 | 0.00372 | 0.00372 | 0.00361 | 0.00396 | 0.00819 | 0.00259 | 0.00172 | 0.00127 |
| 3770440.45 | 0.00268 | 0.00268 | 0.00258 | 0.00255 | 0.00309 | 0.00764 | 0.00234 | 0.00157 | 0.00118 |
| 3770390.45 | 0.00198 | 0.00198 | 0.00195 | 0.00201 | 0.00269 | 0.00728 | 0.00215 | 0.00146 | 0.00110 |
| 3770340.45 | 0.00158 | 0.00158 | 0.00159 | 0.00172 | 0.00245 | 0.00700 | 0.00201 | 0.00136 | 0.00103 |
| 3770290.45 | 0.00132 | 0.00133 | 0.00137 | 0.00153 | 0.00230 | 0.00676 | 0.00190 | 0.00127 | 0.00097 |

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*** AERMOD - VERSION 15181 ***   *** C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc   ***   09/21/15
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\*\*MODELOPTs: NonDEFAULT CONC ELEV FASTALL URBAN

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*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
      INCLUDING SOURCE(S): STCK1 , STCK2 , STCK3 , STCK4 , STCK5 ,

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STCK6 , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 ,  
 L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 ,  
 L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , . . . ,

\*\*\* NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART \*\*\*

\*\* CONC OF DPM IN MICROGRAMS/M\*\*3 \*\*

| Y-COORD<br>(METERS) | X-COORD (METERS) |           |           |
|---------------------|------------------|-----------|-----------|
|                     | 474492.69        | 474542.69 | 474592.69 |
| 3771290.45          | 0.00110          | 0.00103   | 0.00096   |
| 3771240.45          | 0.00123          | 0.00113   | 0.00104   |
| 3771190.45          | 0.00137          | 0.00125   | 0.00113   |
| 3771140.45          | 0.00154          | 0.00138   | 0.00123   |
| 3771090.45          | 0.00178          | 0.00158   | 0.00140   |
| 3771040.45          | 0.00298          | 0.00272   | 0.00251   |
| 3770990.45          | 0.00194          | 0.00167   | 0.00146   |
| 3770940.45          | 0.00177          | 0.00147   | 0.00124   |
| 3770890.45          | 0.00170          | 0.00138   | 0.00115   |
| 3770840.45          | 0.00164          | 0.00132   | 0.00108   |
| 3770790.45          | 0.00157          | 0.00125   | 0.00101   |
| 3770740.45          | 0.00148          | 0.00116   | 0.00095   |
| 3770690.45          | 0.00138          | 0.00108   | 0.00088   |
| 3770640.45          | 0.00126          | 0.00100   | 0.00082   |
| 3770590.45          | 0.00115          | 0.00092   | 0.00077   |
| 3770540.45          | 0.00106          | 0.00086   | 0.00071   |
| 3770490.45          | 0.00099          | 0.00081   | 0.00067   |
| 3770440.45          | 0.00093          | 0.00076   | 0.00064   |
| 3770390.45          | 0.00088          | 0.00072   | 0.00061   |
| 3770340.45          | 0.00083          | 0.00069   | 0.00058   |
| 3770290.45          | 0.00078          | 0.00065   | 0.00055   |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER    5 YEARS FOR SOURCE GROUP: ALL    \*\*\*  
 INCLUDING SOURCE(S):    STCK1    ,    STCK2    ,    STCK3    ,    STCK4    ,    STCK5    ,  
 STCK6    ,    L0000001    ,    L0000002    ,    L0000003    ,    L0000004    ,    L0000005    ,    L0000006    ,    L0000007    ,  
 L0000008    ,    L0000009    ,    L0000010    ,    L0000011    ,    L0000012    ,    L0000013    ,    L0000014    ,    L0000015    ,  
 L0000016    ,    L0000017    ,    L0000018    ,    L0000019    ,    L0000020    ,    L0000021    ,    L0000022    ,    . . .    ,

\*\*\* DISCRETE CARTESIAN RECEPTOR POINTS \*\*\*

| ** CONC OF DPM |             |         | IN MICROGRAMS/M**3 |             |         | ** |
|----------------|-------------|---------|--------------------|-------------|---------|----|
| X-COORD (M)    | Y-COORD (M) | CONC    | X-COORD (M)        | Y-COORD (M) | CONC    |    |
| 473821.79      | 3770780.83  | 0.00167 | 473841.73          | 3770856.25  | 0.00162 |    |
| 473872.55      | 3770817.80  | 0.00224 | 473896.38          | 3770814.31  | 0.00306 |    |
| 473922.12      | 3770812.40  | 0.00415 | 473944.04          | 3770812.40  | 0.00480 |    |
| 473955.65      | 3770813.70  | 0.00501 | 473986.29          | 3770813.11  | 0.00604 |    |
| 474041.70      | 3770827.94  | 0.00545 | 474132.24          | 3770814.67  | 0.00786 |    |
| 474153.71      | 3770815.45  | 0.00849 | 474183.17          | 3770813.50  | 0.01070 |    |
| 473860.23      | 3770519.70  | 0.00214 | 474265.12          | 3770413.61  | 0.00450 |    |
| 474184.49      | 3771047.50  | 0.00575 | 474265.49          | 3771209.49  | 0.00215 |    |

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS \*\*\*

| ** CONC OF DPM |                       |              | IN MICROGRAMS/M**3            |                 |                 | **        |
|----------------|-----------------------|--------------|-------------------------------|-----------------|-----------------|-----------|
| GROUP ID       | AVERAGE CONC          | RECEPTOR     | (XR, YR, ZELEV, ZHILL, ZFLAG) | OF TYPE         | NETWORK GRID-ID |           |
| ALL            | 1ST HIGHEST VALUE IS  | 0.01429 AT ( | 474292.69, 3770690.45,        | 307.40, 307.40, | 0.00)           | GC UCART1 |
|                | 2ND HIGHEST VALUE IS  | 0.01263 AT ( | 474242.69, 3770590.45,        | 306.00, 306.00, | 0.00)           | GC UCART1 |
|                | 3RD HIGHEST VALUE IS  | 0.01244 AT ( | 474192.69, 3770790.45,        | 307.50, 307.50, | 0.00)           | GC UCART1 |
|                | 4TH HIGHEST VALUE IS  | 0.01193 AT ( | 474292.69, 3770640.45,        | 307.20, 307.20, | 0.00)           | GC UCART1 |
|                | 5TH HIGHEST VALUE IS  | 0.01180 AT ( | 474292.69, 3770840.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 6TH HIGHEST VALUE IS  | 0.01172 AT ( | 474292.69, 3770790.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 7TH HIGHEST VALUE IS  | 0.01135 AT ( | 474242.69, 3770790.45,        | 308.00, 308.00, | 0.00)           | GC UCART1 |
|                | 8TH HIGHEST VALUE IS  | 0.01131 AT ( | 474242.69, 3770640.45,        | 307.00, 307.00, | 0.00)           | GC UCART1 |
|                | 9TH HIGHEST VALUE IS  | 0.01127 AT ( | 474292.69, 3770740.45,        | 307.90, 307.90, | 0.00)           | GC UCART1 |
|                | 10TH HIGHEST VALUE IS | 0.01117 AT ( | 474292.69, 3770590.45,        | 306.80, 306.80, | 0.00)           | GC UCART1 |

\*\*\* RECEPTOR TYPES:    GC = GRIDCART  
                              GP = GRIDPOLR  
                              DC = DISCCART  
                              DP = DISCPOLR

\*\*\* AERMOD - VERSION 15181 \*\*\*      \*\*\* C:\Lakes\AERMOD View\5629b Waterman\5629b Waterman.isc      \*\*\*      09/21/15  
 \*\*\* AERMET - VERSION 14134 \*\*\*      \*\*\* DPM concentrations onsite, offsite and idling      \*\*\*      17:22:52  
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\*\*MODELOPTs:    NonDEFAULT CONC    ELEV    FASTALL    URBAN

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 6 Warning Message(s)  
A Total of 1086 Informational Message(s)  
  
A Total of 43824 Hours Were Processed  
  
A Total of 37 Calm Hours Identified  
  
A Total of 1049 Missing Hours Identified ( 2.39 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

|         |     |  |    |
|---------|-----|--|----|
| SO W320 | 812 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 813 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 814 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 815 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 816 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |
| SO W320 | 817 | PPARM: Input Parameter May Be Out-of-Range for Parameter | VS |

\*\*\*\*\*  
\*\*\* AERMOD Finishes Successfully \*\*\*  
\*\*\*\*\*



|                     |        |      |     |       |    |            |             |             |            |            |           |           |            |            |            |            |            |              |           |              |              |              |              |              |             |
|---------------------|--------|------|-----|-------|----|------------|-------------|-------------|------------|------------|-----------|-----------|------------|------------|------------|------------|------------|--------------|-----------|--------------|--------------|--------------|--------------|--------------|-------------|
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 15 | 0.00357181 | 0.003236742 | 0.00291154  | 0.00262275 | 0.00238911 | 0.002172  | 0.001972  | 0.00191    | 0.0016285  | 0.00148688 | 0.00136314 | 0.0012542  | 0.0011525    | 0.001057  | 9.77E-04     | 9.06E-04     | 8.42E-04     | 7.73E-04     | 7.17E-04     |             |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 15 | 0.06714534 | 0.06408759  | 0.0609882   | 0.0582073  | 0.0561825  | 0.054305  | 0.052308  | 0.050479   | 0.0487523  | 0.0473789  | 0.04607471 | 0.0449061  | 0.0437764    | 0.0427306 | 0.0417764    | 0.0409046    | 0.0401751809 | 0.04131462   | 0.040793734  |             |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 20 | 0.00249072 | 0.002257069 | 0.002032029 | 0.0018322  | 0.001668   | 0.0015175 | 0.001375  | 0.001249   | 0.0011395  | 0.0010363  | 9.91E-04   | 8.75E-04   | 8.04E-04     | 7.37E-04  | 6.81E-04     | 6.32E-04     | 5.87E-04     | 5.39E-04     | 5.00E-04     |             |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 20 | 0.0544341  | 0.05200369  | 0.0496195   | 0.0472291  | 0.045896   | 0.04462   | 0.043409  | 0.04226    | 0.04113    | 0.04004    | 0.038972   | 0.0379481  | 0.036952     | 0.0359728 | 0.0350122    | 0.0340672    | 0.0331422    | 0.032243     | 0.031367218  | 0.030506248 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 25 | 0.00181045 | 0.001640608 | 0.00147577  | 0.0013318  | 0.001211   | 0.001101  | 0.001003  | 0.98E-04   | 8.25E-04   | 7.54E-04   | 6.91E-04   | 6.36E-04   | 5.84E-04     | 5.36E-04  | 4.95E-04     | 4.59E-04     | 4.27E-04     | 3.92E-04     | 3.64E-04     | 3.42E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 25 | 0.04518926 | 0.043131379 | 0.04104547  | 0.0391739  | 0.0378112  | 0.036547  | 0.035203  | 0.033972   | 0.0328106  | 0.0318632  | 0.0310059  | 0.0302221  | 0.0294618    | 0.02878   | 0.028530805  | 0.0283107    | 0.028099246  | 0.02780501   | 0.027545457  |             |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 30 | 0.00137173 | 0.001243049 | 0.0011816   | 0.00110091 | 9.18E-04   | 8.34E-04  | 7.57E-04  | 6.88E-04   | 6.25E-04   | 5.71E-04   | 5.24E-04   | 4.82E-04   | 4.43E-04     | 4.06E-04  | 3.75E-04     | 3.48E-04     | 3.23E-04     | 2.97E-04     | 2.74E-04     | 2.55E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 30 | 0.0383157  | 0.036570827 | 0.03486022  | 0.0332155  | 0.0320599  | 0.030988  | 0.029849  | 0.028805   | 0.0278199  | 0.0270321  | 0.0262199  | 0.0254522  | 0.0247109    | 0.0240159 | 0.02329726   | 0.0226404    | 0.02191909   | 0.02125045   | 0.0206325175 | 0.020032757 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 35 | 0.00108337 | 9.82E-04    | 8.83E-04    | 7.97E-04   | 7.25E-04   | 6.59E-04  | 5.98E-04  | 5.43E-04   | 4.94E-04   | 4.51E-04   | 4.13E-04   | 3.80E-04   | 3.50E-04     | 3.21E-04  | 2.96E-04     | 2.75E-04     | 2.56E-04     | 2.34E-04     | 2.18E-04     | 2.04E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 35 | 0.03321028 | 0.03169715  | 0.03014945  | 0.0287996  | 0.027788   | 0.026859  | 0.025987  | 0.024967   | 0.024113   | 0.0232869  | 0.0224789  | 0.0216859  | 0.0209176    | 0.0201619 | 0.01942726   | 0.0187036    | 0.0180066    | 0.01732433   | 0.01665701   | 0.016011701 |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 40 | 8.92E-04   | 8.08E-04    | 7.27E-04    | 6.56E-04   | 5.97E-04   | 5.42E-04  | 4.93E-04  | 4.47E-04   | 4.07E-04   | 3.71E-04   | 3.40E-04   | 3.13E-04   | 2.88E-04     | 2.64E-04  | 2.44E-04     | 2.26E-04     | 2.10E-04     | 1.93E-04     | 1.79E-04     | 1.67E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 40 | 0.02942544 | 0.02808563  | 0.02672717  | 0.0255085  | 0.0246211  | 0.023798  | 0.022923  | 0.022122   | 0.021365   | 0.0207309  | 0.02019155 | 0.0196794  | 0.0191844    | 0.01874   | 0.018357818  | 0.0180348    | 0.01782705   | 0.01810551   | 0.01787245   |             |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 45 | 7.65E-04   | 6.94E-04    | 6.24E-04    | 5.63E-04   | 5.12E-04   | 4.65E-04  | 4.23E-04  | 3.84E-04   | 3.49E-04   | 3.19E-04   | 2.92E-04   | 2.69E-04   | 2.47E-04     | 2.27E-04  | 2.09E-04     | 1.94E-04     | 1.80E-04     | 1.66E-04     | 1.54E-04     | 1.43E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 45 | 0.02665188 | 0.025438173 | 0.02420794  | 0.0231041  | 0.0223004  | 0.021555  | 0.020762  | 0.020036   | 0.0193511  | 0.0188002  | 0.0182839  | 0.0178245  | 0.0173761    | 0.0169374 | 0.0165087    | 0.0160922    | 0.0156872    | 0.0152931    | 0.0149102    | 0.0145381   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 50 | 6.85E-04   | 6.20E-04    | 5.58E-04    | 5.04E-04   | 4.58E-04   | 4.18E-04  | 3.78E-04  | 3.43E-04   | 3.12E-04   | 2.85E-04   | 2.61E-04   | 2.40E-04   | 2.21E-04     | 2.03E-04  | 1.87E-04     | 1.74E-04     | 1.61E-04     | 1.48E-04     | 1.37E-04     | 1.27E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 50 | 0.02467671 | 0.023552948 | 0.02241389  | 0.0213919  | 0.0204777  | 0.0195858 | 0.0187224 | 0.0178852  | 0.0171977  | 0.01641231 | 0.0156334  | 0.0148605  | 0.0141083    | 0.0133716 | 0.0126498    | 0.0119434    | 0.0112534    | 0.0105942    | 0.0099648    | 0.0093624   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 55 | 6.38E-04   | 5.78E-04    | 5.20E-04    | 4.70E-04   | 4.27E-04   | 3.88E-04  | 3.52E-04  | 3.20E-04   | 2.91E-04   | 2.66E-04   | 2.44E-04   | 2.24E-04   | 2.06E-04     | 1.89E-04  | 1.75E-04     | 1.62E-04     | 1.51E-04     | 1.38E-04     | 1.28E-04     | 1.18E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 55 | 0.02335614 | 0.022232518 | 0.0211441   | 0.0202471  | 0.0195428  | 0.01889   | 0.018195  | 0.017559   | 0.0169582  | 0.0164049  | 0.0159264  | 0.0154603  | 0.0150274    | 0.0146187 | 0.014246188  | 0.0139024    | 0.01358316   | 0.01329106   | 0.01302448   | 0.0127816   |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 60 | 6.20E-04   | 5.62E-04    | 5.06E-04    | 4.6E-04    | 4.15E-04   | 3.77E-04  | 3.42E-04  | 3.11E-04   | 2.83E-04   | 2.58E-04   | 2.37E-04   | 2.20E-04   | 2.04E-04     | 1.90E-04  | 1.78E-04     | 1.66E-04     | 1.54E-04     | 1.44E-04     | 1.35E-04     | 1.27E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 60 | 0.02259797 | 0.021568871 | 0.02052576  | 0.0195898  | 0.0189084  | 0.018276  | 0.017604  | 0.016989   | 0.0164077  | 0.01594551 | 0.01550568 | 0.0151133  | 0.0147331    | 0.014392  | 0.0141267506 | 0.0138814574 | 0.0136451694 | 0.013420264  | 0.0132053253 |             |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 65 | 6.28E-04   | 5.70E-04    | 5.15E-04    | 4.62E-04   | 4.20E-04   | 3.82E-04  | 3.47E-04  | 3.15E-04   | 2.87E-04   | 2.62E-04   | 2.40E-04   | 2.20E-04   | 2.02E-04     | 1.86E-04  | 1.72E-04     | 1.59E-04     | 1.48E-04     | 1.36E-04     | 1.27E-04     | 1.19E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 65 | 0.02230570 | 0.021323916 | 0.02030122  | 0.0193755  | 0.0187015  | 0.018076  | 0.017412  | 0.016803   | 0.0162282  | 0.01577707 | 0.01533369 | 0.01491498 | 0.0145179    | 0.0142324 | 0.01411423   | 0.0140026    | 0.013897973  | 0.013792545  | 0.013697906  |             |
| San Bernardino (SC) | Annual | LHD1 | GAS | AIMYr | 70 | 5.87E-04   | 5.34E-04    | 4.84E-04    | 4.44E-04   | 4.04E-04   | 3.70E-04  | 3.37E-04  | 3.03E-04   | 2.72E-04   | 2.52E-04   | 2.34E-04   | 2.18E-04   | 2.04E-04     | 1.90E-04  | 1.78E-04     | 1.67E-04     | 1.56E-04     | 1.46E-04     | 1.37E-04     | 1.29E-04    |
| San Bernardino (SC) | Annual | LHD1 | DSL | AIMYr | 70 | 0.02052576 | 0.0195898   | 0.0189084   | 0.018276   | 0.017604   | 0.016989  | 0.0164077 | 0.01594551 | 0.01550568 | 0.0151133  | 0.0147331  | 0.014392   | 0.0141267507 | 0.0141574 | 0.014051696  | 0.0139456    | 0.01384925   | 0.0137529255 |              |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 5  | 0.00516283 | 0.004451811 | 0.0039097   | 0.0034468  | 0.0030552  | 0.002735  | 0.002432  | 0.002169   | 0.0019375  | 0.00175187 | 0.00159723 | 0.0014851  | 0.0013762    | 0.001295  | 0.00120864   | 0.0011619    | 0.00111467   | 0.00107117   | 0.001030324  |             |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 5  | 0.09411327 | 0.089730201 | 0.08561026  | 0.0819661  | 0.078292   | 0.075211  | 0.072106  | 0.069457   | 0.0669382  | 0.0647029  | 0.06281744 | 0.0597276  | 0.0583654    | 0.0572399 | 0.057199489  | 0.0568926    | 0.056447561  | 0.05533369   | 0.05447453   |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 10 | 0.00415756 | 0.003584964 | 0.0031479   | 0.0027757  | 0.0024603  | 0.002203  | 0.001959  | 0.001747   | 0.0015603  | 0.00141075 | 0.0012873  | 0.001196   | 0.0011082    | 0.001043  | 9.83E-04     | 9.36E-04     | 8.98E-04     | 8.63E-04     | 8.30E-04     | 8.00E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 10 | 0.08135884 | 0.079261816 | 0.07764529  | 0.07596429 | 0.074361   | 0.0728179 | 0.0713367 | 0.0699137  | 0.0685273  | 0.0671939  | 0.0659063  | 0.0647533  | 0.0637106    | 0.0626804 | 0.0616615    | 0.0606541    | 0.0596671    | 0.0586908    | 0.0577337    | 0.0567871   |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 15 | 0.00278132 | 0.00239872  | 0.00211699  | 0.001869   | 0.001649   | 0.001474  | 0.00131   | 0.001168   | 0.0010498  | 9.44E-04   | 8.00E-04   | 7.41E-04   | 6.98E-04     | 6.58E-04  | 6.20E-04     | 5.85E-04     | 5.55E-04     | 5.25E-04     | 5.00E-04     | 4.75E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 15 | 0.0660645  | 0.062913228 | 0.0600464   | 0.0574377  | 0.05491    | 0.052749  | 0.050571  | 0.048713   | 0.0462457  | 0.0446752  | 0.0433067  | 0.0418989  | 0.0403435    | 0.0400145 | 0.040116792  | 0.0399106    | 0.039589425  | 0.0392801    | 0.038205647  |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 20 | 0.00193949 | 0.001672381 | 0.00148029  | 0.0012948  | 0.0011477  | 0.001028  | 9.14E-04  | 8.15E-04   | 7.28E-04   | 6.58E-04   | 6.03E-04   | 5.58E-04   | 5.17E-04     | 4.87E-04  | 4.59E-04     | 4.36E-04     | 4.19E-04     | 4.02E-04     | 3.87E-04     | 3.74E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 20 | 0.05353732 | 0.051047502 | 0.04871832  | 0.0466407  | 0.0445537  | 0.042801  | 0.041303  | 0.03926    | 0.0375235  | 0.0362513  | 0.0351385  | 0.0339892  | 0.0332414    | 0.032573  | 0.03255058   | 0.0323759    | 0.032122674  | 0.0314888    | 0.03099981   |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 25 | 0.00140977 | 0.00115613  | 0.00106741  | 9.41E-04   | 8.34E-04   | 7.47E-04  | 6.64E-04  | 5.92E-04   | 5.29E-04   | 4.78E-04   | 4.36E-04   | 4.03E-04   | 3.76E-04     | 3.54E-04  | 3.33E-04     | 3.17E-04     | 3.04E-04     | 2.92E-04     | 2.81E-04     | 2.71E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 25 | 0.04442278 | 0.042341028 | 0.04040911  | 0.038656   | 0.0369548  | 0.035051  | 0.034035  | 0.032764   | 0.0311237  | 0.0295627  | 0.0291457  | 0.0281922  | 0.0275492    | 0.0270118 | 0.02699869   | 0.026854     | 0.0264394    | 0.02611818   | 0.025712657  |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 30 | 0.00106815 | 9.21E-04    | 8.09E-04    | 7.13E-04   | 6.32E-04   | 5.66E-04  | 5.03E-04  | 4.49E-04   | 4.01E-04   | 3.62E-04   | 3.31E-04   | 3.07E-04   | 2.85E-04     | 2.66E-04  | 2.53E-04     | 2.40E-04     | 2.31E-04     | 2.22E-04     | 2.13E-04     | 2.04E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 30 | 0.0376658  | 0.035906901 | 0.03426263  | 0.0327762  | 0.0313337  | 0.030101  | 0.028858  | 0.027798   | 0.0268596  | 0.0260467  | 0.02471246 | 0.023904   | 0.0232558    | 0.022908  | 0.022892174  | 0.0227694    | 0.022591238  | 0.02214545   | 0.021801601  |             |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 35 | 8.44E-04   | 7.27E-04    | 6.39E-04    | 5.63E-04   | 4.99E-04   | 4.47E-04  | 3.97E-04  | 3.54E-04   | 3.17E-04   | 2.86E-04   | 2.61E-04   | 2.43E-04   | 2.25E-04     | 2.12E-04  | 1.99E-04     | 1.90E-04     | 1.82E-04     | 1.75E-04     | 1.68E-04     | 1.61E-04    |
| San Bernardino (SC) | Annual | LHD2 | DSL | AIMYr | 35 | 0.03264699 | 0.03117069  | 0.02969727  | 0.0284089  | 0.0271586  | 0.02609   | 0.025013  | 0.024094   | 0.0232733  | 0.0226974  | 0.02214192 | 0.0216908  | 0.0212463    | 0.0208194 | 0.0204182    | 0.0200354    | 0.0197354    | 0.019581048  | 0.01919466   | 0.01898623  |
| San Bernardino (SC) | Annual | LHD2 | GAS | AIMYr | 40 | 6.94E-04   | 5.99E-04    | 5.26E-04    | 4.64E-04   | 4.14E-04   | 3.68E-04  | 3.27E-04  | 2.92E-04   | 2.61E-04   | 2.36E-04   | 2.15E-04   | 2.00E-04   | 1.85E-04     | 1.74E-04  | 1.64E-04     | 1.56E-04     | 1.49E-04     | 1.           |              |             |



|                     |        |    |     |       |    |            |             |            |            |            |            |            |            |            |            |            |            |            |            |             |            |             |            |             |
|---------------------|--------|----|-----|-------|----|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|-------------|------------|-------------|
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 30 | 0.00109018 | 9.00E-04    | 7.63E-04   | 6.55E-04   | 5.61E-04   | 4.97E-04   | 4.43E-04   | 4.00E-04   | 3.63E-04   | 3.34E-04   | 3.11E-04   | 2.91E-04   | 2.73E-04   | 2.58E-04   | 2.48E-04    | 2.38E-04   | 2.30E-04    | 2.21E-04   | 2.13E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 30 | 0.06753477 | 0.058375237 | 0.0502795  | 0.0384491  | 0.0288419  | 0.028407   | 0.027532   | 0.027722   | 0.0278458  | 0.02793118 | 0.02799532 | 0.0280437  | 0.028068   | 0.02809    | 0.028112375 | 0.0281275  | 0.028136185 | 0.02813421 | 0.028131416 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 35 | 8.61E-04   | 7.11E-04    | 6.03E-04   | 5.17E-04   | 4.43E-04   | 3.93E-04   | 3.50E-04   | 3.16E-04   | 2.87E-04   | 2.64E-04   | 2.49E-04   | 2.30E-04   | 2.16E-04   | 2.04E-04   | 1.96E-04    | 1.89E-04   | 1.81E-04    | 1.74E-04   | 1.68E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 35 | 0.06633602 | 0.05763008  | 0.0517055  | 0.0394947  | 0.0297636  | 0.029327   | 0.028439   | 0.02864    | 0.0287724  | 0.02886436 | 0.0289381  | 0.0289685  | 0.0290139  | 0.0290338  | 0.029063224 | 0.0290802  | 0.02909428  | 0.0290964  | 0.02909754  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 40 | 7.09E-04   | 5.85E-04    | 4.96E-04   | 4.26E-04   | 3.65E-04   | 3.23E-04   | 2.88E-04   | 2.60E-04   | 2.37E-04   | 2.17E-04   | 2.02E-04   | 1.89E-04   | 1.78E-04   | 1.68E-04   | 1.61E-04    | 1.55E-04   | 1.49E-04    | 1.43E-04   | 1.38E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 40 | 0.06786461 | 0.059626281 | 0.0523287  | 0.0421511  | 0.031884   | 0.031416   | 0.030478   | 0.030688   | 0.0308429  | 0.0309457  | 0.0310261  | 0.0310803  | 0.0311114  | 0.031139   | 0.03116716  | 0.0311864  | 0.0311967   | 0.03119813 | 0.031196495 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 45 | 6.08E-04   | 5.02E-04    | 4.26E-04   | 3.65E-04   | 3.13E-04   | 2.78E-04   | 2.47E-04   | 2.23E-04   | 2.03E-04   | 1.74E-04   | 1.63E-04   | 1.52E-04   | 1.44E-04   | 1.38E-04   | 1.33E-04    | 1.28E-04   | 1.23E-04    | 1.19E-04   | 1.15E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 45 | 0.07301453 | 0.064445054 | 0.05692946 | 0.0464184  | 0.0351854  | 0.034673   | 0.033648   | 0.033894   | 0.0340574  | 0.03417183 | 0.03425873 | 0.034325   | 0.0343607  | 0.034392   | 0.034424184 | 0.0344462  | 0.034458999 | 0.03446042 | 0.034459139 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 50 | 5.44E-04   | 4.49E-04    | 3.81E-04   | 3.27E-04   | 2.80E-04   | 2.48E-04   | 2.21E-04   | 1.99E-04   | 1.81E-04   | 1.67E-04   | 1.55E-04   | 1.45E-04   | 1.36E-04   | 1.29E-04   | 1.24E-04    | 1.19E-04   | 1.15E-04    | 1.10E-04   | 1.06E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 50 | 0.08148779 | 0.072053329 | 0.06379731 | 0.0522966  | 0.0396737  | 0.039099   | 0.037951   | 0.03823    | 0.0384158  | 0.0385432  | 0.03864517 | 0.0387207  | 0.0387616  | 0.038798   | 0.038834295 | 0.0388695  | 0.038874326 | 0.03887626 | 0.038875167 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 55 | 5.07E-04   | 4.19E-04    | 3.55E-04   | 3.05E-04   | 2.61E-04   | 2.31E-04   | 2.06E-04   | 1.86E-04   | 1.69E-04   | 1.56E-04   | 1.45E-04   | 1.36E-04   | 1.27E-04   | 1.20E-04   | 1.15E-04    | 1.11E-04   | 1.07E-04    | 1.03E-04   | 9.91E-05    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 55 | 0.09328438 | 0.082469104 | 0.0729077  | 0.0597856  | 0.0453488  | 0.044694   | 0.043386   | 0.04306    | 0.043182   | 0.04406747 | 0.04418091 | 0.0442674  | 0.0443142  | 0.0443356  | 0.044397494 | 0.0444263  | 0.044443346 | 0.04444565 | 0.04444638  |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 60 | 4.93E-04   | 4.07E-04    | 3.45E-04   | 2.96E-04   | 2.54E-04   | 2.25E-04   | 2.00E-04   | 1.81E-04   | 1.64E-04   | 1.51E-04   | 1.41E-04   | 1.32E-04   | 1.24E-04   | 1.17E-04   | 1.12E-04    | 1.08E-04   | 1.04E-04    | 9.99E-05   | 9.63E-05    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 60 | 0.10840431 | 0.095674381 | 0.08450983 | 0.0688854  | 0.052108   | 0.051457   | 0.049952   | 0.05032    | 0.0505645  | 0.05073585 | 0.05086598 | 0.050965   | 0.0510186  | 0.051066   | 0.051113781 | 0.0511467  | 0.051166061 | 0.05116859 | 0.051167493 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 65 | 4.99E-04   | 4.12E-04    | 3.50E-04   | 3.00E-04   | 2.57E-04   | 2.28E-04   | 2.03E-04   | 1.83E-04   | 1.68E-04   | 1.53E-04   | 1.43E-04   | 1.33E-04   | 1.25E-04   | 1.18E-04   | 1.14E-04    | 1.09E-04   | 1.05E-04    | 1.01E-04   | 9.76E-05    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 65 | 0.12684757 | 0.111675159 | 0.0983545  | 0.0795961  | 0.0602597  | 0.059389   | 0.05765    | 0.058074   | 0.0583547  | 0.05855127 | 0.05870035 | 0.0588136  | 0.0588746  | 0.058929   | 0.058983155 | 0.0590205  | 0.05904247  | 0.05904509 | 0.059043751 |
| San Bernardino (SC) | Annual | T6 | GAS | AIMYr | 70 |            |             | 3.69E-04   | 3.17E-04   | 2.71E-04   | 2.41E-04   | 2.14E-04   | 1.93E-04   | 1.76E-04   | 1.62E-04   | 1.51E-04   | 1.41E-04   | 1.32E-04   | 1.25E-04   | 1.20E-04    | 1.15E-04   | 1.10E-04    | 1.03E-04   | 1.03E-04    |
| San Bernardino (SC) | Annual | T6 | DSL | AIMYr | 70 |            |             | 0.11452476 | 0.0919176  | 0.0694955  | 0.06849    | 0.06648    | 0.06697    | 0.0672888  | 0.06751374 | 0.06768044 | 0.0678132  | 0.0678823  | 0.067944   | 0.068005617 | 0.0680479  | 0.068072573 | 0.06807514 | 0.068073413 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 5  | 0.00221472 | 0.002079367 | 0.00193613 | 0.0017176  | 0.0015421  | 0.001448   | 0.001351   | 0.001281   | 0.0012038  | 0.0011555  | 0.0011019  | 0.0010834  | 0.0010458  | 0.0010114  | 9.80E-04    | 9.65E-04   | 9.51E-04    | 9.42E-04   | 9.38E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 5  | 0.12506118 | 0.118613923 | 0.11244018 | 0.0987239  | 0.0895697  | 0.088356   | 0.087228   | 0.087367   | 0.0874953  | 0.0875066  | 0.08720723 | 0.0870018  | 0.0868878  | 0.086797   | 0.086712227 | 0.0866436  | 0.086547622 | 0.08645273 | 0.086390446 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 10 | 0.00194647 | 0.001674477 | 0.00155913 | 0.0013832  | 0.0012418  | 0.001166   | 0.001088   | 0.001032   | 9.69E-04   | 9.31E-04   | 8.94E-04   | 8.42E-04   | 8.27E-04   | 8.16E-04   | 7.89E-04    | 7.77E-04   | 7.66E-04    | 7.59E-04   | 7.55E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 10 | 0.10374133 | 0.099654644 | 0.09560272 | 0.086771   | 0.080258   | 0.079822   | 0.078947   | 0.079151   | 0.0793449  | 0.07951201 | 0.0795998  | 0.0796637  | 0.07973549 | 0.07979628 | 0.0798511   | 0.07990511 | 0.07995961  | 0.0799961  | 0.08003526  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 15 | 0.00130216 | 0.001120193 | 0.00104303 | 9.25E-04   | 8.31E-04   | 7.80E-04   | 7.28E-04   | 6.90E-04   | 6.48E-04   | 6.22E-04   | 5.98E-04   | 5.84E-04   | 5.63E-04   | 5.46E-04   | 5.29E-04    | 5.20E-04   | 5.12E-04    | 5.06E-04   | 5.05E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 15 | 0.08620088 | 0.083884465 | 0.08143257 | 0.0762725  | 0.0727429  | 0.071911   | 0.071237   | 0.071481   | 0.0717181  | 0.07196054 | 0.07214824 | 0.0666376  | 0.0666576  | 0.066698   | 0.066752822 | 0.0668096  | 0.066852875 | 0.06689471 | 0.06694446  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 20 | 9.08E-04   | 7.81E-04    | 7.27E-04   | 6.45E-04   | 5.79E-04   | 5.44E-04   | 5.08E-04   | 4.81E-04   | 4.52E-04   | 4.34E-04   | 4.17E-04   | 4.07E-04   | 3.93E-04   | 3.81E-04   | 3.68E-04    | 3.62E-04   | 3.57E-04    | 3.54E-04   | 3.52E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 20 | 0.06479424 | 0.063245303 | 0.061415   | 0.0569878  | 0.0534876  | 0.053126   | 0.052392   | 0.053065   | 0.0536427  | 0.05407996 | 0.05425544 | 0.05439196 | 0.05450254 | 0.0546133  | 0.054830028 | 0.0549323  | 0.055026231 | 0.05511365 | 0.055205817 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 25 | 6.60E-04   | 5.68E-04    | 5.29E-04   | 4.69E-04   | 4.21E-04   | 3.95E-04   | 3.69E-04   | 3.50E-04   | 3.29E-04   | 3.16E-04   | 3.03E-04   | 2.96E-04   | 2.86E-04   | 2.77E-04   | 2.68E-04    | 2.63E-04   | 2.60E-04    | 2.57E-04   | 2.56E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 25 | 0.08612372 | 0.08433178  | 0.0844734  | 0.0827065  | 0.0814182  | 0.080784   | 0.080321   | 0.080585   | 0.0808426  | 0.0815933  | 0.0822557  | 0.0828376  | 0.0832033  | 0.0835678  | 0.0839384   | 0.0843151  | 0.0846978   | 0.0850825  | 0.0854694   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 30 | 5.00E-04   | 4.30E-04    | 4.01E-04   | 3.55E-04   | 3.19E-04   | 3.00E-04   | 2.80E-04   | 2.65E-04   | 2.49E-04   | 2.39E-04   | 2.30E-04   | 2.24E-04   | 2.16E-04   | 2.10E-04   | 2.03E-04    | 2.00E-04   | 1.97E-04    | 1.95E-04   | 1.94E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 30 | 0.06401855 | 0.063605297 | 0.06289313 | 0.0616916  | 0.0607759  | 0.060167   | 0.059736   | 0.060013   | 0.060284   | 0.06063578 | 0.06107467 | 0.0616448  | 0.062205   | 0.062814   | 0.06342194  | 0.0640302  | 0.064642508 | 0.06525252 | 0.065862321 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 35 | 3.95E-04   | 3.40E-04    | 3.16E-04   | 2.81E-04   | 2.47E-04   | 2.37E-04   | 2.21E-04   | 2.09E-04   | 1.97E-04   | 1.89E-04   | 1.81E-04   | 1.74E-04   | 1.68E-04   | 1.60E-04   | 1.54E-04    | 1.49E-04   | 1.45E-04    | 1.43E-04   | 1.43E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 35 | 0.06470777 | 0.064524425 | 0.0640442  | 0.0632515  | 0.0626285  | 0.062022   | 0.061608   | 0.06191    | 0.0622069  | 0.0624811  | 0.0627693  | 0.0630649  | 0.0633685  | 0.0636802  | 0.0640002   | 0.0643282  | 0.0646652   | 0.0650022  | 0.0653402   |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 40 | 3.25E-04   | 2.80E-04    | 2.60E-04   | 2.31E-04   | 1.95E-04   | 1.95E-04   | 1.82E-04   | 1.72E-04   | 1.62E-04   | 1.55E-04   | 1.49E-04   | 1.44E-04   | 1.41E-04   | 1.36E-04   | 1.32E-04    | 1.30E-04   | 1.28E-04    | 1.27E-04   | 1.26E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 40 | 0.08819138 | 0.08819058  | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058 | 0.08819058  | 0.08819058 | 0.08819058  | 0.08819058 | 0.08819058  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 45 | 2.79E-04   | 2.40E-04    | 2.23E-04   | 1.98E-04   | 1.78E-04   | 1.67E-04   | 1.56E-04   | 1.49E-04   | 1.39E-04   | 1.33E-04   | 1.28E-04   | 1.25E-04   | 1.21E-04   | 1.17E-04   | 1.13E-04    | 1.11E-04   | 1.10E-04    | 1.09E-04   | 1.08E-04    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 45 | 0.07446937 | 0.074603702 | 0.07430171 | 0.0740096  | 0.0738184  | 0.073148   | 0.072718   | 0.073112   | 0.0734975  | 0.06907142 | 0.06924929 | 0.068544   | 0.0686626  | 0.068803   | 0.06896247  | 0.0691151  | 0.069261923 | 0.0694061  | 0.069553502 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 50 | 2.50E-04   | 2.15E-04    | 2.00E-04   | 1.77E-04   | 1.59E-04   | 1.50E-04   | 1.40E-04   | 1.32E-04   | 1.24E-04   | 1.19E-04   | 1.15E-04   | 1.12E-04   | 1.08E-04   | 1.05E-04   | 1.01E-04    | 9.96E-05   | 9.82E-05    | 9.73E-05   | 9.68E-05    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 50 | 0.08354174 | 0.083763853 | 0.0834877  | 0.0833799  | 0.0831556  | 0.082419   | 0.081957   | 0.082416   | 0.082851   | 0.0778824  | 0.0780924  | 0.0773003  | 0.0774402  | 0.077602   | 0.077783975 | 0.0779584  | 0.078126617 | 0.0782921  | 0.078462096 |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 55 | 2.33E-04   | 2.00E-04    | 1.86E-04   | 1.65E-04   | 1.48E-04   | 1.39E-04   | 1.30E-04   | 1.23E-04   | 1.16E-04   | 1.11E-04   | 1.07E-04   | 1.04E-04   | 1.01E-04   | 9.76E-05   | 9.43E-05    | 9.29E-05   | 9.15E-05    | 9.07E-05   | 9.03E-05    |
| San Bernardino (SC) | Annual | T7 | DSL | AIMYr | 55 | 0.0954085  | 0.095671011 | 0.09536527 | 0.095239   | 0.0949878  | 0.094162   | 0.093652   | 0.094189   | 0.0947143  | 0.08902628 | 0.08927346 | 0.0893749  | 0.0895328  | 0.089718   | 0.089926519 | 0.0901258  | 0.09034254  | 0.0905783  | 0.09073791  |
| San Bernardino (SC) | Annual | T7 | GAS | AIMYr | 60 | 2.26E-04   | 1.95E-04    | 1.81E-04   | 1.61E-04   |            |            |            |            |            |            |            |            |            |            |             |            |             |            |             |

|   |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
|---|--------|------|-----|--------|----|-------------|-------------|------------|-----------|-----------|----------|----------|----------|-----------|------------|------------|-----------|-----------|----------|-------------|-----------|-------------|------------|-------------|--|--|
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 5  | 0.00750075  | 0.007175978 | 0.00698698 | 0.006736  | 0.0064343 | 0.006267 | 0.00585  | 0.005448 | 0.0053586 | 0.00529073 | 0.0049614  | 0.0048906 | 0.004821  | 0.003923 | 0.003867072 | 0.003812  | 0.003664413 | 0.00257517 | 0.002034879 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 5  | 0.6939649   | 0.679264627 | 0.6622291  | 0.6187728 | 0.6026314 | 0.591935 | 0.579815 | 0.562256 | 0.5054927 | 0.49517073 | 0.48818271 | 0.4790885 | 0.4706065 | 0.464186 | 0.442907807 | 0.435027  | 0.428486361 | 0.39888769 | 0.388810847 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 10 | 0.00604022  | 0.005778687 | 0.00562649 | 0.0054244 | 0.0051814 | 0.005047 | 0.004711 | 0.004387 | 0.0043152 | 0.00425247 | 0.00399532 | 0.0039393 | 0.0038823 | 0.003159 | 0.003114084 | 0.0030697 | 0.002950886 | 0.00207374 | 0.001639651 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 10 | 0.58948204  | 0.578016235 | 0.56326682 | 0.5247192 | 0.5110313 | 0.501961 | 0.491683 | 0.476793 | 0.4286377 | 0.41990469 | 0.41397883 | 0.406267  | 0.3990742 | 0.393629 | 0.37585708  | 0.3688028 | 0.363356362 | 0.33625667 | 0.323711503 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 15 | 0.004040703 | 0.00386583  | 0.00376401 | 0.0036288 | 0.0034663 | 0.003376 | 0.003152 | 0.002935 | 0.0028968 | 0.00284482 | 0.00267279 | 0.0026347 | 0.0025972 | 0.002113 | 0.002083262 | 0.0020536 | 0.001974096 | 0.00138729 | 0.001096226 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 15 | 0.43443503  | 0.425232426 | 0.4158204  | 0.3873634 | 0.3772586 | 0.370563 | 0.362975 | 0.351983 | 0.3164479 | 0.30998619 | 0.30651155 | 0.2999184 | 0.2946085 | 0.290589 | 0.277286804 | 0.2723351 | 0.268240537 | 0.24971119 | 0.243402887 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 20 | 0.00281775  | 0.00269575  | 0.00262475 | 0.0025305 | 0.0024171 | 0.002354 | 0.002198 | 0.002047 | 0.002013  | 0.00198377 | 0.00186381 | 0.0018372 | 0.0018111 | 0.001474 | 0.001452716 | 0.001432  | 0.001376584 | 9.67E-04   | 7.64E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 20 | 0.33213663  | 0.325100959 | 0.31790524 | 0.2961491 | 0.2884238 | 0.283305 | 0.277503 | 0.2691   | 0.2419325 | 0.2369923  | 0.23364778 | 0.2292952 | 0.2252357 | 0.222163 | 0.211978881 | 0.2082071 | 0.205076694 | 0.19091054 | 0.186087679 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 25 | 0.00204816  | 0.001959474 | 0.00190787 | 0.0018993 | 0.0017569 | 0.001711 | 0.001598 | 0.001488 | 0.0014632 | 0.00144196 | 0.00135476 | 0.0013354 | 0.0013164 | 0.001071 | 0.001055944 | 0.0010409 | 0.001000606 | 7.03E-04   | 5.56E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 25 | 0.26297172  | 0.257401191 | 0.25170391 | 0.2344783 | 0.2283617 | 0.224309 | 0.219715 | 0.213062 | 0.191519  | 0.18764045 | 0.18499242 | 0.1815462 | 0.1783321 | 0.175999 | 0.167835906 | 0.1648495 | 0.162371034 | 0.15115487 | 0.147336333 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 30 | 0.00155184  | 0.001484646 | 0.00144554 | 0.0013936 | 0.0013312 | 0.001297 | 0.00121  | 0.001127 | 0.0011087 | 0.00109254 | 0.00102647 | 0.0010118 | 9.97E-04  | 8.12E-04 | 8.00E-04    | 7.89E-04  | 7.86E-04    | 5.33E-04   | 4.21E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 30 | 0.21562622  | 0.211058604 | 0.20638708 | 0.1922628 | 0.1872474 | 0.183924 | 0.180158 | 0.174702 | 0.1570648 | 0.15385763 | 0.15168634 | 0.1488606 | 0.1462251 | 0.14423  | 0.137618692 | 0.13517   | 0.133137714 | 0.12394092 | 0.120809869 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 35 | 0.00122561  | 0.001172545 | 0.00114166 | 0.0011006 | 0.0010513 | 0.001024 | 9.56E-04 | 8.90E-04 | 8.76E-04  | 8.63E-04   | 8.11E-04   | 7.99E-04  | 7.88E-04  | 6.41E-04 | 6.32E-04    | 6.23E-04  | 5.99E-04    | 4.21E-04   | 3.32E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 35 | 0.18310256  | 0.179223926 | 0.17525701 | 0.1632631 | 0.1590042 | 0.156182 | 0.152984 | 0.148351 | 0.1333742 | 0.13065075 | 0.12880697 | 0.1264075 | 0.1241695 | 0.122475 | 0.116861184 | 0.1147818 | 0.113056096 | 0.10524648 | 0.102587693 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 40 | 0.00100898  | 9.65E-04    | 9.40E-04   | 9.06E-04  | 8.66E-04  | 8.43E-04 | 7.87E-04 | 7.33E-04 | 7.21E-04  | 7.10E-04   | 6.67E-04   | 6.58E-04  | 6.49E-04  | 5.28E-04 | 5.20E-04    | 5.13E-04  | 4.93E-04    | 3.46E-04   | 2.74E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 40 | 0.16102287  | 0.157611922 | 0.15412337 | 0.1433758 | 0.1398305 | 0.137349 | 0.134538 | 0.130462 | 0.1172911 | 0.11489604 | 0.11327458 | 0.1111644 | 0.1091963 | 0.107706 | 0.102769301 | 0.1009407 | 0.099423057 | 0.0925517  | 0.090217006 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 45 | 8.66E-04    | 8.28E-04    | 8.07E-04   | 7.78E-04  | 7.43E-04  | 7.23E-04 | 6.75E-04 | 6.29E-04 | 6.19E-04  | 6.10E-04   | 5.73E-04   | 5.65E-04  | 5.57E-04  | 4.53E-04 | 4.46E-04    | 4.40E-04  | 4.23E-04    | 2.97E-04   | 2.35E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 45 | 0.14664965  | 0.143543165 | 0.14036602 | 0.1307599 | 0.1273489 | 0.125089 | 0.122527 | 0.118817 | 0.1068214 | 0.10464019 | 0.10316348 | 0.1012417 | 0.0994492 | 0.098092 | 0.093595917 | 0.0919305 | 0.090548357 | 0.08429352 | 0.082164057 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 50 | 7.74E-04    | 7.41E-04    | 7.21E-04   | 6.96E-04  | 6.64E-04  | 6.47E-04 | 6.04E-04 | 5.63E-04 | 5.53E-04  | 5.45E-04   | 5.12E-04   | 5.05E-04  | 4.98E-04  | 4.05E-04 | 3.99E-04    | 3.94E-04  | 3.78E-04    | 2.66E-04   | 2.10E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 50 | 0.13831676  | 0.135386809 | 0.13239017 | 0.1233299 | 0.1201128 | 0.117981 | 0.115565 | 0.112065 | 0.1007517 | 0.09869435 | 0.09730156 | 0.0954889 | 0.0937984 | 0.092519 | 0.088277632 | 0.0867069 | 0.085403241 | 0.07950381 | 0.077495354 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 55 | 7.22E-04    | 6.91E-04    | 6.73E-04   | 6.48E-04  | 6.19E-04  | 6.03E-04 | 5.63E-04 | 5.25E-04 | 5.16E-04  | 5.08E-04   | 4.78E-04   | 4.71E-04  | 4.64E-04  | 3.78E-04 | 3.72E-04    | 3.67E-04  | 3.53E-04    | 2.48E-04   | 1.96E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 55 | 0.13510421  | 0.13242315  | 0.12931528 | 0.1204655 | 0.117323  | 0.115241 | 0.112861 | 0.109463 | 0.0984118 | 0.09640208 | 0.09504161 | 0.0932711 | 0.0916198 | 0.09037  | 0.08627295  | 0.084693  | 0.083419675 | 0.07765726 | 0.075695445 |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | GAS | AILMYr | 60 | 7.02E-04    | 6.71E-04    | 6.54E-04   | 6.30E-04  | 6.02E-04  | 5.86E-04 | 5.47E-04 | 5.10E-04 | 5.01E-04  | 4.94E-04   | 4.64E-04   | 4.58E-04  | 4.51E-04  | 3.67E-04 | 3.62E-04    | 3.57E-04  | 3.43E-04    | 2.41E-04   | 1.90E-04    |  |  |
| San Bernardino (SC)                                     | Annual | UBUS | DSL | AILMYr | 60 | 0.13666688  | 0.133771854 | 0.13081099 | 0.1218588 | 0.11868   | 0.116574 | 0.114187 | 0.110729 | 0.0995499 | 0.09751709 | 0.0961409  | 0.0943499 | 0.0926795 | 0.091415 | 0.087224624 | 0.0856726 | 0.084384524 | 0.07855547 | 0.076570967 |  |  |
| <b>70-year Average DPM Emission Factors (2017-2087)</b> |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| 10 mph 35 mph   |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| Vehicle Class (g/mi) (g/mi)                             |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| LHDT1 0.051528 0.020229                                 |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| LHDT2 0.048646 0.019098                                 |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| T6 (MHDT) 0.037933 0.028794                             |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |
| T7 (HHDT) 0.071101 0.055874                             |        |      |     |        |    |             |             |            |           |           |          |          |          |           |            |            |           |           |          |             |           |             |            |             |  |  |

|   |  |                          |                        |  |  |
|---|--|--------------------------|------------------------|--|--|
| EMFAC2011 Idling Emission Factors   |  | (2017 - 2087)            |                        |  |  |
| Idling Emission Factors for LHDT1 and LHDT2 are derived by multiplying the Running Exhaust Emission Factor (g/mi) times 5 mph to get g/hr |  |                          |                        |  |  |
| Idling Emission Factors for MHDT and HHDT derived directly from the CARB HDT Idling Emission Factor Database                              |  |                          |                        |  |  |
|   | <b>70-year</b>                                   |                          | 70-year                |  |  |
| <b>Vehicle Class</b>  | <b>Ave Emission Factor at 5 mph</b>              | <b>Speed (mph)</b>       | Emission Factor (g/mi) |  |  |
| <b>LHDT2</b>  | 0.0185   | 5                        | <b>0.0924</b>          |  |  |
|   | T6 Idling Factors (g/hr)                         | T7 Idling Factors (g/hr) |                        |  |  |
| 2017  | 0.235  | 0.125                    |                        |  |  |
| 2018  | 0.205  | 0.123                    |                        |  |  |
| 2019  | 0.178  | 0.12                     |                        |  |  |
| 2020  | 0.112  | 0.117                    |                        |  |  |
| 2021  | 0.098  | 0.114                    |                        |  |  |
| 2022  | 0.096  | 0.112                    |                        |  |  |
| 2023  | 0.093  | 0.11                     |                        |  |  |
| 2024  | 0.092  | 0.11                     |                        |  |  |
| 2025  | 0.092  | 0.11                     |                        |  |  |
| 2026  | 0.092  | 0.109                    |                        |  |  |
| 2027  | 0.092  | 0.109                    |                        |  |  |
| 2028  | 0.091  | 0.109                    |                        |  |  |
| 2029  | 0.091  | 0.109                    |                        |  |  |
| 2030  | 0.091  | 0.109                    |                        |  |  |
| 2031  | 0.091  | 0.108                    |                        |  |  |
| 2032  | 0.091  | 0.108                    |                        |  |  |
| 2033  | 0.091  | 0.108                    |                        |  |  |
| 2034  | 0.091  | 0.108                    |                        |  |  |
| 2035  | 0.09   | 0.108                    |                        |  |  |
|   | <b>70-Year Ave Idling Emission Factor (g/hr)</b> |                          |                        |  |  |
| T6 (MHDT)   | 0.091  |                          |                        |  |  |
| T7 (HHDT)   | 0.103  |                          |                        |  |  |

**APPENDIX D**

**CalEEMod Model Annual Emissions Printouts**

**5629b Waterman Industrial Center**  
**San Bernardino-South Coast County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

| Land Uses                        | Size   | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------------|--------|----------|-------------|--------------------|------------|
| Unrefrigerated Warehouse-No Rail | 564.65 | 1000sqft | 12.96       | 564,652.00         | 0          |
| Other Asphalt Surfaces           | 5.84   | Acre     | 5.84        | 254,390.40         | 0          |
| Other Non-Asphalt Surfaces       | 103.59 | 1000sqft | 2.38        | 103,585.00         | 0          |
| Parking Lot                      | 452.00 | Space    | 4.07        | 180,800.00         | 0          |

**1.2 Other Project Characteristics**

|                                |                            |                                |       |                                  |       |
|--------------------------------|----------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Urban                      | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 32    |
| <b>Climate Zone</b>            | 10                         |                                |       | <b>Operational Year</b>          | 2017  |
| <b>Utility Company</b>         | Southern California Edison |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 630.89                     | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Total site is 25.25 acres. Building 564,652 sf, gross landscaping 103,585 sf, parking lot including 281 warehouse & 171 trailer parking stalls = 452 parking stalls.

Construction Phase - As per developer, construction start 6/2016 and end 3/2017.

Demolition - Building square foot of 16,332 obtained from Google Earth.

Grading - Total site is 25.25 acres. As per developer, site to be balanced.

Architectural Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A interior 846,978 exterior 291,366 (including 5% of parking lot sf)

Vehicle Trips - Vehicle trips provided by TIA of 1.68 trips/TSF/day. Trip length increased to 40 miles for C-W (trucks) per SCAQMD recs. Trip % changed to 20.43 for C-W (trucks) and 79.57 C-NW for cars to match TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Vehicle Emission Factors - Traffic Mix From TIA.

Area Coating - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC. Square footage calculated using CalEEMod Appendix A 846,978 interior 291,366 exterior (including 5% of parking lot sf)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Light industrial uses have 1030 sf/employee. Site is 0.14 miles to Omnitrans Route 9. Approximately 1.9 miles southeast of downtown San Bernardino.

Area Mitigation - SCAQMD Rule 1113 limits all architectural coating to 50 g/L VOC.

Energy Mitigation - 2013 Title 24 commercial standards are 30% more efficient than 2008 standards. Project to install high efficiency lighting that reduces energy by 5% or more. Project will be LEED Silver. Energy Star appliances installed on-site.

Water Mitigation - 20% reduction in indoor water use and use of water efficient irrigation systems, per Green Building Standards.

Waste Mitigation - AB 939 requires each jurisdiction in California to divert at least 50 percent of its waste away from landfills.

Mobile Commute Mitigation - Passenger cars make up 79.57% of project-related traffic. All employees driving cars are eligible for vanpool/shuttle/ride share programs.

| Table Name              | Column Name                       | Default Value | New Value  |
|-------------------------|-----------------------------------|---------------|------------|
| tblArchitecturalCoating | ConstArea_Nonresidential_Exterior | 464,026.00    | 291,366.00 |
| tblArchitecturalCoating | ConstArea_Nonresidential_Interior | 1,392,077.00  | 846,978.00 |
| tblArchitecturalCoating | EF_Nonresidential_Exterior        | 250.00        | 50.00      |
| tblArchitecturalCoating | EF_Nonresidential_Interior        | 250.00        | 50.00      |
| tblAreaCoating          | Area_EF_Nonresidential_Exterior   | 250           | 50         |

|                           |   |             |             |
|---------------------------|---|-------------|-------------|
| tblAreaCoating            | Area_Nonresidential_Interior              | 1392077     | 846978      |
| tblAreaMitigation         | UseLowVOCPaintNonresidentialInteriorValue | 250         | 50          |
| tblConstructionPhase      | NumDays                                   | 35.00       | 45.00       |
| tblConstructionPhase      | NumDays                                   | 440.00      | 81.00       |
| tblConstructionPhase      | NumDays                                   | 35.00       | 25.00       |
| tblConstructionPhase      | PhaseEndDate                              | 4/11/2017   | 3/31/2017   |
| tblConstructionPhase      | PhaseEndDate                              | 2/8/2017    | 2/7/2017    |
| tblConstructionPhase      | PhaseStartDate                            | 2/8/2017    | 1/30/2017   |
| tblConstructionPhase      | PhaseStartDate                            | 1/5/2017    | 1/4/2017    |
| tblGrading                | AcresOfGrading                            | 112.50      | 25.25       |
| tblProjectCharacteristics | OperationalYear                           | 2014        | 2017        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | HHD                                       | 0.04        | 0.12        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDA                                       | 0.47        | 0.43        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT1                                      | 0.07        | 0.06        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LDT2                                      | 0.17        | 0.16        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD1                                      | 0.06        | 0.03        |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF              | LHD2                                      | 9.0390e-003 | 5.0000e-003 |

|                 |         |             |             |
|-----------------|---------|-------------|-------------|
| tblVehicleEF    | LHD2    | 9.0390e-003 | 5.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MCY     | 4.9210e-003 | 4.0000e-003 |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MDV     | 0.16        | 0.14        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MH      | 2.9320e-003 | 0.00        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | MHD     | 0.02        | 0.05        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | OBUS    | 1.1220e-003 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | SBUS    | 7.1200e-004 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleEF    | UBUS    | 1.3340e-003 | 0.00        |
| tblVehicleTrips | CNW_TTP | 41.00       | 79.57       |
| tblVehicleTrips | CW_TL   | 16.60       | 40.00       |
| tblVehicleTrips | CW_TTP  | 59.00       | 20.43       |
| tblVehicleTrips | ST_TR   | 2.59        | 1.68        |
| tblVehicleTrips | SU_TR   | 2.59        | 1.68        |
| tblVehicleTrips | WD_TR   | 2.59        | 1.68        |

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year         | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| 2016         | 0.4790        | 4.2447        | 4.3301        | 7.0200e-003        | 0.4066        | 0.2037        | 0.6103        | 0.1444         | 0.1893        | 0.3337        | 0.0000        | 606.1994        | 606.1994        | 0.0890        | 0.0000        | 608.0673        |
| 2017         | 1.3804        | 0.3805        | 0.4463        | 8.3000e-004        | 0.0343        | 0.0214        | 0.0557        | 9.1400e-003    | 0.0200        | 0.0292        | 0.0000        | 68.4680         | 68.4680         | 0.0109        | 0.0000        | 68.6967         |
| <b>Total</b> | <b>1.8593</b> | <b>4.6252</b> | <b>4.7764</b> | <b>7.8500e-003</b> | <b>0.4409</b> | <b>0.2251</b> | <b>0.6660</b> | <b>0.1535</b>  | <b>0.2094</b> | <b>0.3629</b> | <b>0.0000</b> | <b>674.6674</b> | <b>674.6674</b> | <b>0.0998</b> | <b>0.0000</b> | <b>676.7639</b> |

#### Mitigated Construction

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year         | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| 2016         | 0.4790        | 4.2447        | 4.3301        | 7.0200e-003        | 0.3109        | 0.2037        | 0.5146        | 0.0973         | 0.1893        | 0.2866        | 0.0000        | 606.1991        | 606.1991        | 0.0890        | 0.0000        | 608.0669        |
| 2017         | 1.3804        | 0.3805        | 0.4463        | 8.3000e-004        | 0.0343        | 0.0214        | 0.0557        | 9.1400e-003    | 0.0200        | 0.0292        | 0.0000        | 68.4680         | 68.4680         | 0.0109        | 0.0000        | 68.6966         |
| <b>Total</b> | <b>1.8593</b> | <b>4.6252</b> | <b>4.7764</b> | <b>7.8500e-003</b> | <b>0.3452</b> | <b>0.2251</b> | <b>0.5703</b> | <b>0.1064</b>  | <b>0.2094</b> | <b>0.3158</b> | <b>0.0000</b> | <b>674.6670</b> | <b>674.6670</b> | <b>0.0998</b> | <b>0.0000</b> | <b>676.7636</b> |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 21.71         | 0.00         | 14.37      | 30.65          | 0.00          | 12.97       | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2        | NBio- CO2         | Total CO2         | CH4            | N2O           | CO2e              |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|-----------------|-------------------|-------------------|----------------|---------------|-------------------|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               | MT/yr           |                   |                   |                |               |                   |
| Area         | 4.5331        | 1.4000e-004   | 0.0146         | 0.0000        |               | 5.0000e-005   | 5.0000e-005   |                | 5.0000e-005   | 5.0000e-005   | 0.0000          | 0.0280            | 0.0280            | 8.0000e-005    | 0.0000        | 0.0296            |
| Energy       | 6.5200e-003   | 0.0592        | 0.0498         | 3.6000e-004   |               | 4.5000e-003   | 4.5000e-003   |                | 4.5000e-003   | 4.5000e-003   | 0.0000          | 597.9986          | 597.9986          | 0.0258         | 6.2600e-003   | 600.4789          |
| Mobile       | 0.8318        | 5.4318        | 11.4439        | 0.0297        | 1.6906        | 0.0803        | 1.7710        | 0.4541         | 0.0739        | 0.5280        | 0.0000          | 2,402.1003        | 2,402.1003        | 0.0676         | 0.0000        | 2,403.5202        |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 107.7415        | 0.0000            | 107.7415          | 6.3673         | 0.0000        | 241.4557          |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 41.4255         | 486.5470          | 527.9725          | 4.2772         | 0.1051        | 650.3716          |
| <b>Total</b> | <b>5.3715</b> | <b>5.4911</b> | <b>11.5083</b> | <b>0.0301</b> | <b>1.6906</b> | <b>0.0849</b> | <b>1.7755</b> | <b>0.4541</b>  | <b>0.0784</b> | <b>0.5326</b> | <b>149.1670</b> | <b>3,486.6738</b> | <b>3,635.8408</b> | <b>10.7380</b> | <b>0.1114</b> | <b>3,895.8559</b> |

## 2.2 Overall Operational

### Mitigated Operational

|              | ROG           | NOx           | CO            | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category     | tons/yr       |               |               |               |               |               |               |                |               |               | MT/yr          |                   |                   |               |               |                   |
| Area         | 4.1406        | 1.4000e-004   | 0.0146        | 0.0000        |               | 5.0000e-005   | 5.0000e-005   |                | 5.0000e-005   | 5.0000e-005   | 0.0000         | 0.0280            | 0.0280            | 8.0000e-005   | 0.0000        | 0.0296            |
| Energy       | 4.5900e-003   | 0.0417        | 0.0350        | 2.5000e-004   |               | 3.1700e-003   | 3.1700e-003   |                | 3.1700e-003   | 3.1700e-003   | 0.0000         | 540.6959          | 540.6959          | 0.0236        | 5.5400e-003   | 542.9106          |
| Mobile       | 0.7267        | 4.0314        | 9.3349        | 0.0213        | 1.1988        | 0.0575        | 1.2563        | 0.3220         | 0.0529        | 0.3749        | 0.0000         | 1,719.9729        | 1,719.9729        | 0.0493        | 0.0000        | 1,721.0088        |
| Waste        |               |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 53.8708        | 0.0000            | 53.8708           | 3.1837        | 0.0000        | 120.7278          |
| Water        |               |               |               |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 33.1404        | 375.7278          | 408.8682          | 3.4211        | 0.0840        | 506.7346          |
| <b>Total</b> | <b>4.8719</b> | <b>4.0733</b> | <b>9.3846</b> | <b>0.0216</b> | <b>1.1988</b> | <b>0.0607</b> | <b>1.2595</b> | <b>0.3220</b>  | <b>0.0561</b> | <b>0.3781</b> | <b>87.0112</b> | <b>2,636.4246</b> | <b>2,723.4358</b> | <b>6.6778</b> | <b>0.0895</b> | <b>2,891.4114</b> |

|                          | ROG         | NOx          | CO           | SO2          | Fugitive PM10 | Exhaust PM10 | PM10 Total   | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total  | Bio- CO2     | NBio-CO2     | Total CO2    | CH4          | N2O          | CO2e         |
|--------------------------|-------------|--------------|--------------|--------------|---------------|--------------|--------------|----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Percent Reduction</b> | <b>9.30</b> | <b>25.82</b> | <b>18.45</b> | <b>28.37</b> | <b>29.09</b>  | <b>28.43</b> | <b>29.06</b> | <b>29.09</b>   | <b>28.44</b>  | <b>29.00</b> | <b>41.67</b> | <b>24.39</b> | <b>25.09</b> | <b>37.81</b> | <b>19.63</b> | <b>25.78</b> |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Demolition            | Demolition            | 6/1/2016   | 7/12/2016 | 5             | 30       |                   |
| 2            | Grading               | Grading               | 7/13/2016  | 9/13/2016 | 5             | 45       |                   |
| 3            | Building Construction | Building Construction | 9/14/2016  | 1/4/2017  | 5             | 81       |                   |
| 4            | Paving                | Paving                | 1/4/2017   | 2/7/2017  | 5             | 25       |                   |
| 5            | Architectural Coating | Architectural Coating | 1/30/2017  | 3/31/2017 | 5             | 45       |                   |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 25.25**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 846,978; Non-Residential Outdoor: 291,366 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition            | Concrete/Industrial Saws  | 1      | 8.00        | 81          | 0.73        |
| Demolition            | Excavators                | 3      | 8.00        | 162         | 0.38        |
| Demolition            | Rubber Tired Dozers       | 2      | 8.00        | 255         | 0.40        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 1      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 2      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

**Trips and VMT**

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition            | 6                       | 15.00              | 0.00               | 74.00               | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 8                       | 20.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 463.00             | 181.00             | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 93.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Demolition - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10  | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|---------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category      | tons/yr       |               |               |                    |                    |               |               |                    |               |               | MT/yr         |                |                |               |               |                |
| Fugitive Dust |               |               |               |                    | 8.0400e-003        | 0.0000        | 8.0400e-003   | 1.2200e-003        | 0.0000        | 1.2200e-003   | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000         |
| Off-Road      | 0.0643        | 0.6848        | 0.5255        | 6.0000e-004        |                    | 0.0344        | 0.0344        |                    | 0.0321        | 0.0321        | 0.0000        | 55.6460        | 55.6460        | 0.0151        | 0.0000        | 55.9638        |
| <b>Total</b>  | <b>0.0643</b> | <b>0.6848</b> | <b>0.5255</b> | <b>6.0000e-004</b> | <b>8.0400e-003</b> | <b>0.0344</b> | <b>0.0424</b> | <b>1.2200e-003</b> | <b>0.0321</b> | <b>0.0333</b> | <b>0.0000</b> | <b>55.6460</b> | <b>55.6460</b> | <b>0.0151</b> | <b>0.0000</b> | <b>55.9638</b> |

### 3.2 Demolition - 2016

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 6.6000e-004        | 0.0108        | 8.2100e-003   | 3.0000e-005        | 6.3000e-004        | 1.6000e-004        | 7.9000e-004        | 1.7000e-004        | 1.5000e-004        | 3.2000e-004        | 0.0000        | 2.4780        | 2.4780        | 2.0000e-005        | 0.0000        | 2.4783        |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 8.7000e-004        | 1.3100e-003   | 0.0138        | 3.0000e-005        | 2.4700e-003        | 2.0000e-005        | 2.4900e-003        | 6.6000e-004        | 2.0000e-005        | 6.7000e-004        | 0.0000        | 2.2048        | 2.2048        | 1.2000e-004        | 0.0000        | 2.2073        |
| <b>Total</b> | <b>1.5300e-003</b> | <b>0.0121</b> | <b>0.0220</b> | <b>6.0000e-005</b> | <b>3.1000e-003</b> | <b>1.8000e-004</b> | <b>3.2800e-003</b> | <b>8.3000e-004</b> | <b>1.7000e-004</b> | <b>9.9000e-004</b> | <b>0.0000</b> | <b>4.6828</b> | <b>4.6828</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>4.6856</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10  | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|---------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category      | tons/yr       |               |               |                    |                    |               |               |                    |               |               | MT/yr         |                |                |               |               |                |
| Fugitive Dust |               |               |               |                    | 3.1300e-003        | 0.0000        | 3.1300e-003   | 4.7000e-004        | 0.0000        | 4.7000e-004   | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000         |
| Off-Road      | 0.0643        | 0.6848        | 0.5255        | 6.0000e-004        |                    | 0.0344        | 0.0344        |                    | 0.0321        | 0.0321        | 0.0000        | 55.6460        | 55.6460        | 0.0151        | 0.0000        | 55.9638        |
| <b>Total</b>  | <b>0.0643</b> | <b>0.6848</b> | <b>0.5255</b> | <b>6.0000e-004</b> | <b>3.1300e-003</b> | <b>0.0344</b> | <b>0.0375</b> | <b>4.7000e-004</b> | <b>0.0321</b> | <b>0.0325</b> | <b>0.0000</b> | <b>55.6460</b> | <b>55.6460</b> | <b>0.0151</b> | <b>0.0000</b> | <b>55.9638</b> |

### 3.2 Demolition - 2016

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 6.6000e-004        | 0.0108        | 8.2100e-003   | 3.0000e-005        | 6.3000e-004        | 1.6000e-004        | 7.9000e-004        | 1.7000e-004        | 1.5000e-004        | 3.2000e-004        | 0.0000        | 2.4780        | 2.4780        | 2.0000e-005        | 0.0000        | 2.4783        |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 8.7000e-004        | 1.3100e-003   | 0.0138        | 3.0000e-005        | 2.4700e-003        | 2.0000e-005        | 2.4900e-003        | 6.6000e-004        | 2.0000e-005        | 6.7000e-004        | 0.0000        | 2.2048        | 2.2048        | 1.2000e-004        | 0.0000        | 2.2073        |
| <b>Total</b> | <b>1.5300e-003</b> | <b>0.0121</b> | <b>0.0220</b> | <b>6.0000e-005</b> | <b>3.1000e-003</b> | <b>1.8000e-004</b> | <b>3.2800e-003</b> | <b>8.3000e-004</b> | <b>1.7000e-004</b> | <b>9.9000e-004</b> | <b>0.0000</b> | <b>4.6828</b> | <b>4.6828</b> | <b>1.4000e-004</b> | <b>0.0000</b> | <b>4.6856</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category      | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Fugitive Dust |               |               |               |                    | 0.1489        | 0.0000        | 0.1489        | 0.0759         | 0.0000        | 0.0759        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Off-Road      | 0.1458        | 1.6833        | 1.1056        | 1.3900e-003        |               | 0.0807        | 0.0807        |                | 0.0742        | 0.0742        | 0.0000        | 130.9404        | 130.9404        | 0.0395        | 0.0000        | 131.7698        |
| <b>Total</b>  | <b>0.1458</b> | <b>1.6833</b> | <b>1.1056</b> | <b>1.3900e-003</b> | <b>0.1489</b> | <b>0.0807</b> | <b>0.2295</b> | <b>0.0759</b>  | <b>0.0742</b> | <b>0.1501</b> | <b>0.0000</b> | <b>130.9404</b> | <b>130.9404</b> | <b>0.0395</b> | <b>0.0000</b> | <b>131.7698</b> |

### 3.3 Grading - 2016

#### Unmitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.7300e-003        | 2.6100e-003        | 0.0275        | 6.0000e-005        | 4.9300e-003        | 4.0000e-005        | 4.9700e-003        | 1.3100e-003        | 3.0000e-005        | 1.3400e-003        | 0.0000        | 4.4096        | 4.4096        | 2.4000e-004        | 0.0000        | 4.4146        |
| <b>Total</b> | <b>1.7300e-003</b> | <b>2.6100e-003</b> | <b>0.0275</b> | <b>6.0000e-005</b> | <b>4.9300e-003</b> | <b>4.0000e-005</b> | <b>4.9700e-003</b> | <b>1.3100e-003</b> | <b>3.0000e-005</b> | <b>1.3400e-003</b> | <b>0.0000</b> | <b>4.4096</b> | <b>4.4096</b> | <b>2.4000e-004</b> | <b>0.0000</b> | <b>4.4146</b> |

#### Mitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category      | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Fugitive Dust |               |               |               |                    | 0.0581        | 0.0000        | 0.0581        | 0.0296         | 0.0000        | 0.0296        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Off-Road      | 0.1458        | 1.6833        | 1.1056        | 1.3900e-003        |               | 0.0807        | 0.0807        |                | 0.0742        | 0.0742        | 0.0000        | 130.9402        | 130.9402        | 0.0395        | 0.0000        | 131.7697        |
| <b>Total</b>  | <b>0.1458</b> | <b>1.6833</b> | <b>1.1056</b> | <b>1.3900e-003</b> | <b>0.0581</b> | <b>0.0807</b> | <b>0.1387</b> | <b>0.0296</b>  | <b>0.0742</b> | <b>0.1038</b> | <b>0.0000</b> | <b>130.9402</b> | <b>130.9402</b> | <b>0.0395</b> | <b>0.0000</b> | <b>131.7697</b> |

### 3.3 Grading - 2016

#### Mitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 1.7300e-003        | 2.6100e-003        | 0.0275        | 6.0000e-005        | 4.9300e-003        | 4.0000e-005        | 4.9700e-003        | 1.3100e-003        | 3.0000e-005        | 1.3400e-003        | 0.0000        | 4.4096        | 4.4096        | 2.4000e-004        | 0.0000        | 4.4146        |
| <b>Total</b> | <b>1.7300e-003</b> | <b>2.6100e-003</b> | <b>0.0275</b> | <b>6.0000e-005</b> | <b>4.9300e-003</b> | <b>4.0000e-005</b> | <b>4.9700e-003</b> | <b>1.3100e-003</b> | <b>3.0000e-005</b> | <b>1.3400e-003</b> | <b>0.0000</b> | <b>4.4096</b> | <b>4.4096</b> | <b>2.4000e-004</b> | <b>0.0000</b> | <b>4.4146</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.1328        | 1.1118        | 0.7218        | 1.0500e-003        |               | 0.0767        | 0.0767        |                | 0.0721        | 0.0721        | 0.0000        | 94.4399        | 94.4399        | 0.0234        | 0.0000        | 94.9318        |
| <b>Total</b> | <b>0.1328</b> | <b>1.1118</b> | <b>0.7218</b> | <b>1.0500e-003</b> |               | <b>0.0767</b> | <b>0.0767</b> |                | <b>0.0721</b> | <b>0.0721</b> | <b>0.0000</b> | <b>94.4399</b> | <b>94.4399</b> | <b>0.0234</b> | <b>0.0000</b> | <b>94.9318</b> |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Vendor       | 0.0633        | 0.6453        | 0.8241        | 1.5300e-003        | 0.0436        | 0.0103        | 0.0539        | 0.0125         | 9.4200e-003   | 0.0219        | 0.0000        | 139.1379        | 139.1379        | 1.0200e-003   | 0.0000        | 139.1592        |
| Worker       | 0.0695        | 0.1049        | 1.1037        | 2.3500e-003        | 0.1980        | 1.5000e-003   | 0.1995        | 0.0526         | 1.3800e-003   | 0.0540        | 0.0000        | 176.9428        | 176.9428        | 9.5000e-003   | 0.0000        | 177.1424        |
| <b>Total</b> | <b>0.1328</b> | <b>0.7501</b> | <b>1.9278</b> | <b>3.8800e-003</b> | <b>0.2416</b> | <b>0.0118</b> | <b>0.2534</b> | <b>0.0651</b>  | <b>0.0108</b> | <b>0.0759</b> | <b>0.0000</b> | <b>316.0807</b> | <b>316.0807</b> | <b>0.0105</b> | <b>0.0000</b> | <b>316.3016</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |               |               |                |
| Off-Road     | 0.1328        | 1.1118        | 0.7218        | 1.0500e-003        |               | 0.0767        | 0.0767        |                | 0.0721        | 0.0721        | 0.0000        | 94.4398        | 94.4398        | 0.0234        | 0.0000        | 94.9317        |
| <b>Total</b> | <b>0.1328</b> | <b>1.1118</b> | <b>0.7218</b> | <b>1.0500e-003</b> |               | <b>0.0767</b> | <b>0.0767</b> |                | <b>0.0721</b> | <b>0.0721</b> | <b>0.0000</b> | <b>94.4398</b> | <b>94.4398</b> | <b>0.0234</b> | <b>0.0000</b> | <b>94.9317</b> |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O           | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                 |                 |               |               |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000        | 0.0000        | 0.0000        | 0.0000          | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Vendor       | 0.0633        | 0.6453        | 0.8241        | 1.5300e-003        | 0.0436        | 0.0103        | 0.0539        | 0.0125         | 9.4200e-003   | 0.0219        | 0.0000        | 139.1379        | 139.1379        | 1.0200e-003   | 0.0000        | 139.1592        |
| Worker       | 0.0695        | 0.1049        | 1.1037        | 2.3500e-003        | 0.1980        | 1.5000e-003   | 0.1995        | 0.0526         | 1.3800e-003   | 0.0540        | 0.0000        | 176.9428        | 176.9428        | 9.5000e-003   | 0.0000        | 177.1424        |
| <b>Total</b> | <b>0.1328</b> | <b>0.7501</b> | <b>1.9278</b> | <b>3.8800e-003</b> | <b>0.2416</b> | <b>0.0118</b> | <b>0.2534</b> | <b>0.0651</b>  | <b>0.0108</b> | <b>0.0759</b> | <b>0.0000</b> | <b>316.0807</b> | <b>316.0807</b> | <b>0.0105</b> | <b>0.0000</b> | <b>316.3016</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 4.6500e-003        | 0.0396        | 0.0272        | 4.0000e-005        |               | 2.6700e-003        | 2.6700e-003        |                | 2.5100e-003        | 2.5100e-003        | 0.0000        | 3.5922        | 3.5922        | 8.8000e-004        | 0.0000        | 3.6108        |
| <b>Total</b> | <b>4.6500e-003</b> | <b>0.0396</b> | <b>0.0272</b> | <b>4.0000e-005</b> |               | <b>2.6700e-003</b> | <b>2.6700e-003</b> |                | <b>2.5100e-003</b> | <b>2.5100e-003</b> | <b>0.0000</b> | <b>3.5922</b> | <b>3.5922</b> | <b>8.8000e-004</b> | <b>0.0000</b> | <b>3.6108</b> |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |        |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|--------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |                |                |                    |               |                |        |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         | 0.0000 |
| Vendor       | 2.2500e-003        | 0.0226        | 0.0303        | 6.0000e-005        | 1.6800e-003        | 3.5000e-004        | 2.0300e-003        | 4.8000e-004        | 3.2000e-004        | 8.0000e-004        | 0.0000        | 5.2634         | 5.2634         | 4.0000e-005        | 0.0000        | 5.2642         |        |
| Worker       | 2.3600e-003        | 3.6100e-003   | 0.0380        | 9.0000e-005        | 7.6100e-003        | 6.0000e-005        | 7.6700e-003        | 2.0200e-003        | 5.0000e-005        | 2.0700e-003        | 0.0000        | 6.5378         | 6.5378         | 3.4000e-004        | 0.0000        | 6.5448         |        |
| <b>Total</b> | <b>4.6100e-003</b> | <b>0.0262</b> | <b>0.0683</b> | <b>1.5000e-004</b> | <b>9.2900e-003</b> | <b>4.1000e-004</b> | <b>9.7000e-003</b> | <b>2.5000e-003</b> | <b>3.7000e-004</b> | <b>2.8700e-003</b> | <b>0.0000</b> | <b>11.8011</b> | <b>11.8011</b> | <b>3.8000e-004</b> | <b>0.0000</b> | <b>11.8090</b> |        |

#### Mitigated Construction On-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Off-Road     | 4.6500e-003        | 0.0396        | 0.0272        | 4.0000e-005        |               | 2.6700e-003        | 2.6700e-003        |                | 2.5100e-003        | 2.5100e-003        | 0.0000        | 3.5922        | 3.5922        | 8.8000e-004        | 0.0000        | 3.6108        |
| <b>Total</b> | <b>4.6500e-003</b> | <b>0.0396</b> | <b>0.0272</b> | <b>4.0000e-005</b> |               | <b>2.6700e-003</b> | <b>2.6700e-003</b> |                | <b>2.5100e-003</b> | <b>2.5100e-003</b> | <b>0.0000</b> | <b>3.5922</b> | <b>3.5922</b> | <b>8.8000e-004</b> | <b>0.0000</b> | <b>3.6108</b> |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 2.2500e-003        | 0.0226        | 0.0303        | 6.0000e-005        | 1.6800e-003        | 3.5000e-004        | 2.0300e-003        | 4.8000e-004        | 3.2000e-004        | 8.0000e-004        | 0.0000        | 5.2634         | 5.2634         | 4.0000e-005        | 0.0000        | 5.2642         |
| Worker       | 2.3600e-003        | 3.6100e-003   | 0.0380        | 9.0000e-005        | 7.6100e-003        | 6.0000e-005        | 7.6700e-003        | 2.0200e-003        | 5.0000e-005        | 2.0700e-003        | 0.0000        | 6.5378         | 6.5378         | 3.4000e-004        | 0.0000        | 6.5448         |
| <b>Total</b> | <b>4.6100e-003</b> | <b>0.0262</b> | <b>0.0683</b> | <b>1.5000e-004</b> | <b>9.2900e-003</b> | <b>4.1000e-004</b> | <b>9.7000e-003</b> | <b>2.5000e-003</b> | <b>3.7000e-004</b> | <b>2.8700e-003</b> | <b>0.0000</b> | <b>11.8011</b> | <b>11.8011</b> | <b>3.8000e-004</b> | <b>0.0000</b> | <b>11.8090</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |                    |               |                |
| Off-Road     | 0.0238        | 0.2537        | 0.1841        | 2.8000e-004        |               | 0.0142        | 0.0142        |                | 0.0131        | 0.0131        | 0.0000        | 25.8668        | 25.8668        | 7.9300e-003        | 0.0000        | 26.0332        |
| Paving       | 0.0130        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| <b>Total</b> | <b>0.0368</b> | <b>0.2537</b> | <b>0.1841</b> | <b>2.8000e-004</b> |               | <b>0.0142</b> | <b>0.0142</b> |                | <b>0.0131</b> | <b>0.0131</b> | <b>0.0000</b> | <b>25.8668</b> | <b>25.8668</b> | <b>7.9300e-003</b> | <b>0.0000</b> | <b>26.0332</b> |

### 3.5 Paving - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 6.4000e-004        | 9.8000e-004        | 0.0103        | 2.0000e-005        | 2.0600e-003        | 1.0000e-005        | 2.0700e-003        | 5.5000e-004        | 1.0000e-005        | 5.6000e-004        | 0.0000        | 1.7651        | 1.7651        | 9.0000e-005        | 0.0000        | 1.7670        |
| <b>Total</b> | <b>6.4000e-004</b> | <b>9.8000e-004</b> | <b>0.0103</b> | <b>2.0000e-005</b> | <b>2.0600e-003</b> | <b>1.0000e-005</b> | <b>2.0700e-003</b> | <b>5.5000e-004</b> | <b>1.0000e-005</b> | <b>5.6000e-004</b> | <b>0.0000</b> | <b>1.7651</b> | <b>1.7651</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>1.7670</b> |

#### Mitigated Construction On-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr         |                |                |                    |               |                |
| Off-Road     | 0.0238        | 0.2537        | 0.1841        | 2.8000e-004        |               | 0.0142        | 0.0142        |                | 0.0131        | 0.0131        | 0.0000        | 25.8667        | 25.8667        | 7.9300e-003        | 0.0000        | 26.0332        |
| Paving       | 0.0130        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| <b>Total</b> | <b>0.0368</b> | <b>0.2537</b> | <b>0.1841</b> | <b>2.8000e-004</b> |               | <b>0.0142</b> | <b>0.0142</b> |                | <b>0.0131</b> | <b>0.0131</b> | <b>0.0000</b> | <b>25.8667</b> | <b>25.8667</b> | <b>7.9300e-003</b> | <b>0.0000</b> | <b>26.0332</b> |

### 3.5 Paving - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx                | CO            | SO2                | Fugitive PM10      | Exhaust PM10       | PM10 Total         | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category     | tons/yr            |                    |               |                    |                    |                    |                    |                    |                    |                    | MT/yr         |               |               |                    |               |               |
| Hauling      | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Vendor       | 0.0000             | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 6.4000e-004        | 9.8000e-004        | 0.0103        | 2.0000e-005        | 2.0600e-003        | 1.0000e-005        | 2.0700e-003        | 5.5000e-004        | 1.0000e-005        | 5.6000e-004        | 0.0000        | 1.7651        | 1.7651        | 9.0000e-005        | 0.0000        | 1.7670        |
| <b>Total</b> | <b>6.4000e-004</b> | <b>9.8000e-004</b> | <b>0.0103</b> | <b>2.0000e-005</b> | <b>2.0600e-003</b> | <b>1.0000e-005</b> | <b>2.0700e-003</b> | <b>5.5000e-004</b> | <b>1.0000e-005</b> | <b>5.6000e-004</b> | <b>0.0000</b> | <b>1.7651</b> | <b>1.7651</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>1.7670</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr       |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 1.3191        |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 7.4800e-003   | 0.0492        | 0.0420        | 7.0000e-005        |               | 3.9000e-003        | 3.9000e-003        |                | 3.9000e-003        | 3.9000e-003        | 0.0000        | 5.7448        | 5.7448        | 6.1000e-004        | 0.0000        | 5.7576        |
| <b>Total</b>    | <b>1.3265</b> | <b>0.0492</b> | <b>0.0420</b> | <b>7.0000e-005</b> |               | <b>3.9000e-003</b> | <b>3.9000e-003</b> |                | <b>3.9000e-003</b> | <b>3.9000e-003</b> | <b>0.0000</b> | <b>5.7448</b> | <b>5.7448</b> | <b>6.1000e-004</b> | <b>0.0000</b> | <b>5.7576</b> |

### 3.6 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Worker       | 7.1200e-003        | 0.0109        | 0.1145        | 2.7000e-004        | 0.0229        | 1.7000e-004        | 0.0231        | 6.0900e-003        | 1.5000e-004        | 6.2500e-003        | 0.0000        | 19.6980        | 19.6980        | 1.0100e-003        | 0.0000        | 19.7192        |
| <b>Total</b> | <b>7.1200e-003</b> | <b>0.0109</b> | <b>0.1145</b> | <b>2.7000e-004</b> | <b>0.0229</b> | <b>1.7000e-004</b> | <b>0.0231</b> | <b>6.0900e-003</b> | <b>1.5000e-004</b> | <b>6.2500e-003</b> | <b>0.0000</b> | <b>19.6980</b> | <b>19.6980</b> | <b>1.0100e-003</b> | <b>0.0000</b> | <b>19.7192</b> |

#### Mitigated Construction On-Site

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category        | tons/yr       |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Archit. Coating | 1.3191        |               |               |                    |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road        | 7.4800e-003   | 0.0492        | 0.0420        | 7.0000e-005        |               | 3.9000e-003        | 3.9000e-003        |                | 3.9000e-003        | 3.9000e-003        | 0.0000        | 5.7448        | 5.7448        | 6.1000e-004        | 0.0000        | 5.7576        |
| <b>Total</b>    | <b>1.3265</b> | <b>0.0492</b> | <b>0.0420</b> | <b>7.0000e-005</b> |               | <b>3.9000e-003</b> | <b>3.9000e-003</b> |                | <b>3.9000e-003</b> | <b>3.9000e-003</b> | <b>0.0000</b> | <b>5.7448</b> | <b>5.7448</b> | <b>6.1000e-004</b> | <b>0.0000</b> | <b>5.7576</b> |

### 3.6 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|              | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5     | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O           | CO2e           |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category     | tons/yr            |               |               |                    |               |                    |               |                    |                    |                    | MT/yr         |                |                |                    |               |                |
| Hauling      | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Vendor       | 0.0000             | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000        | 0.0000         |
| Worker       | 7.1200e-003        | 0.0109        | 0.1145        | 2.7000e-004        | 0.0229        | 1.7000e-004        | 0.0231        | 6.0900e-003        | 1.5000e-004        | 6.2500e-003        | 0.0000        | 19.6980        | 19.6980        | 1.0100e-003        | 0.0000        | 19.7192        |
| <b>Total</b> | <b>7.1200e-003</b> | <b>0.0109</b> | <b>0.1145</b> | <b>2.7000e-004</b> | <b>0.0229</b> | <b>1.7000e-004</b> | <b>0.0231</b> | <b>6.0900e-003</b> | <b>1.5000e-004</b> | <b>6.2500e-003</b> | <b>0.0000</b> | <b>19.6980</b> | <b>19.6980</b> | <b>1.0100e-003</b> | <b>0.0000</b> | <b>19.7192</b> |

### 4.0 Operational Detail - Mobile

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#### 4.1 Mitigation Measures Mobile

- Increase Density
- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network
- Employee Vanpool/Shuttle
- Provide Ride Sharing Program

|             | ROG     | NOx    | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |
|-------------|---------|--------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|
| Category    | tons/yr |        |         |        |               |              |            |                |               |             | MT/yr    |            |            |        |        |            |
| Mitigated   | 0.7267  | 4.0314 | 9.3349  | 0.0213 | 1.1988        | 0.0575       | 1.2563     | 0.3220         | 0.0529        | 0.3749      | 0.0000   | 1,719.9729 | 1,719.9729 | 0.0493 | 0.0000 | 1,721.0088 |
| Unmitigated | 0.8318  | 5.4318 | 11.4439 | 0.0297 | 1.6906        | 0.0803       | 1.7710     | 0.4541         | 0.0739        | 0.5280      | 0.0000   | 2,402.1003 | 2,402.1003 | 0.0676 | 0.0000 | 2,403.5202 |

### 4.2 Trip Summary Information

| Land Use                         | Average Daily Trip Rate |               |               | Unmitigated      | Mitigated        |
|----------------------------------|-------------------------|---------------|---------------|------------------|------------------|
|                                  | Weekday                 | Saturday      | Sunday        | Annual VMT       | Annual VMT       |
| Other Asphalt Surfaces           | 0.00                    | 0.00          | 0.00          |                  |                  |
| Other Non-Asphalt Surfaces       | 0.00                    | 0.00          | 0.00          |                  |                  |
| Parking Lot                      | 0.00                    | 0.00          | 0.00          |                  |                  |
| Unrefrigerated Warehouse-No Rail | 948.62                  | 948.62        | 948.62        | 4,400,149        | 3,120,016        |
| <b>Total</b>                     | <b>948.62</b>           | <b>948.62</b> | <b>948.62</b> | <b>4,400,149</b> | <b>3,120,016</b> |

### 4.3 Trip Type Information

| Land Use                    | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                             | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Other Asphalt Surfaces      | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Other Non-Asphalt Surfaces  | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Parking Lot                 | 16.60      | 8.40       | 6.90        | 0.00       | 0.00       | 0.00        | 0              | 0        | 0       |
| Unrefrigerated Warehouse-No | 40.00      | 8.40       | 6.90        | 20.43      | 0.00       | 79.57       | 92             | 5        | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.431000 | 0.060000 | 0.158000 | 0.142000 | 0.030000 | 0.005000 | 0.046000 | 0.123000 | 0.000000 | 0.000000 | 0.004000 | 0.000000 | 0.000000 |

**5.0 Energy Detail**

**2.4 Fleet Mix**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

Install High Efficiency Lighting

|                         | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|-------------------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category                | tons/yr     |        |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |             |          |
| Electricity Mitigated   |             |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 495.2870  | 495.2870  | 0.0228      | 4.7100e-003 | 497.2253 |
| Electricity Unmitigated |             |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 533.5161  | 533.5161  | 0.0245      | 5.0700e-003 | 535.6040 |
| Natural Gas Mitigated   | 4.5900e-003 | 0.0417 | 0.0350 | 2.5000e-004 |               | 3.1700e-003  | 3.1700e-003 |                | 3.1700e-003   | 3.1700e-003 | 0.0000   | 45.4089   | 45.4089   | 8.7000e-004 | 8.3000e-004 | 45.6853  |
| Natural Gas Unmitigated | 6.5200e-003 | 0.0592 | 0.0498 | 3.6000e-004 |               | 4.5000e-003  | 4.5000e-003 |                | 4.5000e-003   | 4.5000e-003 | 0.0000   | 64.4824   | 64.4824   | 1.2400e-003 | 1.1800e-003 | 64.8749  |

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

|                                  | NaturalGas Use | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O                | CO2e           |        |
|----------------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|--------|
| Land Use                         | kBTU/yr        | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |                |                |                    |                    |                |        |
| Parking Lot                      | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Unrefrigerated Warehouse-No Pail | 1.20836e+006   | 6.5200e-003        | 0.0592        | 0.0498        | 3.6000e-004        |               | 4.5000e-003        | 4.5000e-003        |                | 4.5000e-003        | 4.5000e-003        | 0.0000        | 64.4824        | 64.4824        | 1.2400e-003        | 1.1800e-003        | 64.8749        |        |
| Other Asphalt Surfaces           | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Other Non-Asphalt Surfaces       | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| <b>Total</b>                     |                | <b>6.5200e-003</b> | <b>0.0592</b> | <b>0.0498</b> | <b>3.6000e-004</b> |               | <b>4.5000e-003</b> | <b>4.5000e-003</b> |                | <b>4.5000e-003</b> | <b>4.5000e-003</b> | <b>0.0000</b> | <b>64.4824</b> | <b>64.4824</b> | <b>1.2400e-003</b> | <b>1.1800e-003</b> | <b>64.8749</b> |        |

### 5.2 Energy by Land Use - NaturalGas

#### Mitigated

|                                  | NaturalGas Use | ROG                | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O                | CO2e           |
|----------------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use                         | kBTU/yr        | tons/yr            |               |               |                    |               |                    |                    |                |                    |                    | MT/yr         |                |                |                    |                    |                |
| Parking Lot                      | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |
| Unrefrigerated Warehouse-No Pail | 850931         | 4.5900e-003        | 0.0417        | 0.0350        | 2.5000e-004        |               | 3.1700e-003        | 3.1700e-003        |                | 3.1700e-003        | 3.1700e-003        | 0.0000        | 45.4089        | 45.4089        | 8.7000e-004        | 8.3000e-004        | 45.6853        |
| Other Asphalt Surfaces           | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |
| Other Non-Asphalt Surfaces       | 0              | 0.0000             | 0.0000        | 0.0000        | 0.0000             |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |
| <b>Total</b>                     |                | <b>4.5900e-003</b> | <b>0.0417</b> | <b>0.0350</b> | <b>2.5000e-004</b> |               | <b>3.1700e-003</b> | <b>3.1700e-003</b> |                | <b>3.1700e-003</b> | <b>3.1700e-003</b> | <b>0.0000</b> | <b>45.4089</b> | <b>45.4089</b> | <b>8.7000e-004</b> | <b>8.3000e-004</b> | <b>45.6853</b> |

### 5.3 Energy by Land Use - Electricity

#### Unmitigated

|                                  | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|----------------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use                         | kWh/yr          | MT/yr           |               |                    |                 |
| Other Asphalt Surfaces           | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces       | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Parking Lot                      | 159104          | 45.5303         | 2.0900e-003   | 4.3000e-004        | 45.7085         |
| Unrefrigerated Warehouse-No Rail | 1.70525e+006    | 487.9858        | 0.0224        | 4.6400e-003        | 489.8956        |
| <b>Total</b>                     |                 | <b>533.5161</b> | <b>0.0245</b> | <b>5.0700e-003</b> | <b>535.6040</b> |

### 5.3 Energy by Land Use - Electricity

#### Mitigated

|                                  | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|----------------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use                         | kWh/yr          | MT/yr           |               |                    |                 |
| Other Asphalt Surfaces           | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Other Non-Asphalt Surfaces       | 0               | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Parking Lot                      | 151149          | 43.2538         | 1.9900e-003   | 4.1000e-004        | 43.4231         |
| Unrefrigerated Warehouse-No Rail | 1.57961e+006    | 452.0332        | 0.0208        | 4.3000e-003        | 453.8023        |
| <b>Total</b>                     |                 | <b>495.2870</b> | <b>0.0228</b> | <b>4.7100e-003</b> | <b>497.2253</b> |

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

|             | ROG     | NOx         | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|-------------|---------|-------------|--------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category    | tons/yr |             |        |        |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| Mitigated   | 4.1406  | 1.4000e-004 | 0.0146 | 0.0000 |               | 5.0000e-005  | 5.0000e-005 |                | 5.0000e-005   | 5.0000e-005 | 0.0000   | 0.0280    | 0.0280    | 8.0000e-005 | 0.0000 | 0.0296 |
| Unmitigated | 4.5331  | 1.4000e-004 | 0.0146 | 0.0000 |               | 5.0000e-005  | 5.0000e-005 |                | 5.0000e-005   | 5.0000e-005 | 0.0000   | 0.0280    | 0.0280    | 8.0000e-005 | 0.0000 | 0.0296 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG           | NOx                | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| SubCategory           | tons/yr       |                    |               |               |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Architectural Coating | 0.5445        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Consumer Products     | 3.9872        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Landscaping           | 1.4100e-003   | 1.4000e-004        | 0.0146        | 0.0000        |               | 5.0000e-005        | 5.0000e-005        |                | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0280        | 0.0280        | 8.0000e-005        | 0.0000        | 0.0296        |
| <b>Total</b>          | <b>4.5331</b> | <b>1.4000e-004</b> | <b>0.0146</b> | <b>0.0000</b> |               | <b>5.0000e-005</b> | <b>5.0000e-005</b> |                | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0280</b> | <b>0.0280</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>0.0296</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG           | NOx                | CO            | SO2           | Fugitive PM10 | Exhaust PM10       | PM10 Total         | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total        | Bio- CO2      | NBio- CO2     | Total CO2     | CH4                | N2O           | CO2e          |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| SubCategory           | tons/yr       |                    |               |               |               |                    |                    |                |                    |                    | MT/yr         |               |               |                    |               |               |
| Architectural Coating | 0.1519        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Consumer Products     | 3.9872        |                    |               |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Landscaping           | 1.4100e-003   | 1.4000e-004        | 0.0146        | 0.0000        |               | 5.0000e-005        | 5.0000e-005        |                | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0280        | 0.0280        | 8.0000e-005        | 0.0000        | 0.0296        |
| <b>Total</b>          | <b>4.1406</b> | <b>1.4000e-004</b> | <b>0.0146</b> | <b>0.0000</b> |               | <b>5.0000e-005</b> | <b>5.0000e-005</b> |                | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0280</b> | <b>0.0280</b> | <b>8.0000e-005</b> | <b>0.0000</b> | <b>0.0296</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
| Category    | MT/yr     |        |        |          |
| Mitigated   | 408.8682  | 3.4211 | 0.0840 | 506.7346 |
| Unmitigated | 527.9725  | 4.2772 | 0.1051 | 650.3716 |

**7.2 Water by Land Use**

**Unmitigated**

|                                  | Indoor/Outdoor Use | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|--------------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | Mgal               | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 130.575 / 0        | 527.9725        | 4.2772        | 0.1051        | 650.3716        |
| <b>Total</b>                     |                    | <b>527.9725</b> | <b>4.2772</b> | <b>0.1051</b> | <b>650.3716</b> |

## 7.2 Water by Land Use

### Mitigated

|                                  | Indoor/Outdoor Use | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|--------------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | Mgal               | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0 / 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 104.46 / 0         | 408.8682        | 3.4211        | 0.0840        | 506.7346        |
| <b>Total</b>                     |                    | <b>408.8682</b> | <b>3.4211</b> | <b>0.0840</b> | <b>506.7346</b> |

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

**Category/Year**

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
|             | MT/yr     |        |        |          |
| Mitigated   | 53.8708   | 3.1837 | 0.0000 | 120.7278 |
| Unmitigated | 107.7415  | 6.3673 | 0.0000 | 241.4557 |

**8.2 Waste by Land Use**

**Unmitigated**

|                                  | Waste Disposed | Total CO2       | CH4           | N2O           | CO2e            |
|----------------------------------|----------------|-----------------|---------------|---------------|-----------------|
| Land Use                         | tons           | MT/yr           |               |               |                 |
| Other Asphalt Surfaces           | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0              | 0.0000          | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 530.77         | 107.7415        | 6.3673        | 0.0000        | 241.4557        |
| <b>Total</b>                     |                | <b>107.7415</b> | <b>6.3673</b> | <b>0.0000</b> | <b>241.4557</b> |

## 8.2 Waste by Land Use

### Mitigated

|                                  | Waste Disposed | Total CO2      | CH4           | N2O           | CO2e            |
|----------------------------------|----------------|----------------|---------------|---------------|-----------------|
| Land Use                         | tons           | MT/yr          |               |               |                 |
| Other Asphalt Surfaces           | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Other Non-Asphalt Surfaces       | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Parking Lot                      | 0              | 0.0000         | 0.0000        | 0.0000        | 0.0000          |
| Unrefrigerated Warehouse-No Rail | 265.385        | 53.8708        | 3.1837        | 0.0000        | 120.7278        |
| <b>Total</b>                     |                | <b>53.8708</b> | <b>3.1837</b> | <b>0.0000</b> | <b>120.7278</b> |

## 9.0 Operational Offroad

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| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

## 10.0 Vegetation

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## **APPENDIX B**

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### Biological Constraints Analysis



December 1, 2015

Ms. Karina Fidler  
Kimley-Horn  
401 B Street, Suite 600  
San Diego, CA 92101

**Subject: Biological Constraints Report for Waterman Industrial Center, San Bernardino, California**

Ms. Fidler:

This letter report describes the results of a biological constraints survey that Rocks Biological Consulting (RBC) conducted at the Waterman Industrial Center Project site. This report discusses the potential biological constraints under the California Environmental Quality Act (CEQA) and applicable state and federal regulations.

#### **Project Location**

The site is located within an existing residential and developed area of the City of San Bernardino southwest of the intersection of E. Dumas St and S. Waterman Ave just north of San Bernardino Public Golf Course (Figure 1). The biological study area was approximately 36-acres, which included the 25.4-acre project site plus a 100-foot buffer. The site is located on United States Geological Survey (USGS) San Bernardino South 7.5' Topographic Map.

#### **Methods**

RBC began preparations for the biological constraints survey by creating field maps using Geographic Information System (GIS) and incorporating relevant data, including a color aerial photograph and the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB) information.

On October 21, 2015 RBC conducted a general biological survey for flora and fauna within the survey area and mapped vegetation communities/land uses within the project site and the immediately surrounding area. No focused surveys for plant or wildlife species or formal wetland delineation was conducted. Vegetation community classifications follow Holland (1986), plant names follow Rebman and Simpson (2014), and animal names follow CDFW (2015). The on-site survey was conducted in early fall during the morning in warm weather (63-70 F) with a slight breeze.

#### **Survey Results**

The site is located in a residential area and active golf course. The property is relatively flat and all land within the project area has previously been disturbed by human activities. There are no native habitats on site. Additionally, no drainages, riparian habitat, or aquatic features were observed during the site visit.

The project site supports the following vegetation types or land uses:

**Developed** – areas support no native vegetation and typically include human-made structures such as buildings or roads. Within the study area, developed areas occur primarily at the north end of the site and consist of single-family homes, churches, and roads. Included in the developed land use is the active public golf course that supports no native vegetation and generally consists of mowed non-native grass. The active golf course is present at the south end of the study site.

**Disturbed** – areas typically include land that has been previously disturbed by vegetation clearing, development, or agricultural activities. Areas mapped as disturbed include lands generally cleared of vegetation such that little or no natural habitat remains and lands disturbed such that, where vegetated, at least 50 percent of plant cover is non-native species. The disturbed lands on the site are dominated by puncture vine (*Tribulus terrestris*), London rocket (*Sisymbrium irio*), and Russian thistle (*Salsola australis*). Other plants that occur include castor bean (*Ricinus communis*), ripgut brome (*Bromus diandrus*), short-pod mustard (*Hirschfeldia incana*), alkali mallow (*Malvella leprosa*), and filaree species (*Erodium* spp.).

**Ornamental** – areas typically consist of non-native landscape and/or garden plantings that have been planted in association with development. San Bernardino County supports many ornamental trees, shrubs, and herbs that decorate urban areas. Ornamental species occur on the site in association with adjacent residential development, notably rows of planted and irrigated pine trees (*Pinus* sp.) and a patch of Chinese elm (*Ulmus parvifolia*).

Table 1 summarizes the extent of the vegetation types and land uses on the site.

Table 1. Vegetation Communities/Land Uses

| Vegetation/Land Use           | Acres in Project boundary | Acres in study area |
|-------------------------------|---------------------------|---------------------|
| Developed (incl. golf course) | 22.42                     | 26.71               |
| Disturbed Land                | 2.81                      | 8.95                |
| Ornamental                    | 0.16                      | 0.33                |
| <b>Total</b>                  | <b>25.39</b>              | <b>35.99</b>        |

**Special Status Plant and Animal Species**

Sensitive plants, animals, and habitats are defined here as rare and/or endangered, or depleted or declining according to the U. S. Fish and Wildlife Service (USFWS), CDFW, and California Native Plant Society (CNPS). General surveys were conducted for plant and animal species and habitats that are considered sensitive according to the USFWS, CNPS and the CDFW's CNDDB record for the area.

No threatened, endangered, or sensitive animal or plant species were observed on-site during the general biological survey. Animal observance on-site was moderate with 15 bird species observed, see Attachment A. Bird species noted were a mix of urban species and seasonal

migrants, including Brewer's blackbird (*Euphagus cyanocephalus*), Eurasian collared-dove (*Streptopelia decaocto*), house finch (*Carpodacus mexicanus*), and yellow-rumped warbler (*Setophaga coronata*). In addition, one mammal species was observed, California ground squirrel (*Otospermophilus beecheyi*).

CNDDDB records were used to help determine if sensitive species occur within the vicinity of the project site. Based on the developed and disturbed condition of the site and lack of native habitats, the site does not have potential to support sensitive species as detailed in Table 2 below.

**Table 2. CNDDDB Species Recorded within Vicinity of the Site**

| Species   | Potential to Occur/Comments  |
|---|--|
| marsh sandwort ( <i>Arenaria paludicola</i> )                                 | None. Species occurs in marsh habitats, which are not present on site.   |
| bristly sedge ( <i>Carex comosa</i> )   | None. Species occurs in wetland and riparian habitats, which are not present in the parcel. Species is most often associated with lake margins and edges, which are not present on site.   |
| Busck's gallmoth ( <i>Carolella busckana</i> )                                | None. Species occurs in coastal scrub dunes that are not present on site.  |
| smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )             | None. Species occurs in habitats such as chenopod scrub, meadows and seeps, playas, riparian woodlands, and valley and foothill grasslands. No suitable habitat types are present on site. |
| salt marsh bird's beak ( <i>Chloropyron maritimum</i> ssp. <i>maritimum</i> ) | None. Species occurs on salt marshes and salt flats, which are not present on site.  |
| Parry's spineflower ( <i>Chorizanthe parryi</i> var. <i>parryi</i> )          | None. Species occurs on chaparral and coastal sage scrub habitats, which are not present on site.  |
| western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )      | None. Species occurs in riparian habitats, which are not present on site.  |
| Peruvian dodder ( <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> )         | None. Species occurs in freshwater marshes and swamps that are not present on site.  |
| San Bernardino kangaroo rat ( <i>Dipodomys merriami parvus</i> )              | None. Species occurs in alluvial fan sage scrub habitats, which are not present in the parcel. These habitat types are confined to rivers and floodplains, which are not present on site.  |
| slender-horned spineflower ( <i>Dodecahema leptoceras</i> )                   | None. Species occurs in alluvial scrub habitats, which are not present on site.  |
| Los Angeles sunflower ( <i>Helianthus nuttallii</i> ssp. <i>parishii</i> )    | None. Species occurs in freshwater or salt marsh habitats, which are not present on site.  |
| Gambel's water cress ( <i>Nasturtium gambelii</i> )                           | None. Species is aquatic or semi-aquatic. It is found in lakesides and marshes, which are not present on site.   |
| pocketed free-tailed bat ( <i>Nyctinomops femorosaccus</i> )                  | None. Species is associated with cliffs and rocky outcrops, which are not present on site.   |
| Delhi Sands flower-loving fly ( <i>Rhaphiomidas terminates abdominalis</i> )  | None. Species occurs in Delhi sand habitats, which are not present on site.  |
| Parish's gooseberry ( <i>Ribes divaricatum</i> )                              | None. Species occurs in wetland habitats and   |

|  |  |
|--|--|
| var. <i>parishii</i> )                               | occasionally in coastal sage scrub habitats, which are not present on site.  |
| prairie wedge-grass ( <i>Sphenopholis obtusata</i> ) | None. Species occurs in mesic prairies, thinly wooded bluffs, open rocky woodlands, and pasture habitats, which are not present on site. |
| least Bell's vireo ( <i>Vireo bellii pusillus</i> )  | None. Species occurs in riparian and willow scrub habitats, which are not present on site.   |

## Conclusion

Based on the database review and biological field survey, the site does not support sensitive plants, animals, or habitats. The site is nearly 90% developed with residential housing and public golf course and lacks native vegetation communities. The site does not support significant biological constraints to development.

Please do not hesitate to contact me if you have any questions or concerns about this report.

Sincerely,



Jim Rocks  
Principal Biologist



Shannon Walsh  
Biologist

Attachment: Figure 1 – USGS Project Location Map  
Figure 2 – Vegetation Map  
Attachment A – Avian Species List  
Attachment B – Site Photographs

## References

- California Department of Fish and Wildlife (CDFW). 2015. California Department of Fish and Wildlife Natural Diversity Data Base – Electronic Format.
- California Department of Fish and Wildlife (CDFW). 2014. California Department of Fish and Wildlife Complete List of Amphibian, Reptile, Bird and Mammal Species in California – Electronic Format.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.
- Rebman, J. and M.S. Simpson. 2014. *Checklist of the Vascular Plants of San Diego County*. 5<sup>th</sup> edition.

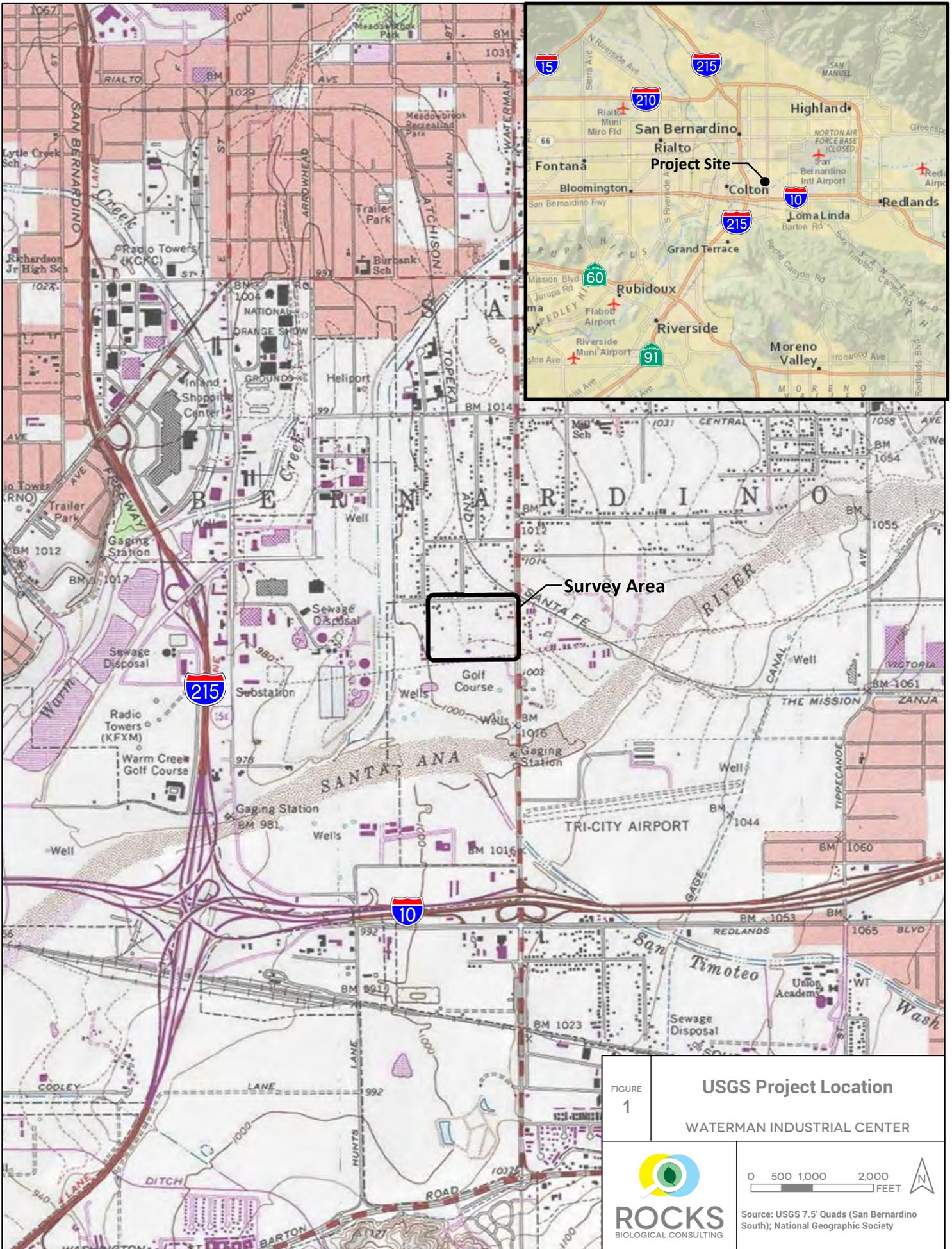


FIGURE 1

**USGS Project Location**

WATERMAN INDUSTRIAL CENTER



Source: USGS 7.5' Quads (San Bernardino South); National Geographic Society



 Project Boundary  
 DEV — Developed  
 DEV-G — Developed - Active Golf Course  
 DIST — Disturbed  
 ORN — Ornamental

FIGURE 2  
**Vegetation**  
 WATERMAN INDUSTRIAL CENTER

  
**ROCKS**  
 BIOLOGICAL CONSULTING

0 50 100 200 FEET   
 Source: Google

Attachment A. Bird Species Observed at Waterman Industrial Center Project, San Bernardino  
County, California

| Common Name   | Scientific Name               | Status |
|---|-------------------------------|--------|
| American crow   | <i>Corvus brachyrhynchos</i>  |        |
| American kestrel  | <i>Falco sparverius</i>       |        |
| Anna's hummingbird  | <i>Calypte anna</i>           |        |
| Brewer's blackbird  | <i>Euphagus cyanocephalus</i> |        |
| black phoebe  | <i>Sayornis nigricans</i>     |        |
| Canada goose  | <i>Branta canadensis</i>      |        |
| common raven  | <i>Corvus corax</i>           |        |
| Eurasian collared dove  | <i>Streptopelia decaocto</i>  |        |
| European starling*  | <i>Sturnus vulgaris</i>       |        |
| house finch   | <i>Carpodacus mexicanus</i>   |        |
| northern flicker  | <i>Colaptes auratus</i>       |        |
| northern mockingbird  | <i>Mimus polyglottos</i>      |        |
| western scrub-jay   | <i>Aphelocoma californica</i> |        |
| white-crowned sparrow   | <i>Zonotrichia leucophrys</i> |        |
| yellow-rumped warbler   | <i>Setophaga coronata</i>     |        |
| FT: Listed as Threatened by USFWS<br>SSC: California Department of Fish and Wildlife Species of Special Concern<br>WT: California Department of Fish and Wildlife Watch List<br>*Introduced Species |                               |        |

Attachment B. Site Photographs at Waterman Industrial Center Project, San Bernardino County, California



Photo 1. Typical view of developed and disturbed habitat at the north side of the project site. Photo taken facing west.



Photo 2. View of disturbed area in the center of the project site. Photo taken facing north.



Photo 3. View of disturbed area dominated by London rocket (*Sisymbrium irio*). Photo taken in center of project site facing west.



Photo 4. Typical view of the active golf course at the south end of the project site. Photo taken facing south.



Photo 5. View of the planted ornamental pine trees on the northwest side of the project site. Photo taken facing north.



Photo 6. View of disturbed habitat in the northwest corner of the project. Photo taken facing south.

## **APPENDIX C**

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### Cultural Resource Study Findings Memo



February 16, 2016

Karina Fidler, AICP, CPESC  
Kimley-Horn  
401 B Street, Suite 600  
San Diego, California 92101

Re: Cultural Resource Study Findings Memo for the Waterman Industrial Center, San Bernardino, San Bernardino County, California

Dear Ms. Fidler,

This letter report documents the results of the cultural resource study conducted for the Waterman Industrial Center Project (Project) by ASM Affiliates, Inc. (ASM). The study was completed in compliance with California Environmental Quality Act (CEQA) requirements. The lead agency is the City of San Bernardino. This document is part of an Initial Study to address the potential environmental impacts of the proposed project pursuant to the required provisions of CEQA, Public Resources Code Section 21000 et seq., and State CEQA Guidelines Section 15063.

The study included a records search at the South Central Coastal Information Center (SCCIC), a search of the Sacred Lands File of the California Native American Heritage Commission (NAHC), and a pedestrian survey of accessible portions of the Project area. One cultural resource, Waterman-1, consisting of a sparse historic artifact scatter dating ca. 1920s was identified. Monitoring of the Project area by a qualified archaeological monitor during the initial ground disturbance for the Project is recommended.

### **Project Description and Location**

The proposed project site is located in the south-central portion of the City of San Bernardino. The Project area is shown on the USGS 7.5-minute San Bernardino South, Calif. topographic quadrangle in an unsectioned area of Township 1 South, Range 4 West. The project site encompasses 12 parcels (Assessor Parcel Numbers [APNs] 014-143-101, 014-143-102, 014-143-103, 014-143-104, 014-143-108, 014-143-109, 014-143-110, 014-143-111, 0104-143-112, 014-143-116, 014-143-120, and 014-143-121) on approximately 26 acres and is bounded by East Dumas Drive to the north and South Waterman Avenue to the east (Figure 1). Current uses on the 12 parcels include: five vacant parcels, five parcels with single family residential homes, two parcels with a church, and one parcel is used as a golf driving range attached to the San Bernardino Golf Club. The site is not located in an area of archaeological or historical sensitivity as identified by the City.

The proposed Waterman Industrial Center is a 564,652 SF industrial building with office space, parking, a pump house, and landscaping. The industrial building would be one floor with a maximum height of 43 feet. The building would be a cross dock warehouse facility, with dedicated office/mezzanine space of 10,000 SF. The site will also include a 427 SF pump house.

The building would have 49 dock doors on its northern frontage and 49 on its southern frontage. Site access would be provided via one signalized full movement driveway on Waterman Avenue and two full movement driveways on Dumas Drive. Total on-site parking would be 452 stalls, with 286 dedicated to warehouse parking (including office) and 166 trailer parking spaces. Landscaping in the amount of 103,585 SF is anticipated for the site and the southwest corner of the site would be used as a stormwater/water quality control basin. Roadway frontage improvements would be provided on Waterman Avenue and Dumas Drive. The project would also include an approximate 1,000-foot long, 12-foot high concrete screen wall on the southern boundary of the site. An approximate 200-foot, 12-foot high concrete screen wall segment and an approximate 600-foot long, 8-foot-high high tube steel fence would be constructed on the western boundary of the site.

## **Cultural and Environmental Setting**

### Natural Setting

The City of San Bernardino is located approximately 60 miles east of the City of Los Angeles, at the southern base of the San Bernardino Mountains. It lies in the upper Santa Ana River Valley, and is bounded by the San Bernardino Mountains on the northeast and east, Blue Mountain and Box Springs Mountain abutting the Cities of Loma Linda and Redlands to the south, and the San Gabriel Mountains and Jurupa Hills to the northwest and southwest, respectively. The City is largely urbanized and surrounded by other developed cities; the Project area is similarly highly urbanized.

### Prehistoric Period

Archaeological investigations in San Bernardino County and elsewhere in southern California have documented a diverse range of prehistoric human occupations, extending from the terminal Pleistocene down to the time of European contact (Koerper and Drover 1983; Mason 1984; McKenna 1986; Wallace 1955; Warren 1968).

### Paleoindian (pre-6000 B.C.)

Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. These tools suggest a reliance on hunting rather than gathering. In general, hunting-related tools are more common during this period and are replaced by processing tools during the early Holocene (Basgall and Hall 1990).

### Milling Stone Horizon (6000 B.C. – 750 A.D.)

The Milling Stone Horizon is characterized by the presence of hand stones, milling stones, choppers, and scrapers. These tools are thought to be associated with seed gathering and processing and limited hunting activities. The artifacts from this period show a major shift in the exploitation of natural resources.

### Late Prehistoric Horizon (A.D. 750-1750)

Like much of Southern California, this horizon in the general Project area is characterized by the presence of small projectile points associated with the use of bow and arrow. Steatite containers, asphaltum items, mortars and pestles, and bedrock mortars are also common artifacts.

### Ethnohistoric Period (Post A.D. 1750)

The Project area is within the ethnohistoric territory of the Gabrielino Indians, and along the border of the Serrano's territory within the mountains. Both the Gabrielino and Serrano claim the area as part of their traditional homeland. The Gabrielino name derived from their association with the San Gabriel Valley and the Mission San Gabriel de Archangel (Bean and Smith 1978a, 1978b).

Both the Serrano and the Gabrielino utilized numerous plants and animals for food, shelter, and medicines (Kroeber 1976). Seeds were most often used followed by foliage, shoots, fruits, and berries. Mountain shrubs, ash, elder, and willow were used for shelters and tool materials such as bows. Fauna used as food sources included deer, rabbits, wood rats, squirrels, quail, and ducks. Animals specifically not used were dog, coyote, bear, tree squirrel, pigeon, dove, mud hen, eagle, buzzard, raven, lizards, frogs, and turtles (Kroeber 1976).

The Serrano and Gabrielino used numerous styles of bows, bedrock mortars, portable mortars, pipes, chisels, metates, manos, and various forms of chipped stone tools. Prior to the establishment of the Mission system Native Americans lived larger villages, associated with smaller villages with limited activity areas and smaller populations. Seasonal migration was practiced across the area for both the exploitation of resources and based on seasonal weather conditions.

### Historic Period

#### Spanish and Mexican Periods

Spanish explorer Juan Rodríguez Cabrillo first discovered California in 1542, claiming it for the King of Spain. However, Spanish contact within the vicinity of the Project area did not take place until the 1770s when Father Garces traveled across the Mojave Desert and entered coastal southern California through the Cajon Pass (Walker 1968).

The Mission San Gabriel de Archangel was established in 1771 and claimed what are now the San Gabriel and San Bernardino valleys. In 1819, a mission outpost, or asistencia, was established in the area of present-day Redlands (Dumke 1944; Hanna 1951; McWilliams 1973; Scott 1977). This outpost, part of Mission San Gabriel's Rancho San Bernardino, was established in order to expand the agricultural holdings of Mission San Gabriel. The asistencia was later moved to its current location, where construction began in 1830; it was abandoned soon after in 1834 (Lugo 1950).

The Mexican War of Independence ended in 1821, severing the Spanish hold on the Californias and secularizing former mission lands. A series of ranchos was granted throughout the San Bernardino Valley and much of the land was used for ranching activities. Although some land had been granted to Indians, most of the land went to military men or merchants. In 1842, the Lugo family was granted the Rancho San Bernardino, which encompassed approximately 37,700 acres.

Granting large ranch lands or ranchos remained as both a Spanish and a Mexican legacy in California. Land granted to Mexicans between 1833 and 1846 amounted to 500 ranchos

primarily granted near the coast from San Francisco to San Diego. Mexican Governor Pío Pico granted a great number of those ranchos prior to 1846, quickly carving up Alta California to ensure Mexican land titles survived a U.S. victory in the Mexican-American War (1846-1848) (Christenson and Sweet 2008:7; Engstrand 2005:64-66; Robinson 1948:23-72).

### American Period

(from [http://www.ci.san-bernardino.ca.us/about/history/history\\_of\\_san\\_bernardino\\_\(short\\_version\).asp](http://www.ci.san-bernardino.ca.us/about/history/history_of_san_bernardino_(short_version).asp))

The first non-Mexican settlers to the area were the Mormon pioneers who were directed by Brigham Young to establish a colony in the San Bernardino Valley. They purchased 35,000 acres of the Rancho San Bernardino in 1851, for \$77,500, with a down payment of \$7,000. The Mormons built a stockade around the rancho and named it Fort San Bernardino. The families lived inside the stockade for the first few years. They grew wheat and other crops outside and a grain mill inside. After their fear of attack from local Native Americans abated, the residents moved outside the stockade and began building homes in the area.

In the fall of 1852, Colonel Henry Washington, a United States deputy surveyor, erected a monument on top of Mount San Bernardino, creating the San Bernardino base line from which surveys in the southern part of the state were, and are still made. In 1854, the City of San Bernardino was officially incorporated. The population at the time was 1,200, with 900 of them Mormons; as such, the early city was a temperance town, with no drinking or gambling allowed. Brigham Young recalled the Mormons to Salt Lake City in 1857, some of whom left, while others opted to remain in the new city. Though only in the area en masse for six years, the Mormons made numerous achievements, establishing schools, stores, a network of roads, and a strong government.

Gold was discovered in Holcomb Valley in 1860, prompting prospectors to pour into the mountains through San Bernardino to try their luck at panning. For a time Belleville, in Holcomb Valley, was the largest city in Southern California with 10,000 residents, and it almost became the county seat, losing to San Bernardino by only one vote.

The large railway companies eventually found their way to San Bernardino in the last years of the nineteenth century, raising the profile of the city. The Santa Fe, the Union Pacific, and the Southern Pacific railroads all converged on the city, making it the hub of their southern California operations. Competition between the railroads set off a rate war, which brought thousands of newcomers to California in the great land boom of the 1880s. When the Santa Fe Railway established a transcontinental link in 1886, the already prosperous valley exploded, with even more settlers now coming from the East. Population figures doubled, from 6,150 in 1900 to 12,779 in 1910, the year that the San Bernardino Chamber of Commerce was first organized.

## Study Methods

Methods used to assess the presence of and potential for cultural resources within the property included a search of existing records and a pedestrian field survey. The records search was conducted by the SCCIC on October 27, 2015. The search included the Project area and a radius of 1 mi. around it. Historic aerial photographs and historic USGS topographic maps of the Project area were consulted from [historicaerials.com](http://historicaerials.com).

The field survey was conducted on November 5, 2015 by ASM Senior Archaeologist Sherri Andrews. Field methods consisted of a pedestrian survey of accessible areas within the proposed Project site using transects spaced at 15-m intervals and visual assessment of the currently occupied parcels.

## Study Results

### Records Search Results

The records search at the SCCIC identified 28 previous cultural resource studies that had been conducted within a 1-mi. radius (Table 1). None of the studies have been conducted directly within the Project area.

Table 1. Previous Cultural Resources Reports Addressing the Project Area and the 1-mi. Records Search Radius

| Report No (SB-) | Year | Author(s)/Affiliation  | Title   |
|-----------------|------|--|---|
| 01669           | 1987 | Singer, Clay A., and Richard L. Wessel   | Cultural Resources Survey and Impact Assessment for Five Areas in the City of Colton, San Bernardino County, California, for the Mt. Vernon Corridor Redevelopment Project  |
| 01808           | 1988 | Hampson, R. Paul, Jerrel Sorensen, Susan K. Goldberg, Mark T. Swanson, and Jeanne E. Arnold / Greenwood & Associates and Infotec | Cultural Resources Survey, Upper Santa Ana River, California  |
| 01852           | 1989 | Hampson, R. Paul, and Mark T. Swanson  | Cultural Resources Survey, San Timoteo Wash Flood Control Project   |
| 02009           | 1990 | De Barros, Philip  | Cultural Resources Survey and Assessment of Tentative Tract 14706, City of San Bernardino, California   |
| 02156           | 1990 | McKenna, Jeanette A.   | Report Addendum: A Phase I Archaeological Survey of the Proposed Santa Ana Watershed Project Authority (SAWPA) Pipeline Right-of-Way, San Bernardino to Colton, San Bernardino, California  |
| 02415           | 1991 | Wlodarski, Robert J.   | Final Report: An Archaeological Survey Report Documenting the Widening and Associated Improvements on Interstate 215 (I-215) from Interstate 10 (I-10) North to State Route 30 (SR-30), City of San Bernardino, San Bernardino County, California |
| 03009           | 1994 | Lukkarila, Dave Walter   | The Summer Of 1861: Establishing a Military Camp in San Bernardino at the Civil War's Beginning; A Review of the Official War Records   |
| 03228           | 1995 | Lerch, Michael K. / Tom Dodson & Associates  | Historic Property Survey Report: Orange Show Road Extension, City of San Bernardino, CA   |
| 03286           | 1998 | Love, Bruce, and Bai Tom Tang  | Historic Significance Evaluation of Buildings Scheduled for Demolition during Phase I of Mayor's Demolition Initiative, City of San Bernardino, CA  |
| 03656           | 2000 | Love, Bruce  | The Hub Project, City of San Bernardino, San Bernardino County, CA  |

| <b>Report No (SB-)</b> | <b>Year</b> | <b>Author(s)/Affiliation</b>   | <b>Title</b>  |
|------------------------|-------------|--|---|
| 04335                  | 2002        | Goodwin, Riordan, and Robert E. Reynolds   | Cultural Resources Assessment: Hunts Lane Grade Separation, San Bernardino County, CA   |
| 04639                  | 2004        | Bonner, Wayne H.   | Records Search Results and Site Visit for Cingular Wireless Facility Candidate SB-369-01 (Gifford Business Park) 766-791 South Gifford Avenue, San Bernardino, San Bernardino County, California                                    |
| 05248                  | 2005        | White, Robert S., and Laura S. White   | A Cultural Resources Assessment of the 24.1 Acre Northpointe Project Site, Northwest Corner of East Hospitality Lane and Tippecanoe Avenue, City of San Bernardino, County of San Bernardino  |
| 05601                  | 2005        | Budinger, Fred E.  | Proposed Wireless Device Monopalm and Associated Equipment; Tri City Site, 1955 S. Waterman Avenue, San Bernardino, California 92408  |
| 05614                  | 2006        | Fulton, Terri  | Historic Property Survey Report, New Grade Separation at the Hunts Lane/Union Pacific Railroad Crossing   |
| 06291                  | 2008        | Smith, Francesca, Caprice D. Harper, William Makeda, and John Dietler                            | Cultural Resource Technical Report: sbX E Street Corridor BRT Project, Cities of Loma Linda and San Bernardino, San Bernardino County, California   |
| 06331                  | 2009        | Cannon, Amanda, and Michael K. Lerch   | Cultural Resources Assessment of the Riverside-Corona Realignment, San Bernardino and Riverside Counties, California  |
| 06562                  | 2003        | Hale, John P.  | Archaeological Resources Survey Report: Range 500 Upgrades, Cleghorn Pass Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, San Bernardino County, California   |
| 06785                  | 2010        | Bonner, Wayne H., and Marnie Aislin-Kay  | Cultural Resource Records Search and Site Visit Results for TowerCo Assets LLC Candidate CA2358 (Cajon Summit), 5900 Mariposa Road, Hesperia, San Bernardino County, California   |
| 07123                  | 2010        | Panich, Lee, and John Holson   | Supplemental Archaeological Survey Report, 66kV Transmission Lines Access Roads, Tehachapi Renewable Transmission Project Segments 7 and 8, Los Angeles and San Bernardino Counties, California                                     |
| 07256                  | 2011        | Puckett, Heather R.  | Holden, 299 W. Orange Show Road, San Bernardino, California 92408   |
| 07368                  | 2012        | Tang, Bai "Tom," and Harry Quinn   | Archaeological and Paleontological Monitoring of Earth-Moving Activities, Yucaipa Valley Water District Regional Brineline Extension Project, Phase III, Cities of Loma Linda and San Bernardino, San Bernardino County, California |
| 07371                  | 2013        | Billat, Lorna  | BTS Waterman Visayan/MLAX 04211A  |
| 07451                  | 2010        | Walters, Andrew M., and Daniel Paul  | Interstate 215 Bi-County HOV Lane Gap Closure Project, Historical Resources Evaluation Report, San Bernardino and Riverside Counties, California  |
| 07528                  | 2012        | Hogan, Michael, Bai "Tom" Tang, Terri Jacquemain, Daniel Ballester, and Nina Gallardo / CRM Tech | Identification and Evaluation of Historic Properties: Cleanwater Factory Project, City of San Bernardino, San Bernardino County, California   |
| 07618                  | 2013        | Perez, Don   | Cultural Resource Survey: CLV 5039, 1050 E. Cooley Avenue, San Bernardino, San Bernardino County, California 92401  |
| 07619                  | 2013        | Puckett, Heather R.  | Cultural Resources Summary for the Proposed Verizon Wireless, Inc. Property at the Holden Site, 399 Chandler Place, San Bernardino County, San Bernardino, California 92408   |
| 07664                  | 2006        | Painter, Diana J.  | Historic Resources Evaluation Report: Tippecanoe Avenue/Interstate 10 (I-10) Interchange Project, San Bernardino County, California   |

Twelve cultural resources have been previously recorded within the 1-mi. records search radius (Table 2); 10 are historic, one prehistoric, and one with both historic and prehistoric attributes. No resources have been previously documented within the Project area. Only two of the previously documented resources are within less than ½ mi. of the Project area; both historic,

they are situated about a block north of the area. Both of the prehistoric cultural resources are approximately 1 mi. from the Project area.

Table 2. Previously Recorded Cultural Resources within the 1-mi. Records Search Radius

| Primary # (P-36-) | Trinomial (CA-SBR-) | Other ID                               | Recorded by / date               | Site Type             | Attribute Codes   | Relationship to Project Area             |
|-------------------|---------------------|--|----------------------------------|-----------------------|---|--|
| 001419            | 1419                | Urbita Springs Site                    | Smith / 1939                     | Prehistoric           | AP1 (unknown)   | ~1 mi. NW                                |
| 002999            | 2999/H              | Jumuba Site                            | Smith / 1938;<br>Eberhart / 1951 | Prehistoric, Historic | AH15 (Standing structures); AP2 (Lithic scatter)  | ~1 mi. S (S of Santa Ana River and I-10) |
| 006099            | 6099H               |  | Greenwood & Assoc. / 1987        | Historic              | AH4 (Privies/dumps/trash scatters)  | ~1/2 mi. S (S of Santa Ana River)        |
| 006103            | 6103H               | A.T.&S.F. Railroad Bridge              | Greenwood & Assoc. / 1987        | Historic              | AH7 (Roads/trails/railroad grades); AH15 (Standing structures)                                | ~1/2 mi. E (crosses Santa Ana River)     |
| 006847            | 6847H               | Old Kite Route; A.T.&S.F. Railroad     | Multiple records / 1990-2014     | Historic              | AH7 (Roads/trails/railroad grades); HP11 (Engineering structure); HP18 (Train); HP19 (Bridge) | 1 block (~1/8 mi.) N                     |
| 007168            | 7168H               | Gage Canal                             | Multiple records / 1992-2008     | Historic              | AH6 (Water conveyance system); HP20 (Canal/aqueduct)  | ~3/4 mi. E (E of Santa Ana River)        |
| 017668            | -                   | 1176 Amos Av, San Bernardino           | Donaldson / 1994                 | Historic              | HP2 (Single family property)  | 1 block (~1/8 mi.) N                     |
| 017818            |                     | National Orange Show and Events Center | Parsons / 2008                   | Historic              | HP25 (Amusement park)   | ~3/4 mi. NW                              |
| 017819            |                     | 1280 S E St, San Bernardino            | 1992                             | Historic              | AP1 (unknown)   | ~1/2 mi. W                               |
| 017820            |                     | 1286 S E St, San Bernardino            | 1992                             | Historic              | AP1 (unknown)   | ~1/2 mi. W                               |
| 018025            |                     | 505 W Orange Show Rd, San Bernardino   | 1992                             | Historic              | AP1 (unknown)   | ~1/2 mi. W                               |
| 023628            | 14924H              |  | Goodwin / 2011                   | Historic              | AH2 (Foundations/structure pads)  | ~3/4 mi. N                               |

### Historical Research

Historic aerial photographs covering the Project area from 1938, 1959, 1966, 1968, 1980, 1994, 2002, 2005, 2009, 2010, and 2012; and historic USGS 7.5-minute topographic quadrangles from 1896, 1898, 1901, 1905, 1909, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1959, 1963, 1965, 1969, 1974, 1977, and 1981 were consulted from [historicaerials.com](http://historicaerials.com).

The historic topographic map from 1896 shows that the project area was already in use. A structure is depicted facing Dumas Drive just west of Waterman, another appears to be facing Waterman south of Dumas, and the A.T.&S.F. Railroad (Redlands Line) runs northwest/southeast just to the northeast of the intersection. No other structures appear within the project area until the 1938 aerial, and later on the 1943 topo, when another structure appears further to the south along Waterman, just south of an east/west spur road. In the 1943 topo, the position of the structure facing Dumas appears shifted to the west nearer to the intersection. On the 1955 topo, three additional structures are now located near the eastern edge of the project area along Waterman, with one newly depicted structure near the center of the area at the end of the spur road, which is also now depicted on the topo. Another structure appears in this general area in 1963. In 1969, the structure in the center of the area is gone, three structures are lined up facing Dumas near Waterman and three structures are clustered to the south along Waterman. The church first appears in this image, as well as three additional structures facing Dumas appearing to the west, with another cluster of four structures along Dumas near the western edge of the project area. An additional structure just southeast of the church appears in 1974, with five other structures appearing in the west and south of the project area; two more structures appear in the southern area on the 1981 topo.

Only aerials photos are available after 1981. The 1994 photo indicates that most, if not all of the structures in the southern half of the area are gone; by 2002, they are definitely gone and it is possible that the driving range is already in existence.

#### NAHC Sacred Lands File Search

On November 2, 2015, ASM sent a request to the NAHC to search their Sacred Lands File (SLF) to determine whether their files contained any information relating to the presence of Native American cultural resources within the Project parcel. Response from the NAHC was received on December 17, 2015, indicating that no such resources were found as a result of the SLF search. However, the absence of specific site information in the SLF does not indicate the absence of Native American cultural resources within the Project area. A list of 16 tribal contacts who may have interest in the Project area was provided with the NAHC response; this response and contact list is provided with this report as Appendix B.

#### Pedestrian Survey Results

The Project is located within a relatively flat landscape that has been entirely previously disturbed. The north half, comprising 11 of the 12 parcels, contains multiple single-family residences and two churches; the single parcel comprising the southern half is a fully landscaped and maintained operational golf driving range. The accessible and unmaintained portions of the Project area are covered with dry non-native grasses. Some modern refuse disposal has taken place in the open parcels, especially the parcel directly at the corner of East Dumas Drive and South Waterman Avenue. All of the open parcels show evidence of having been extensively disturbed by agricultural uses, residential or commercial development, the removal of buildings, grading, and vegetation removal (Figures 2 and 3). One previously unrecorded cultural resource, Waterman-1, a historic artifact scatter, was documented; no evidence was found within the Project area of the presence of or potential for any prehistoric resources. The DPR form for this resource can be found in Appendix A.

Waterman-1 consists of a scatter of highly fragmented historic artifacts, likely dating to the earliest occupation of the parcel. Artifacts found here include dozens of glass fragments, ceramic and porcelain fragments; etc. It should be noted, however, that some modern refuse is mixed with the historic materials to the same depths, further evidencing the significant disturbance that the parcel has undergone over the decades.

The glass fragments included amethyst, cobalt, milk, green, brown, clear, and a partial clear milk bottle finish. The milk glass fragment was decorative, with an Art Deco-like or thatch pattern. Ceramics and porcelain included a small porcelain doll arm, a tea cup handle, a plate base, a plate rim with a blue Japanese style transfer print, a cup rim with a black and a brown stripe, and a piece of a melamine or plastic dinner plate with a starburst design.

A single porcelain plate fragment with a partial maker's mark was found: ...LLARNEY (in banner) / ...ORCELAIN / (crown design). No date could be found for this mark. This leaves the only item with a bracketable date range as the amethyst glass. A piece of decorative glass was found as well as some other nondescript fragments; none had any other temporally diagnostic features. Amethyst glass dates ca. 1880-1920, which corresponds to the single structure depicted in the early maps and photos. It does not appear that this early structure is the same house that is currently extant at 285 East Dumas Street; these structures appear in somewhat different locations. As such, at least some of the deposit was likely related to the now removed earliest structure in the Project area. However, some of the fragments in the scatter appear to be of later vintage, ca. 1950s-1960s. As such, this is a mixed deposit likely from various episodes of refuse disposal into what may have long served as a sort of communal backyard area for the houses lining the edges of this parcel.

### **California Register of Historic Resources (CRHR)**

For purposes of CEQA, a historic resource is any object, building, structure, site, area, place, record, or manuscript listed in or eligible for listing in the CRHR (PRC §5024.1, Title 14 CCR, §4852). A resource is eligible for listing in the CRHR if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- (2) Is associated with the lives of persons important in our past
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- (4) Has yielded, or may be likely to yield, information important to prehistory or history.

## **Recommendations**

A single previously undocumented resource, Waterman-1, consisting of a scatter of highly fragmented historic artifacts, was identified within the northeastern portion of the Project area. No evidence of intact subsurface deposits was identified. Historic buildings were once present within this portion of the Project area, but most have been removed. Archaeological sites are generally assessed for eligibility under Criterion 4 for their research potential. As highly fragmentary and disturbed remains, unassociated with intact archaeological deposits or features, Waterman-1 is recommended not eligible for listing in the California Register of Historic Resources as it fails to meet the criteria for listing.

The results of the records search, the historical map and photo analysis, and the current survey suggest a low archaeological sensitivity for the Project area as a whole. However, ASM recommends that the Project area be monitored by a qualified archaeological monitor during the initial ground disturbance for the Project's construction as there is a possibility of currently undetectable historic subsurface deposits being present within the Project area due to the area's early residential development.

Should you have any questions regarding this study, please do not hesitate to contact me.

Respectfully submitted,



Sherri Andrews, M.A., RPA  
Senior Archaeologist

## **Attachments**

- Figure 1. Project location.
- Figure 2. View of the southern portion of the Project area, the driving range, facing east.
- Figure 3. View of typical accessible portions of the Project area, facing northwest.
- Figure 4. View of typical accessible portions of the Project area, facing west.
- Appendix A. DPR form for Waterman-1.
- Appendix B. NAHC response including tribal contact list.

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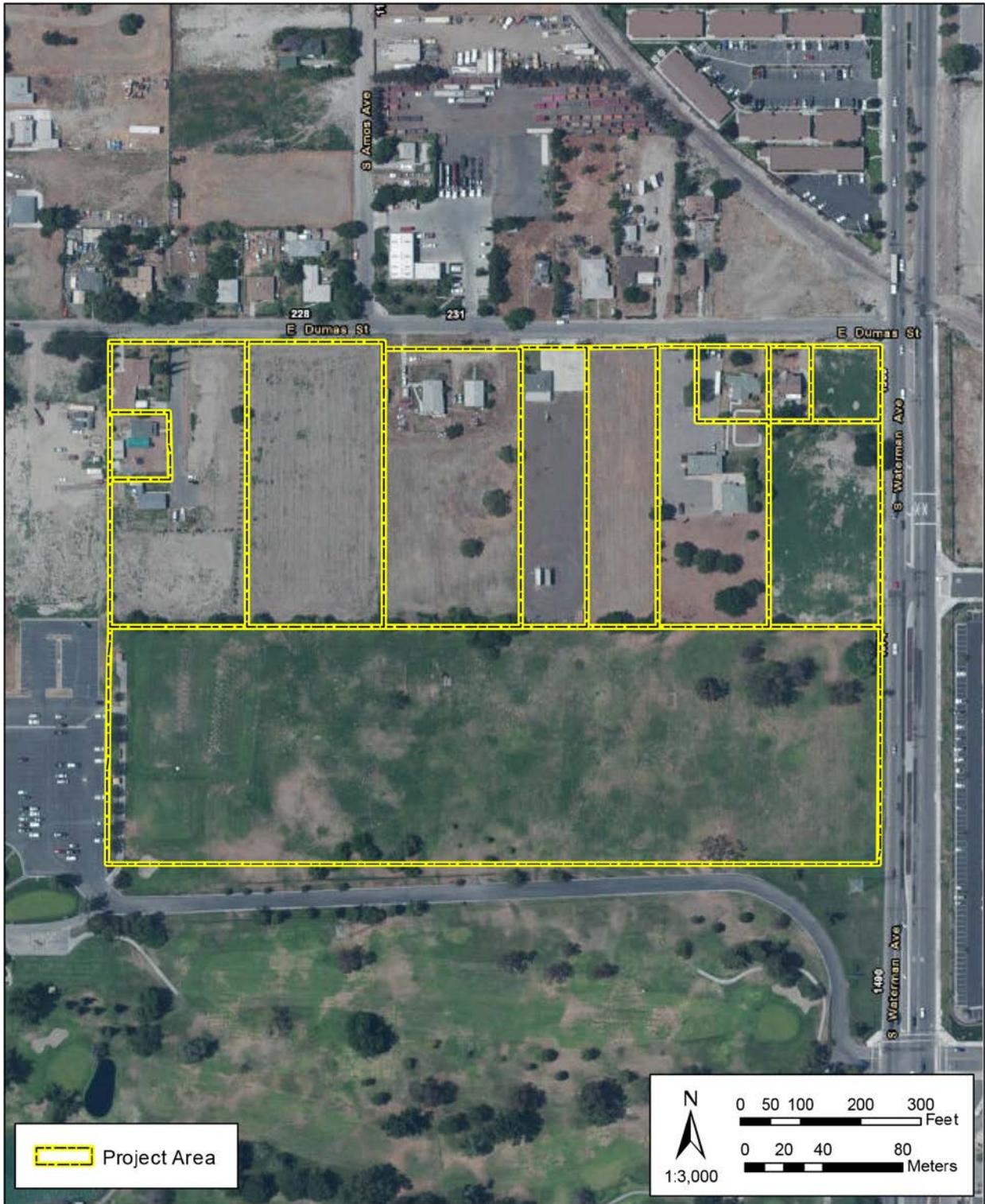


Figure 1. Project location.



Figure 2. View of the southern portion of the Project area, the driving range, facing east.



Figure 3. View of typical accessible portions of the Project area, facing northwest.



Figure 4. View of typical accessible portions of the Project area, facing west.



December 17, 2015

Karina Fidler, AICP, CPESC  
Kimley-Horn  
401 B Street, Suite 600  
San Diego, California 92101

Re: Cultural Resource Study Findings Memo for the Waterman Industrial Center, San Bernardino, San Bernardino County, California

Dear Ms. Fidler,

This letter report documents the results of the cultural resource study conducted for the Waterman Industrial Center Project (Project) by ASM Affiliates, Inc. (ASM). The study was completed in compliance with California Environmental Quality Act (CEQA) requirements. The lead agency is the City of San Bernardino. This document is part of an Initial Study to address the potential environmental impacts of the proposed project pursuant to the required provisions of CEQA, Public Resources Code Section 21000 et seq., and State CEQA Guidelines Section 15063.

The study included a records search at the South Central Coastal Information Center (SCCIC), a search of the Sacred Lands File of the California Native American Heritage Commission (NAHC), and a pedestrian survey of accessible portions of the Project area. One cultural resource, Waterman-1, consisting of a sparse historic artifact scatter dating ca. 1920s was identified. Monitoring of the Project area by a qualified archaeological monitor during the initial ground disturbance for the Project is recommended.

### **Project Description and Location**

The proposed project site is located in the south-central portion of the City of San Bernardino. The Project area is shown on the USGS 7.5-minute San Bernardino South, Calif. topographic quadrangle in an unsectioned area of Township 1 South, Range 4 West. The project site encompasses 12 parcels (Assessor Parcel Numbers [APNs] 014-143-101, 014-143-102, 014-143-103, 014-143-104, 014-143-108, 014-143-109, 014-143-110, 014-143-111, 0104-143-112, 014-143-116, 014-143-120, and 014-143-121) on approximately 26 acres and is bounded by East Dumas Drive to the north and South Waterman Avenue to the east (Figure 1). Current uses on the 12 parcels include: five vacant parcels, five parcels with single family residential homes, two parcels with a church, and one parcel is used as a golf driving range attached to the San Bernardino Golf Club. The site is not located in an area of archaeological or historical sensitivity as identified by the City.

The proposed Waterman Industrial Center is a 564,652 SF industrial building with office space, parking, a pump house, and landscaping. The industrial building would be one floor with a maximum height of 43 feet. The building would be a cross dock warehouse facility, with dedicated office/mezzanine space of 10,000 SF. The site will also include a 427 SF pump house.

The building would have 49 dock doors on its northern frontage and 49 on its southern frontage. Site access would be provided via one signalized full movement driveway on Waterman Avenue and two full movement driveways on Dumas Drive. Total on-site parking would be 452 stalls, with 286 dedicated to warehouse parking (including office) and 166 trailer parking spaces. Landscaping in the amount of 103,585 SF is anticipated for the site and the southwest corner of the site would be used as a stormwater/water quality control basin. Roadway frontage improvements would be provided on Waterman Avenue and Dumas Drive. The project would also include an approximate 1,000-foot long, 12-foot high concrete screen wall on the southern boundary of the site. An approximate 200-foot, 12-foot high concrete screen wall segment and an approximate 600-foot long, 8-foot-high high tube steel fence would be constructed on the western boundary of the site.

## **Cultural and Environmental Setting**

### Natural Setting

The City of San Bernardino is located approximately 60 miles east of the City of Los Angeles, at the southern base of the San Bernardino Mountains. It lies in the upper Santa Ana River Valley, and is bounded by the San Bernardino Mountains on the northeast and east, Blue Mountain and Box Springs Mountain abutting the Cities of Loma Linda and Redlands to the south, and the San Gabriel Mountains and Jurupa Hills to the northwest and southwest, respectively. The City is largely urbanized and surrounded by other developed cities; the Project area is similarly highly urbanized.

### Prehistoric Period

Archaeological investigations in San Bernardino County and elsewhere in southern California have documented a diverse range of prehistoric human occupations, extending from the terminal Pleistocene down to the time of European contact (Koerper and Drover 1983; Mason 1984; McKenna 1986; Wallace 1955; Warren 1968).

### Paleoindian (pre-6000 B.C.)

Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. These tools suggest a reliance on hunting rather than gathering. In general, hunting-related tools are more common during this period and are replaced by processing tools during the early Holocene (Basgall and Hall 1990).

### Milling Stone Horizon (6000 B.C. – 750 A.D.)

The Milling Stone Horizon is characterized by the presence of hand stones, milling stones, choppers, and scrapers. These tools are thought to be associated with seed gathering and processing and limited hunting activities. The artifacts from this period show a major shift in the exploitation of natural resources.

### Late Prehistoric Horizon (A.D. 750-1750)

Like much of Southern California, this horizon in the general Project area is characterized by the presence of small projectile points associated with the use of bow and arrow. Steatite containers, asphaltum items, mortars and pestles, and bedrock mortars are also common artifacts.

### Ethnohistoric Period (Post A.D. 1750)

The Project area is within the ethnohistoric territory of the Gabrielino Indians, and along the border of the Serrano's territory within the mountains. Both the Gabrielino and Serrano claim the area as part of their traditional homeland. The Gabrielino name derived from their association with the San Gabriel Valley and the Mission San Gabriel de Archangel (Bean and Smith 1978a, 1978b).

Both the Serrano and the Gabrielino utilized numerous plants and animals for food, shelter, and medicines (Kroeber 1976). Seeds were most often used followed by foliage, shoots, fruits, and berries. Mountain shrubs, ash, elder, and willow were used for shelters and tool materials such as bows. Fauna used as food sources included deer, rabbits, wood rats, squirrels, quail, and ducks. Animals specifically not used were dog, coyote, bear, tree squirrel, pigeon, dove, mud hen, eagle, buzzard, raven, lizards, frogs, and turtles (Kroeber 1976).

The Serrano and Gabrielino used numerous styles of bows, bedrock mortars, portable mortars, pipes, chisels, metates, manos, and various forms of chipped stone tools. Prior to the establishment of the Mission system Native Americans lived larger villages, associated with smaller villages with limited activity areas and smaller populations. Seasonal migration was practiced across the area for both the exploitation of resources and based on seasonal weather conditions.

### Historic Period

#### Spanish and Mexican Periods

Spanish explorer Juan Rodríguez Cabrillo first discovered California in 1542, claiming it for the King of Spain. However, Spanish contact within the vicinity of the Project area did not take place until the 1770s when Father Garces traveled across the Mojave Desert and entered coastal southern California through the Cajon Pass (Walker 1968).

The Mission San Gabriel de Archangel was established in 1771 and claimed what are now the San Gabriel and San Bernardino valleys. In 1819, a mission outpost, or asistencia, was established in the area of present-day Redlands (Dumke 1944; Hanna 1951; McWilliams 1973; Scott 1977). This outpost, part of Mission San Gabriel's Rancho San Bernardino, was established in order to expand the agricultural holdings of Mission San Gabriel. The asistencia was later moved to its current location, where construction began in 1830; it was abandoned soon after in 1834 (Lugo 1950).

The Mexican War of Independence ended in 1821, severing the Spanish hold on the Californias and secularizing former mission lands. A series of ranchos was granted throughout the San Bernardino Valley and much of the land was used for ranching activities. Although some land had been granted to Indians, most of the land went to military men or merchants. In 1842, the Lugo family was granted the Rancho San Bernardino, which encompassed approximately 37,700 acres.

Granting large ranch lands or ranchos remained as both a Spanish and a Mexican legacy in California. Land granted to Mexicans between 1833 and 1846 amounted to 500 ranchos

primarily granted near the coast from San Francisco to San Diego. Mexican Governor Pío Pico granted a great number of those ranchos prior to 1846, quickly carving up Alta California to ensure Mexican land titles survived a U.S. victory in the Mexican-American War (1846-1848) (Christenson and Sweet 2008:7; Engstrand 2005:64-66; Robinson 1948:23-72).

### American Period

(from [http://www.ci.san-bernardino.ca.us/about/history/history\\_of\\_san\\_bernardino\\_\(short\\_version\).asp](http://www.ci.san-bernardino.ca.us/about/history/history_of_san_bernardino_(short_version).asp))

The first non-Mexican settlers to the area were the Mormon pioneers who were directed by Brigham Young to establish a colony in the San Bernardino Valley. They purchased 35,000 acres of the Rancho San Bernardino in 1851, for \$77,500, with a down payment of \$7,000. The Mormons built a stockade around the rancho and named it Fort San Bernardino. The families lived inside the stockade for the first few years. They grew wheat and other crops outside and a grain mill inside. After their fear of attack from local Native Americans abated, the residents moved outside the stockade and began building homes in the area.

In the fall of 1852, Colonel Henry Washington, a United States deputy surveyor, erected a monument on top of Mount San Bernardino, creating the San Bernardino base line from which surveys in the southern part of the state were, and are still made. In 1854, the City of San Bernardino was officially incorporated. The population at the time was 1,200, with 900 of them Mormons; as such, the early city was a temperance town, with no drinking or gambling allowed. Brigham Young recalled the Mormons to Salt Lake City in 1857, some of whom left, while others opted to remain in the new city. Though only in the area en masse for six years, the Mormons made numerous achievements, establishing schools, stores, a network of roads, and a strong government.

Gold was discovered in Holcomb Valley in 1860, prompting prospectors to pour into the mountains through San Bernardino to try their luck at panning. For a time Belleville, in Holcomb Valley, was the largest city in Southern California with 10,000 residents, and it almost became the county seat, losing to San Bernardino by only one vote.

The large railway companies eventually found their way to San Bernardino in the last years of the nineteenth century, raising the profile of the city. The Santa Fe, the Union Pacific, and the Southern Pacific railroads all converged on the city, making it the hub of their southern California operations. Competition between the railroads set off a rate war, which brought thousands of newcomers to California in the great land boom of the 1880s. When the Santa Fe Railway established a transcontinental link in 1886, the already prosperous valley exploded, with even more settlers now coming from the East. Population figures doubled, from 6,150 in 1900 to 12,779 in 1910, the year that the San Bernardino Chamber of Commerce was first organized.

**Study Methods**

Methods used to assess the presence of and potential for cultural resources within the property included a search of existing records and a pedestrian field survey. The records search was conducted by the SCCIC on October 27, 2015. The search included the Project area and a radius of 0.25 mi. around it. Historic aerial photographs and historic USGS topographic maps of the Project area were consulted from [historicaerials.com](http://historicaerials.com).

The field survey was conducted on November 5, 2015 by ASM Senior Archaeologist Sherri Andrews. Field methods consisted of a pedestrian survey of accessible areas within the proposed Project site using transects spaced at 15-m intervals and visual assessment of the currently occupied parcels.

**Study Results**

Records Search Results

The records search at the SCCIC identified four previous cultural resource studies that had been conducted within the 0.25-mi. radius (Table 1). None of the studies have been conducted directly within the Project area.

Table 1. Previous Cultural Resources Reports Addressing the Project Area and the 0.25-mi. Records Search Radius

| Report No (SB-) | Year | Author(s)/Affiliation  | Title   |
|-----------------|------|--|---|
| 01808           | 1988 | Hampson, R. Paul, Jerrel Sorensen, Susan K. Goldberg, Mark T. Swanson, and Jeanne E. Arnold / Greenwood & Associates and Infotec | Cultural Resources Survey, Upper Santa Ana River, California  |
| 03228           | 1995 | Lerch, Michael K. / Tom Dodson & Associates  | Historic Property Survey Report: Orange Show Road Extension, City of San Bernardino, CA   |
| 06331           | 2009 | Cannon, Amanda, and Michael K. Lerch   | Cultural Resources Assessment of the Riverside-Corona Realignment, San Bernardino and Riverside Counties, California                        |
| 07528           | 2012 | Hogan, Michael, Bai "Tom" Tang, Terri Jacquemain, Daniel Ballester, and Nina Gallardo / CRM Tech                                 | Identification and Evaluation of Historic Properties: Cleanwater Factory Project, City of San Bernardino, San Bernardino County, California |

Two cultural resources have been previously recorded within the 0.25-mi. records search radius (Table 2); none have been documented within the Project area. Both of the previously recorded resources are historic; no prehistoric cultural resources have been documented.

Table 2. Previously Recorded Cultural Resources within the 0.25-mi. Records Search Radius

| Primary # (P-36-) | Trinomial (CA-SBR-) | Recorded by / date           | Site Type              |
|-------------------|---------------------|------------------------------|------------------------|
| 006847            | 6847H               | Multiple records / 1990-2014 | Historic Railroad      |
| 017668            | -                   | Donaldson / 1994             | Single Family Property |

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The Project is located within a relatively flat landscape that has been entirely previously disturbed. The north half, comprising 11 of the 12 parcels, contains multiple single-family residences and two churches; the single parcel comprising the southern half is a fully landscaped and maintained operational golf driving range. The accessible and unmaintained portions of the Project area are covered with dry non-native grasses. Some modern refuse disposal has taken place in the open parcels, especially the parcel directly at the corner of East Dumas Drive and South Waterman Avenue. All of the open parcels show evidence of having been extensively

disturbed by agricultural uses, residential or commercial development, the removal of buildings, grading, and vegetation removal (Figures 2 and 3). One previously unrecorded cultural resource, Waterman-1, a historic artifact scatter, was documented; no evidence was found within the Project area of the presence of or potential for any prehistoric resources. The DPR form for this resource can be found in Appendix A.

Waterman-1 consists of a scatter of highly fragmented historic artifacts, likely dating to the earliest occupation of the parcel. Artifacts found here include dozens of glass fragments, ceramic and porcelain fragments; etc. It should be noted, however, that some modern refuse is mixed with the historic materials to the same depths, further evidencing the significant disturbance that the parcel has undergone over the decades.

The glass fragments included amethyst, cobalt, milk, green, brown, clear, and a partial clear milk bottle finish. The milk glass fragment was decorative, with an Art Deco-like or thatch pattern. Ceramics and porcelain included a small porcelain doll arm, a tea cup handle, a plate base, a plate rim with a blue Japanese style transfer print, a cup rim with a black and a brown stripe, and a piece of a melamine or plastic dinner plate with a starburst design.

A single porcelain plate fragment with a partial maker's mark was found: ...LLARNEY (in banner) / ...ORCELAIN / (crown design). No date could be found for this mark. This leaves the only item with a bracketable date range as the amethyst glass. A piece of decorative glass was found as well as some other nondescript fragments; none had any other temporally diagnostic features. Amethyst glass dates ca. 1880-1920, which corresponds to the single structure depicted in the early maps and photos. It does not appear that this early structure is the same house that is currently extant at 285 East Dumas Street; these structures appear in somewhat different locations. As such, at least some of the deposit was likely related to the now removed earliest structure in the Project area. However, some of the fragments in the scatter appear to be of later vintage, ca. 1950s-1960s. As such, this is a mixed deposit likely from various episodes of refuse disposal into what may have long served as a sort of communal backyard area for the houses lining the edges of this parcel.

### **California Register of Historic Resources (CRHR)**

For purposes of CEQA, a historic resource is any object, building, structure, site, area, place, record, or manuscript listed in or eligible for listing in the CRHR (PRC §5024.1, Title 14 CCR, §4852). A resource is eligible for listing in the CRHR if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- (2) Is associated with the lives of persons important in our past
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- (4) Has yielded, or may be likely to yield, information important to prehistory or history.

## **Recommendations**

A single previously undocumented resource, Waterman-1, consisting of a scatter of highly fragmented historic artifacts, was identified within the northeastern portion of the Project area. No evidence of intact subsurface deposits was identified. Historic buildings were once present within this portion of the Project area, but most have been removed. Archaeological sites are generally assessed for eligibility under Criterion 4 for their research potential. As highly fragmentary and disturbed remains, unassociated with intact archaeological deposits or features, Waterman-1 is recommended not eligible for listing in the California Register of Historic Resources as it fails to meet the criteria for listing.

The results of the records search, the historical map and photo analysis, and the current survey suggest a low archaeological sensitivity for the Project area as a whole. However, ASM recommends that the Project area be monitored by a qualified archaeological monitor during the initial ground disturbance for the Project's construction as there is a possibility of currently undetectable historic subsurface deposits being present within the Project area due to the area's early residential development.

Should you have any questions regarding this study, please do not hesitate to contact me.

Respectfully submitted,



Sherri Andrews, M.A., RPA  
Senior Archaeologist

## **Attachments**

- Figure 1. Project location.
- Figure 2. View of the southern portion of the Project area, the driving range, facing east.
- Figure 3. View of typical accessible portions of the Project area, facing northwest.
- Figure 4. View of typical accessible portions of the Project area, facing west.
- Appendix A. DPR form for Waterman-1.
- Appendix B. NAHC response including tribal contact list.

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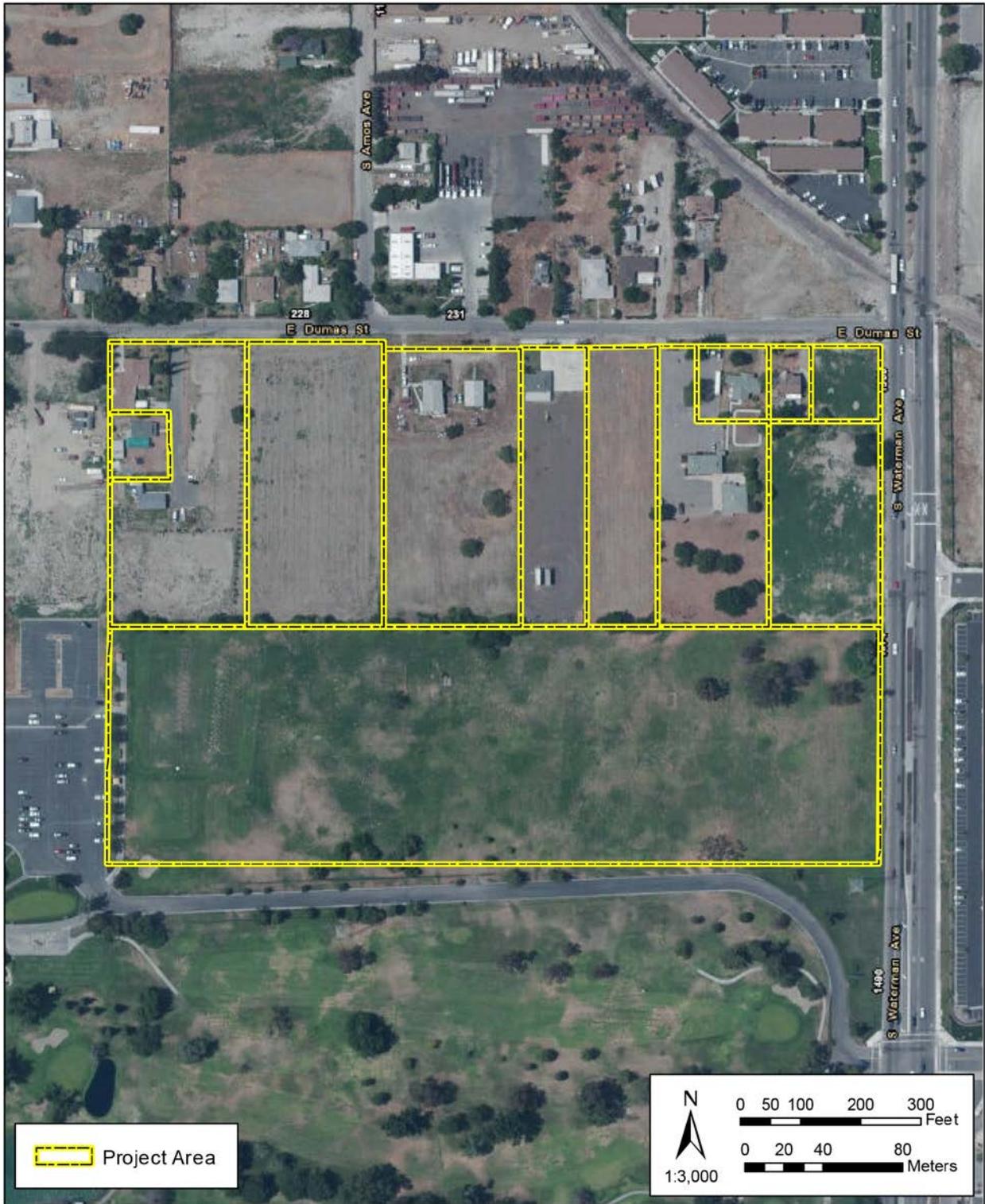


Figure 1. Project location.



Figure 2. View of the southern portion of the Project area, the driving range, facing east.



Figure 3. View of typical accessible portions of the Project area, facing northwest.



Figure 4. View of typical accessible portions of the Project area, facing west.

**Appendix A. DPR Form for Waterman-1**

|   |   |
|---|---|
| State of California — The Resources Agency<br>DEPARTMENT OF PARKS AND RECREATION<br><b>PRIMARY RECORD</b> | Primary #:<br>HRI #:<br>Trinomial:<br>NRHP Status Code: |
| Other Listings<br>Review Code _____   | Reviewer _____ Date _____                               |

**P1. Other Identifier:**

\*P2. Location:  Not for Publication  Unrestricted \*a. County: San Bernardino

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*b. USGS 7.5' Quad San Bernardino South, CA Date 1980 T 1S; R 4W; \_\_\_ ¼ of \_\_\_ ¼ of Sec \_\_\_; S.B. B.M.

c. Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip: \_\_\_\_\_

d. UTM: Primary datum: NAD 83: Zone 11S; 474236 mE / 3770728 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 1,010 ft. (308 m)

The site is situated just southwest of the intersection of South Waterman Avenue and East Dumas Street, in the empty lot behind 285 East Dumas Street in the city of San Bernardino.

\*P3a. **Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This is a large (130 ft. E-W x 122 ft. N-S) historic site containing a dispersed scatter of very fragmented artifacts, including dozens of glass fragments, ceramic and porcelain fragments; etc. The glass fragments include amethyst, cobalt, milk, green, brown, clear, and a partial clear milk bottle finish. The milk glass fragment was decorative, with an Art Deco-like or thatch pattern. Ceramics and porcelain included a small porcelain doll arm, a tea cup handle, a plate base, a plate rim with a blue Japanese style transfer print, a cup rim with a black and a brown stripe, and a piece of a melamine or plastic dinner plate with a starburst design. Amethyst glass dates ca. 1880-1920, which corresponds to the single structure depicted in the early maps and photos. As such, at least some of the deposit was likely related to the now removed earliest structure in the Project area. However, some of the fragments in the scatter appear to be of later vintage, ca. 1950s-1960s. As such, this is a mixed deposit likely from various episodes of refuse disposal into what may have long served as a sort of communal backyard area for the houses lining the edges of this parcel.

\*P3b. **Resource Attributes:** (List attributes and codes): AH4. Privies/dumps/trash scatters

\*P4. **Resources Present:**  Building  Structure  Object  Site  District  Element of District  Other (Isolates, etc.)

**P5a. Photograph or Drawing**



**P5b. Description of Photo (View, date, accession #):** 20151105\_102039.JPG, 11/5/2015; site overview toward northwest, back of 285 East Dumas Street at left, intersection of Dumas and Waterman at right.

\*P6. **Date Constructed/Age and Sources:**

Historic  Prehistoric  Both

\*P7. **Owner and Address:**

\*P8. **Recorded by:** (Name, affiliation, and address)  
S. Andrews, ASM Affiliates, Inc., 20 N. Raymond Av., Ste. 220, Pasadena, CA 91103

\*P9. **Date Recorded:** 11/5/2015

\*P10. **Survey Type: (Describe):**

Pedestrian survey and site recording

\*P11. **Report Citation:** (Cite survey report and other sources, or enter "none")

Andrews, Sherri  
2015 *Cultural Resource Study Findings Memo for the Waterman Industrial Center, San Bernardino, San Bernardino County, California*. Prepared for Kimley-Horn.

\*Attachments: NONE  Location Map  Sketch Map  Continuation Sheet  Building, Structure, and Object Record

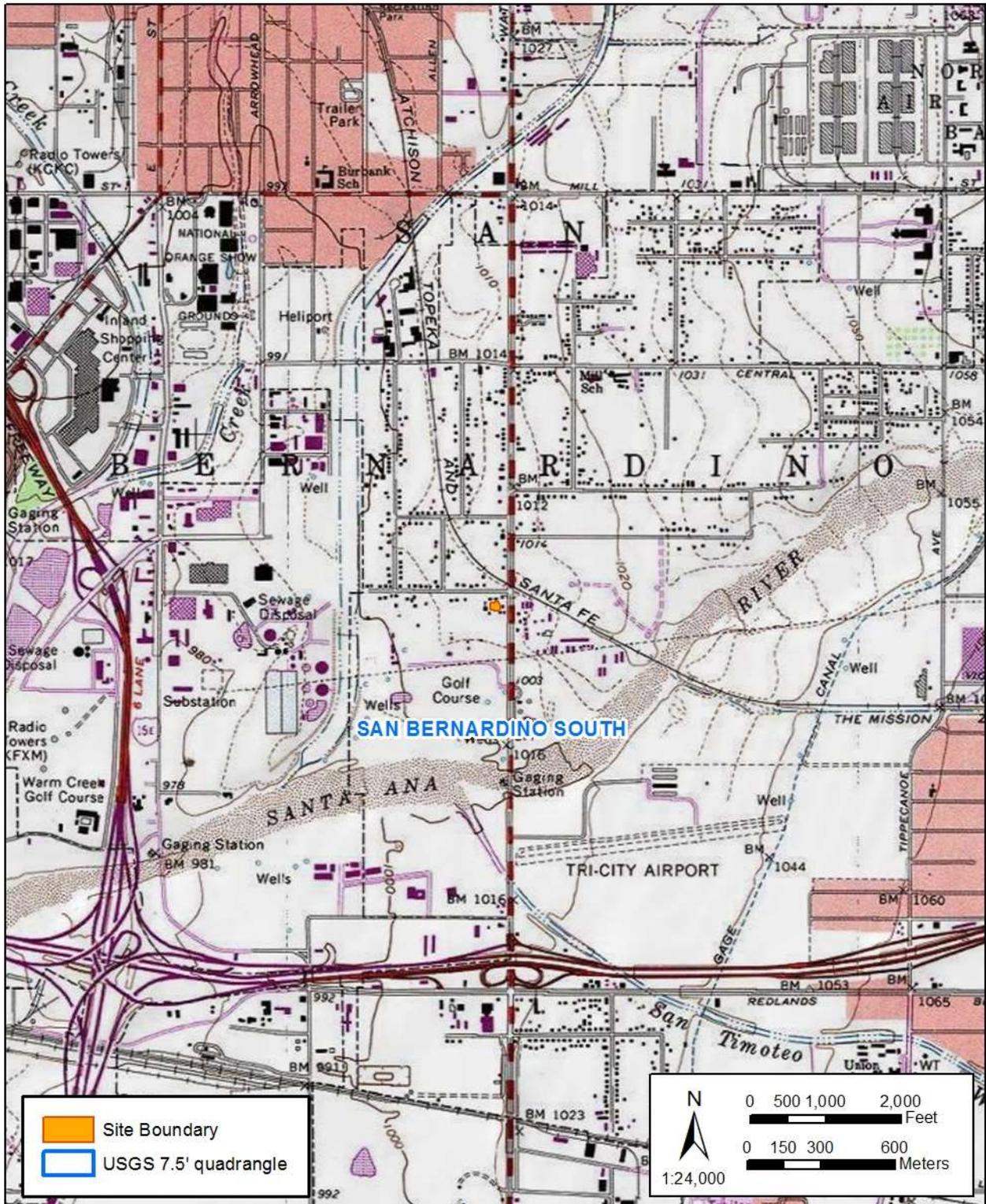
Archaeological Record  District Record  Linear Feature Record  Milling Station Record  Rock Art Record  Artifact Record

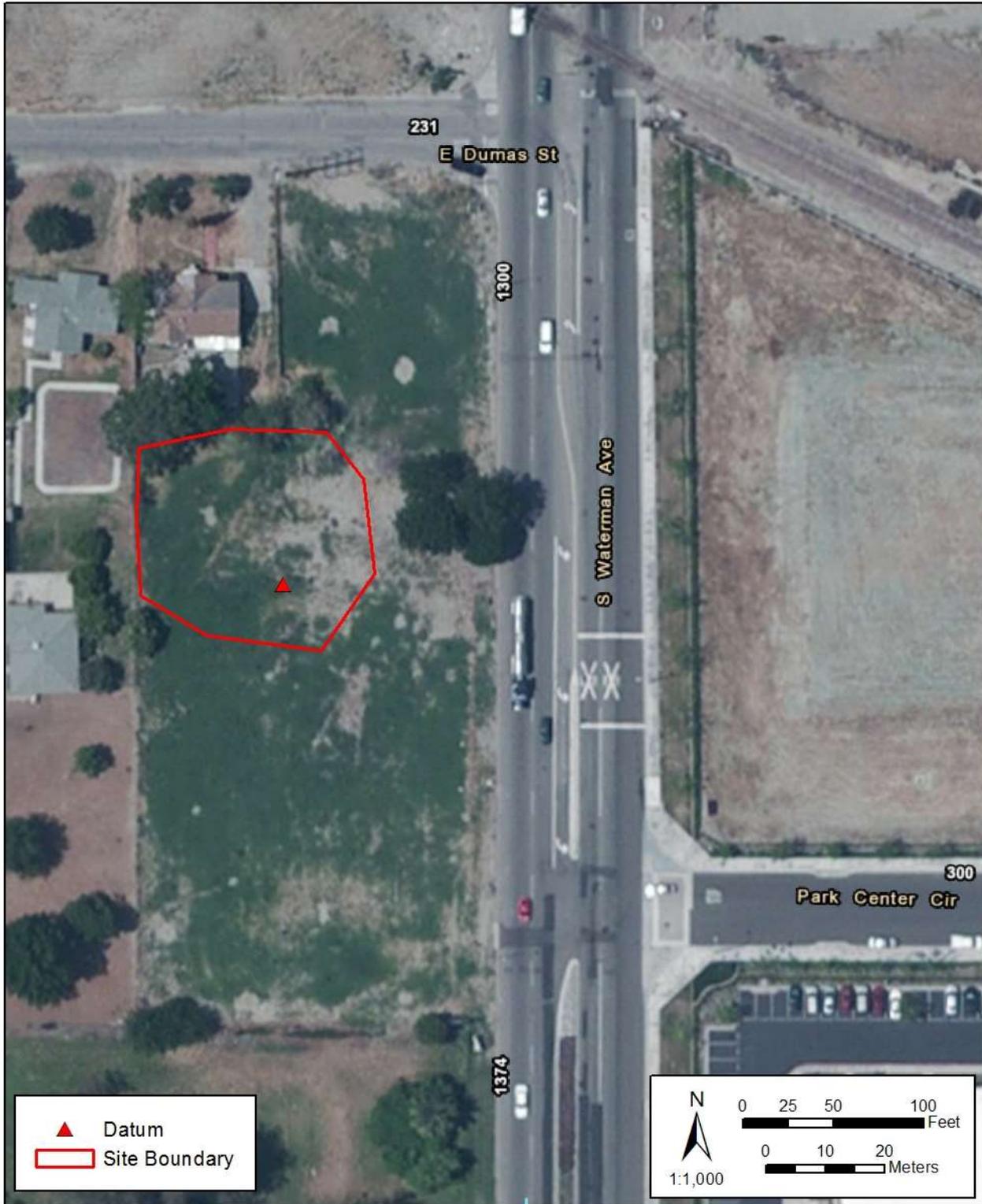
Photograph Record  Other (List):

Page 2 of 4

Resource Name or #: (Assigned by recorder): **Waterman-1**

- \*A1. Dimensions:** a. Length: 130 ft. E-W x b. Width: 122 ft. N-S  
**Method of Measurement:**  Paced  Taped  Visual estimate  Other: GPS  
**Method of Determination:** (check any that apply)  Artifacts  Features  Soil  Vegetation  Topography  Cut bank  
 Animal burrow  Excavation  Property boundary  Other (Explain):  
**Reliability of Determination:**  High  Medium  Low Explain:  
**Limitations** (check any that apply):  Restricted access  Paved/built over  Site limits incompletely defined  Disturbances  
 Vegetation  Other (Explain):
- A2. Depth:**  None  Unknown Method of Determination:
- \*A3. Human Remains:**  Present  Absent  Possible  Unknown (Explain):
- \*A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.):
- \*A5. Cultural Constituents** (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):  
The site area contains a dispersed scatter of very fragmented artifacts, including dozens of glass fragments, ceramic and porcelain fragments; etc. The glass fragments include amethyst, cobalt, milk, green, brown, clear, and a partial clear milk bottle finish. The milk glass fragment was decorative, with an Art Deco-like or thatch pattern. Ceramics and porcelain included a small porcelain doll arm, a tea cup handle, a plate base, a plate rim with a blue Japanese style transfer print, a cup rim with a black and a brown stripe, and a piece of a melamine or plastic dinner plate with a starburst design. A single porcelain plate fragment with a partial maker's mark was found: ...LLARNEY (in banner) / ...ORCELAIN / (crown design). No date could be found for this mark.
- \*A6. Were Specimens Collected?**  No  Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)
- \*A7. Site Condition:**  Good  Fair  Poor (Describe disturbances.): Impacts to the site include significant tilling and grading, with modern refuse having been tilled into soils and mixed at equal depths with historic fragments.
- \*A8. Nearest Water** (Type, distance, and direction.): The Santa Ana River is ~0.4 mile to the south.
- \*A9. Elevation:** 1,010 ft. (308 m)
- A10. Environmental Setting:** (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.) Vegetation in the area is primarily dry introduced grasses, except in areas that are currently landscaped. The landform is essentially flat, and the various parcels have been further flattened by modern modifications.
- A11. Historical Information:** The only artifactual items found with a bracketable date range are the amethyst glass fragments. A piece of decorative glass was found as well as some other nondescript fragments; none had any other temporally diagnostic features. Amethyst glass dates ca. 1880-1920, which corresponds to the single structure depicted in the early maps and photos. It does not appear that this early structure is the same house that is currently extant at 285 East Dumas Street; these structures appear in somewhat different locations. As such, at least some of the deposit was likely related to the now removed earliest structure in the Project area. However, some of the fragments in the scatter appear to be of later vintage, ca. 1950s-1960s. As such, this is a mixed deposit likely from various episodes of refuse disposal into what may have long served as a sort of communal backyard area for the houses lining the edges of this parcel.
- \*A12. Age:**  Prehistoric  Protohistoric  1542-1769  1769-1848  1848-1880  1880-1914  1914-1945  Post 1945  
 Undetermined (Describe position in regional prehistoric chronology or factual historic dates if known):
- A13. Interpretations:** (Discuss data potential, function(s), ethnic affiliation, and other interpretations)
- A14. Remarks:**
- A15. References:** (Documents, informants, maps, and other references)
- A16. Photographs:** (List subjects, direction of view, and accession numbers or attach a Photograph Record.): 20151105\_095539.JPG-20151105\_102216.JPG  
Original Media/Negatives Kept at: ASM Affiliates
- \*A17. Form Prepared by:** Sherri Andrews Date: 11/20/2015  
Affiliation and Address: ASM Affiliates, Inc., 20 N. Raymond Av., Ste. 220, Pasadena, CA 91103





**Appendix B. NAHC Response with Tribal Contact List**

**NATIVE AMERICAN HERITAGE COMMISSION**

1550 Harbor Blvd., ROOM 100  
West SACRAMENTO, CA 95691  
(916) 373-3710  
Fax (916) 373-5471



December 7, 2015

Sherri Andrews  
ASM Affiliates, Inc.

Sent by E-mail: sandrews@asmaffiliates.com  
Number of Pages: 3

Re.: Waterman Industrial Center Cultural Resources Study, City and County of San Bernardino

Dear Ms. Andrews:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for your project area with negative results, based on the USGS quadrangle information you provided. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE. Other sources of cultural resources information should be contacted regarding known and recorded sites.

Please contact all of the people on the attached list. The list should provide a starting place to locate areas of potential adverse impact within the APE. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: [rw\\_nahc@pacbell.net](mailto:rw_nahc@pacbell.net).

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Wood".

Rob Wood  
Associate Environmental Planner

**Native American Contact List  
San Bernardino County  
December 7, 2015**

Pechanga Band of Mission Indians  
Paul Macarro, Cultural Resources Manager  
P.O. Box 1477 Luiseno  
Temecula, CA 92593  
pmacarro@pechanga-nsn.gov  
(951) 770-8100

(951) 506-9491 Fax

Ramona Band of Cahuilla Mission Indians  
Joseph Hamilton, Chairman  
P.O. Box 391670 Cahuilla  
Anza, CA 92539  
admin@ramonatribe.com  
(951) 763-4105

(951) 763-4325 Fax

San Manuel Band of Mission Indians  
Lynn Valbuena, Chairwoman  
26569 Community Center Serrano  
Highland, CA 92346  
(909) 864-8933

(909) 864-3370 Fax

Soboba Band of Mission Indians  
Rosemary Morillo, Chairperson; Attn: Carrie Garcia  
P.O. Box 487 Luiseno  
San Jacinto, CA 92581 Cahuilla  
carrieg@soboba-nsn.gov  
(951) 654-2765

(951) 654-4198 Fax

San Fernando Band of Mission Indians  
John Valenzuela, Chairperson  
P.O. Box 221838 Fernandefio  
Newhall, CA 91322 Tataviam  
tsen2u@hotmail.com Serrano  
Vanyume  
Kitanemuk  
(760) 885-0955 Cell

Morongo Band of Mission Indians  
Denisa Torres, Cultural Resources Manager  
12700 Pumarra Road Cahuilla  
Banning, CA 92220 Serrano  
drtorres@morongo-nsn.gov  
(951) 849-8807  
(951) 572-6004 Fax  
(951) 572-6004 Fax

San Manuel Band of Mission Indians  
Daniel McCarthy, M.S., Director-CRM Dept.  
26569 Community Center Drive Serrano  
Highland, CA 92346  
dmccarthy@sanmanuel-nsn.gov  
(909) 864-8933 Ext 3248

(909) 862-5152 Fax

Ramona Band of Cahuilla Indians  
Manuel Hamilton, Vice Chairperson  
P.O. Box 391670 Cahuilla  
Anza, CA 92539  
admin@ramonatribe.com  
(951) 763-4105

(951) 763-4325 Fax

Agua Caliente Band of Cahuilla Indians  
Jeff Grubbe, Chairperson  
5401 Dinah Shore Drive Cahuilla  
Palm Springs, CA 92264  
lavilesaguacliente.net  
(760) 699-6800

(760) 699-6919Fax

Morongo Band of Mission Indians  
Robert Martin, Chairperson  
12700 Pumarra Road Cahuilla  
Banning, CA 92220 Serrano  
(951) 849-8807  
(951) 755-5200  
(951) 922-8146 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed

Waterman Industrial Center cultural resources study, City and County of San Bernardino.

**Native American Contact List  
San Bernardino County  
December 7, 2015**

Pechanga Band of Mission Indians  
Mark Macarro, Chairperson  
P.O. Box 1477 Luiseno  
Temecula , CA 92593  
mgoodhart@pechanga-nsn.  
(951) 770-6100  
  
(951) 695-1778 Fax

Soboba Band of Luiseno Indians  
Joseph Ontiveros, Cultural Resource Department  
P.O. BOX 487 Luiseno  
San Jacinto , CA 92581 Cahuilla  
jontiveros@soboba-nsn.gov  
(951) 663-5279  
(951) 654-5544, ext 4137  
(951) 654-4198 Fax

Serrano Nation of Mission Indians  
Goldie Walker, Chairwoman  
P.O. Box 343 Serrano  
Patton , CA 92369  
  
(909) 528-9027  
(909) 528-9032

Agua Caliente Band of Cahuilla Indians THPO  
Patricia Garcia-Plotkin Tribal Historic Preservation Officer  
5401 Dinah Shore Drive Cahuilla  
Palm Springs , CA 92264  
ACBCI-THPO@aguacliente.net  
(760) 699-6907  
  
(760) 699-6924 Fax

Pechanga Cultural Resources Department  
Anna Hoover, Cultural Analyst  
P.O. Box 2183 Luiseño  
Temecula , CA 92593  
ahoover@pechanga-nsn.gov  
(951) 770-8104  
  
(951) 694-0446 Fax

Ernest H. Siva  
Morongo Band of Mission Indians Tribal Elder  
9570 Mias Canyon Road Serrano  
Banning , CA 92220 Cahuilla  
siva@dishmail.net  
(951) 849-4676

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed

Waterman Industrial Center cultural resources study, City and County of San Bernardino.

## **APPENDIX D**

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### Geotechnical Engineering Investigation

**Geotechnical Engineering Investigation**

Proposed Industrial Warehouse Development  
SWC of Waterman Avenue and Dumas Drive  
San Bernardino, California

Newcastle Partners, Inc.  
4740 Green River Road, Suite 118  
Corona, California 92880

Attn.: Mr. Jackson Smith

Project Number 18053-15  
April 30, 2015

**NorCal Engineering**  
Soils and Geotechnical Consultants  
10641 Humbolt Street Los Alamitos, CA 90720  
(562) 799-9469 Fax (562) 799-9459

April 30, 2015

Project Number 18053-15

Newcastle Partners  
4740 Green River Road, Suite 118  
Corona, California 92880

Attn.: Mr. Jackson Smith

**RE: Geotechnical Engineering Investigation - Proposed Industrial Warehouse Development - Located at the Southwest Corner of Waterman Avenue and Dumas Drive, in the City of San Bernardino, California**

Dear Mr. Smith:

Pursuant to your request, this firm has performed an updated Geotechnical Engineering Investigation for the above referenced project in accordance to our signed proposal dated March 31, 2015. The purpose of this investigation is to evaluate the subsurface conditions of the subject site and to provide recommendations for the proposed industrial warehouse development.

The scope of work included the following: 1) site reconnaissance; 2) review of previous subsurface geotechnical exploration and sampling; 3) laboratory testing; 4) engineering analysis of field and laboratory data; and 5) preparation of a geotechnical engineering report. It is the opinion of this firm that the proposed development is feasible from a geotechnical standpoint provided that the recommendations presented in this report are followed in the design and construction of the project.

### **1.0 Project Description**

It is proposed to construct an industrial warehouse development as shown on the attached conceptual site plan. The project will consist of an industrial warehouse building totaling 562,763 square feet on the 25.25-acre property. The concrete tilt-up building is anticipated to be supported by conventional slab-on-grade foundation systems with perimeter-spread footings and isolated interior footings. Other improvements will consist of asphalt/concrete pavement, hardscape and landscaping. It is assumed that the proposed grading for the entire development will include cut and fill procedures. The latest building plans shall be reviewed by this firm prior to submittal for city approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

### **2.0 Site Description**

The subject property is located at the southwest corner of Waterman Avenue and Dumas Drive, in the City of San Bernardino. The generally rectangular-shaped parcel is elongated in an east to west direction with topography of the relatively level property descending gradually from north to south on the order of a few feet. The site is currently undeveloped land covered with a low growth of vegetation cover consisting of natural grasses and weeds. A majority of the site is currently undeveloped land covered with a low to moderate growth of vegetation cover consisting of natural grasses and weeds. A few small residences are situated along the frontage of Dumas Drive.

### **3.0 Site Exploration**

The investigation consisted of the placement of one (1) subsurface exploratory boring by a truck-mounted drill rig to a depth of 50 feet below current ground elevations and twelve (12) exploratory trenches by a backhoe to depths ranging from 5 to 15 feet below ground surface. The explorations were visually classified and logged by a field engineer with locations of the subsurface explorations shown on the attached Site Plan. The exploratory excavations revealed the existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

It should be noted that the transition from one soil type to another as shown on the borings logs is approximate and may in fact be a gradual transition. The soils encountered are described as follows:

**Fill:** A fill soil and/or disturbed top soil classifying predominately as a light grey, sandy SILT was encountered across the site and ranged in depth from 1 to 2 feet. These soils were noted to be soft and damp. Exploratory Trench T-9 encountered fill to a depth of 6 feet which appears to be from an utility trench excavation backfill.

**Alluvium:** An undisturbed natural soil classifying as a brown to dark brown, sandy SILT to silty SAND was encountered beneath the upper fill soils. These native soils were observed to be firm to medium dense and damp. Deeper soils consisted of gravelly sands to sandy silts and sands.

The overall engineering characteristics of the earth material were relatively uniform with each excavation. Groundwater was measured at an approximate depth of 40 feet below ground surface and some caving occurred in the deeper cohesionless soils.

#### 4.0 Laboratory Tests

Relatively undisturbed samples of the subsurface soils were obtained to perform laboratory testing and analysis for direct shear, consolidation tests, and to determine in-place moisture/densities. These relatively undisturbed ring samples were obtained by driving a thin-walled steel sampler lined with one inch long brass rings with an inside diameter of 2.42 inches into the undisturbed soils. The sampler was driven a total of twelve inches with blow counts taken in six inch increments.

Standard penetration tests were obtained by driving a steel sampler unlined with an inside diameter of 1.5 inches into the soils. This standard penetrometer sampler was driven a total of eighteen inches with blow counts tallied every six inches. Blow count data is given on the Boring Logs in Appendix A. Bulk bag samples were obtained in the upper soils for expansion index tests and maximum density tests. All test results are included in Appendix B, unless otherwise noted.

- 4.1 **Field moisture content** (ASTM: D 2216) and the dry density of the ring samples were determined in the laboratory. This data is listed on the logs of explorations.
- 4.2 **Sieve analyses** (ASTM: D422-63) and the percent by weight of soil finer than the No. 200 sieve (ASTM: 1140) were performed on selected soil samples. These results are shown later within the body of this report.
- 4.3 **Maximum density tests** (ASTM: D-1557) were performed on typical samples of the upper soils. Results of these tests are shown on Table I.
- 4.4 **Expansion index tests** (ASTM: D 4829-07) were performed on remolded samples of the upper soils. Results of these tests are provided on Table II.
- 4.5 **Atterberg Limits** (ASTM: D 4318-05) consisting of liquid limit, plastic limit and plasticity index were performed on representative soil samples. Results are shown on Table III.
- 4.6 **Corrosion tests** consisting of sulfate, pH, resistivity and chloride analysis to determine potential corrosive effects of soils on concrete and underground utilities. These tests are provided on Table IV.
- 4.7 **R-Value test** per California Test Method 301 was performed on a representative sample, which may be anticipated to be near subgrade to determine pavement design. Result is provided within pavement section design section of report.
- 4.8 **Direct shear tests** (ASTM: D-3080) were performed on undisturbed and disturbed samples of the subsurface soils. The test is performed under saturated conditions at loads of 1,000 lbs./sq.ft., 2,000 lbs./sq.ft., and 3,000 lbs./sq.ft. with results shown on Plates A and B.

- 4.9 **Consolidation tests** (ASTM: D-2435) were performed on undisturbed samples to determine the differential and total settlement which may be anticipated based upon the proposed loads. Water was added to the samples at a surcharge of one KSF and the settlement curves are plotted on Plates C and D.

## 5.0 **Seismicity Evaluation**

There are no known active or potentially active faults trending toward or through the site. The proposed development lies outside of any Alquist Priolo Special Studies Zone and the potential for damage due to direct fault rupture is considered very remote. The site is located in an area of high regional seismicity and the San Jacinto (San Bernardino) fault is located less than 2 kilometers from the site. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults.

The seismic design of the project has been updated to the latest 2010 ASCE 7-10 (with July 2013 errata) standards and the mapped seismic ground motions were provided by using the Java based program available from the United States Geological Survey (USGS) website: <http://geohazards.usgs.gov/designmaps/us/application.php>. The earthquake design parameters are in accordance with the 2013 California Building Code (CBC) and are listed below.

### **Seismic Design Parameters**

|  |                 |           |
|--|-----------------|-----------|
| Site Location                                    | Latitude        | 34.077°   |
|  | Longitude       | -117.281° |
| Site Class                                       |                 | D         |
| Risk Category                                    |                 | I/II/III  |
| Maximum Spectral Response Acceleration           | S <sub>S</sub>  | 2.426g    |
|  | S <sub>1</sub>  | 1.111g    |
| Adjusted Maximum Acceleration                    | S <sub>MS</sub> | 2.426g    |
|  | S <sub>M1</sub> | 1.666g    |
| Design Spectral Response Acceleration Parameters | S <sub>DS</sub> | 1.617g    |
|  | S <sub>D1</sub> | 1.111g    |

## 6.0 Liquefaction Evaluation

The site is expected to experience ground shaking and earthquake activity that is typical of Southern California area. It is during severe ground shaking that loose, granular soils below the groundwater table can liquefy. A review of the exploratory boring logs and the laboratory test results on selected soil samples obtained indicate the following soil classifications, field blowcounts and amounts of fines passing through the No. 200 sieve.

### Field Blowcount and Gradation Data

| <u>Location</u> | <u>Classification</u> | <u>Blowcounts<br/>(blows/ft)</u> | <u>Relative<br/>Density</u> | <u>% Passing<br/>No. 200 Sieve</u> |
|-----------------|-----------------------|----------------------------------|-----------------------------|------------------------------------|
| B-1 @ 5'        | ML                    | 10                               | Stiff                       | 59                                 |
| B-1 @ 10'       | SC/ML                 | 10                               | Stiff                       | 50                                 |
| B-1 @ 15'       | SM                    | 16                               | Dense                       | 31                                 |
| B-1 @ 20'       | SW                    | 44                               | Very Dense                  | 5                                  |
| B-1 @ 25'       | SC/ML                 | 24                               | Very Stiff/Dense            | 50                                 |
| B-1 @ 30'       | ML                    | 48                               | Very Stiff                  | 59                                 |
| B-1 @ 35'       | ML                    | 32                               | Very Stiff                  | 60                                 |
| B-1 @ 40'       | SM                    | 34                               | Very Dense                  | 39                                 |
| B-1 @ 45'       | SW                    | 76                               | Very Dense                  | 8                                  |
| B-1 @ 50'       | ML                    | 31                               | Stiff                       | 53                                 |

Based upon information in the San Bernardino County Land Use Plan "Geologic Hazard Maps (2009)", the subject site is situated in an area of high generalized liquefaction susceptibility. Groundwater records from the Chino Basin Water Master (CBWM) Fall 2006 reveals groundwater to be about 50 feet in depth. Review of ground water maps of the Upper Santa Ana River Basin (Carson and Matti, 1982) shows historical groundwater depths to be about 30 feet. Our liquefaction evaluation utilized the nearest node of predominate magnitude 6.7 Mw earthquake with a 10% exceedance in 50 years peak horizontal ground acceleration of 0.93g and indicates a low liquefaction potential.

The associated seismic-induced settlements would be on the order of less than one inch and should occur rather uniformly across the site. Differential settlements should be on the order of less than ½ inch over a 50 feet (horizontal) distance in the building area with our calculations given in Appendix C.

## **7.0 Conclusions and Recommendations**

Based upon our evaluations, the proposed development is acceptable from a geotechnical engineering standpoint. By following the recommendations and guidelines set forth in our report, the structures and grading will be safe from settlements under the anticipated design loadings and conditions. The proposed development shall meet all requirements of the City Building Ordinance and will not impose any adverse effect on existing adjacent structures.

The following recommendations are based upon geotechnical conditions encountered in our field investigation and laboratory data. Therefore, these surface and subsurface conditions could vary across the site. Variations in these conditions may not become evident until the commencement of grading operations and any unusual conditions which may be encountered in the course of the project development may require the need for additional study and revised recommendations.

It is recommended that site inspections be performed by a representative of this firm during all grading and construction of the development to verify the findings and recommendations documented in this report. The following sections present a discussion of geotechnical related requirements for specific design recommendations of different aspects of the project.

### **7.1.1 Removal and Recomaction Recommendations**

All fill soils (about 1 to 6 feet) shall be removed to competent native material, the exposed surface scarified to a depth of 6 inches, brought to within 2% of optimum moisture content and compacted to a minimum of 90% of the laboratory standard (ASTM: D-1557-07) prior to placement of any additional compacted fill soils, foundations, slabs-on-grade and pavement. Grading shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

It is possible that isolated areas of undiscovered fill not described in this report are present on site. If found, these areas should be treated as discussed earlier. A diligent search shall also be conducted during grading operations in an effort to uncover any underground structures, irrigation or utility lines. If encountered, these structures and lines shall be either removed or properly abandoned prior to the proposed construction.

Any imported fill material should be preferably soil similar to the upper soils encountered at the subject site. All soils shall be approved by this firm prior to importing at the site and will be subjected to additional laboratory testing to assure concurrence with the recommendations stated in this report.

Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase. Adequate drainage away from the structures, pavement and slopes should be provided at all times.

If placement of slabs-on-grade and pavement is not completed immediately upon completion of grading operations, additional testing and grading of the areas may be necessary prior to continuation of construction operations. Likewise, if adverse weather conditions occur which may damage the subgrade soils, additional assessment by the geotechnical engineer as to the suitability of the supporting soils may be needed.

#### **7.1.2 Fill Blanket Recommendations**

Due to the potential for differential settlement of foundations placed on compacted fill and the upper native soils, it is recommended that all foundations be underlain by a uniform compacted fill blanket at least three feet in thickness. This fill blanket shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

## 7.2 **Shrinkage and Subsidence**

Results of our in-place density tests reveal that the soil shrinkage will be on the order of 10 to 15% due to excavation and recompaction, based upon the assumption that the fill is compacted to 92% of the maximum dry density per ASTM standards. Subsidence should be 0.2 feet due to earthwork operations. The volume change does not include any allowance for vegetation or organic stripping, removal of subsurface improvements or topographic approximations. Although these values are only approximate, they represent our best estimate of lost yardage, which will likely occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field testing using the actual equipment and grading techniques should be conducted.

## 7.3 **Temporary Excavations**

Temporary unsurcharged excavations in the existing site materials less than 4 feet high may be made at a vertical gradient unless cohesionless soils are encountered. In areas where soils with little or no binder are encountered, where adverse geological conditions are exposed, or where excavations are adjacent to existing structures, shoring, slot-cutting, or flatter excavations may be required. Additional recommendations regarding specific excavations may be calculated once typical detail sections are made available.

The temporary cut slope gradients given do not preclude local raveling and sloughing. All excavations shall be made in accordance with the requirements of CAL-OSHA and other public agencies having jurisdiction. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase.

## 7.4 **Foundation Design**

All foundations may be designed utilizing the following safe bearing capacities for an embedded depth of 24 inches into approved-engineered fill with the corresponding widths:

**Allowable Safe Bearing Capacity (psf)**

| <u>Width (ft)</u> | <u>Continuous Foundation</u> | <u>Isolated Foundation</u> |
|-------------------|------------------------------|----------------------------|
| 1.5               | 1800                         | 2300                       |
| 2.0               | 1875                         | 2375                       |
| 4.0               | 2175                         | 2675                       |
| 6.0               | 2475                         | 2975                       |

The bearing value may be increased by 500 psf for each additional foot of depth in excess of the 24-inch minimum depth, up to a maximum of 4,000 psf. A one third increase may be used when considering short-term loading and seismic forces. Any foundations where overexcavation is not performed laterally or beneath foundation areas should utilize a safe bearing capacity of 1,000 psf.

All continuous foundations shall be reinforced with a minimum of one No. 4 bar, top and bottom; isolated pad foundations shall be reinforced at the discretion of the project structural engineer. A representative of this firm shall inspect all foundation excavations prior to pouring concrete.

**7.5 Settlement Analysis**

Resultant pressure curves for the consolidation tests are shown on Plates C and D. Computations utilizing these curves and the recommended safe bearing capacities reveal that the foundations will experience settlements on the order of 3/4 inch and differential settlements of less than 1/4 inch. This differential settlement should occur over a minimum horizontal distance of 20 feet.

**7.6 Lateral Resistance**

The following values may be utilized in resisting lateral loads imposed on the structure. Requirements of the Uniform Building Code should be adhered to when the coefficient of friction and passive pressures are combined.

Coefficient of Friction - 0.35

Equivalent Passive Fluid Pressure = 200 lbs./cu.ft.

Maximum Passive Pressure = 2,000 lbs./cu.ft.

The passive pressure recommendations are valid only for approved compacted fill soils.

### 7.7 **Retaining Wall Design Parameters**

Active earth pressures against retaining walls will be equal to the pressures developed by the following fluid densities. These values are for **granular backfill material** placed behind the walls at various ground slopes above the walls.

| Surface Slope of Retained Materials<br>( <u>Horizontal to Vertical</u> ) | Equivalent Fluid<br>Density ( <u>lb./cu.ft.</u> ) |
|--|---|
| Level  | 30  |
| 5 to 1   | 35  |
| 4 to 1   | 38  |
| 3 to 1   | 40  |
| 2 to 1   | 45  |

Any applicable short-term construction surcharges and seismic forces should be added to the above lateral pressure values. A backfill zone of non-expansive material shall consist of a wedge beginning a minimum of one horizontal foot from the base of the wall extending upward at an inclination no less than 1/4 to 1 (horizontal to vertical). All walls shall be waterproofed as needed and protected from hydrostatic pressure by a reliable permanent subdrain system.

### 7.8 **Slab Design**

All new concrete slabs shall be at least six inches in the proposed warehouse areas and four inches in office and hardscape areas, all reinforced using No. 3 bars at sixteen inch spacing in each direction and positioned in the center of the slab. Additional reinforcement requirements and an increase in thickness of the slabs-on-grade may be necessary based upon soils expansion potential and proposed loading conditions in the structures and should be evaluated further by the project engineers and/or architect. These slabs shall be placed on approved subgrade soils moisture conditioned to above optimum moisture content to a depth of twelve inches.

A vapor retarder should be utilized in areas which would be sensitive to the infiltration of moisture. This retarder shall meet requirements of ASTM E 96, *Water Vapor Transmission of Materials* and ASTM E 1745, *Standard Specification for Water Vapor Retarders used in Contact with Soil or Granular Fill Under Concrete Slabs*. The vapor retarder shall be installed in accordance with procedures stated in ASTM E 1643, *Standard practice for Installation of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs*.

The moisture retarder may be placed directly upon approved subgrade soils, although one to two inches of sand beneath the membrane is desirable. The subgrade upon which the retarder is placed shall be smooth and free of rocks, gravel or other protrusions which may damage the retarder. Use of sand above the retarder is under the purview of the structural engineer; if sand is used over the retarder, it should be placed in a dry condition.

#### 7.9 **Pavement Section Design**

The table below provides a preliminary pavement design based upon an R-Value of 30 for the proposed pavement areas. Final pavement design may need to be based on R-Value testing of the subgrade soils near the conclusion of rough grading to assure that these soils are consistent with those assumed in this preliminary design.

| <u>Type of Traffic</u>                    | <u>Traffic Index</u> | <u>Asphaltic Concrete (in)</u> | <u>Base Material (in)</u> |
|---|----------------------|--------------------------------|---------------------------|
| Parking Stalls                            | 4.0                  | 3.0                            | 4.0                       |
| Light Vehicle Circulation Areas           | 5.5                  | 3.5                            | 6.5                       |
| Heavy Truck<br>(GVW < 90,000 lbs; 5-axle) | 7.0                  | 4.0                            | 10.0                      |

All concrete slabs to be utilized for pavement shall be a minimum of seven inches in thickness and placed on approved subgrade soils. The recommendations are based upon estimated traffic loads. Client should submit anticipated traffic loadings, when available, so that pavement sections may be reviewed to determine adequacy to support these loads.

All pavement areas shall have positive drainage toward an approved outlet from the site. Drain lines behind curbs and/or adjacent to landscape areas should be considered by client and the appropriate design engineers to prevent water from infiltrating beneath pavement. If such infiltration occurs, damage to pavement, curbs and flow lines, especially on sites with expansive soils, may occur during the life of the project.

Any approved base material shall consist of a Class II aggregate or equivalent and should be compacted to a minimum of 95% relative compaction. All pavement materials shall conform to the requirements set forth by the City of San Bernardino . The base material and asphaltic concrete should be tested prior to delivery to the site and during placement to determine conformance with the project specifications. A pavement engineer shall designate the specific asphalt mix design to meet the required project specifications.

#### 7.10 **Utility Trench and Excavation Backfill**

Trenches from installation of utility lines and other excavations may be backfilled with on-site soils or approved imported soils compacted to a minimum of 90% relative compaction. All utility lines shall be properly bedded with clean sand having a sand equivalency rating of 30 or more. This bedding material shall be thoroughly water jetted around the pipe structure prior to placement of compacted backfill soils.

#### 7.11 **Corrosion Design Criteria**

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations and underground utilities were tested for corrosion potential. The minimum resistivity value obtained for the samples tested is representative of an environment that may be severely corrosive to metals. The soil pH value was considered mildly alkaline and may not have a significant effect on soil corrosivity. Consideration should be given to corrosion protection systems for buried metal such as protective coatings, wrappings or the use of PVC where permitted by local building codes.

According to Table 4.3.1, ACI 318 Building Code and Commentary, these contents revealed negligible levels of sulfate exposure. Therefore, a Type II cement according to latest CBC specifications may be utilized for building foundations at this time. Additional sulfate tests shall be performed at the completion of site grading to assure that these soils are consistent with the recommendations stated in this design. Corrosion test results may be found on the attached Table IV.

#### 7.12 **Expansive Soil**

Since expansive soils were encountered, special attention should be given to the project design and maintenance. The attached *Expansive Soil Guidelines* should be reviewed by the engineers, architects, owner, maintenance personnel and other interested parties and considered during the design of the project and future property maintenance.

#### 8.0 **Closure**

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase. It is the responsibility of the owner to ensure that all information within this report is submitted to the Architect and appropriate Engineers for the project.

This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. A preconstruction conference should be held between the developer, general contractor, grading contractor, city inspector, architect, and soil engineer to clarify any questions relating to the grading operations and subsequent construction. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,  
NORCAL ENGINEERING



Keith D. Tucker  
Project Engineer  
R.G.E. 841



Scott D. Spensiero  
Project Manager

## **SPECIFICATIONS FOR PLACEMENT OF COMPACTED FILL**

### **Excavation**

Any existing low density soils and/or saturated soils shall be removed to competent natural soil under the inspection of the Soils Engineering Firm. After the exposed surface has been cleansed of debris and/or vegetation, it shall be scarified until it is uniform in consistency, brought to the proper moisture content and compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557). In any area where a transition between fill and native soil or between bedrock and soil are encountered or other areas as required in this report, additional excavation beneath foundations and slabs will be necessary in order to provide uniform support and avoid differential settlement of the structure. Verification of elevations during this work and all grading operations will be the responsibility of the owner or his designated representative and not NorCal Engineering.

### **Material For Fill**

The on-site soils or approved import soils may be utilized for the compacted fill provided they are free of any deleterious materials and shall not contain any rocks, brick, asphaltic concrete, concrete or other hard materials greater than eight inches in maximum dimensions. Any import soil must be approved by the Soils Engineering firm a minimum of 24 hours prior to importation of site.

### **Placement of Compacted Fill Soils**

The approved fill soils shall be placed in layers not excess of six inches in thickness. Each lift shall be uniform in thickness and thoroughly blended. The fill soils shall be brought to within 2% of the optimum moisture content, unless otherwise specified by the Soils Engineering firm. Each lift shall be compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557) and approved prior to the placement of the next layer of soil. Compaction tests shall be obtained at the discretion of the Soils Engineering firm but to a minimum of one test for every 500 cubic yards placed and/or for every 2 feet of compacted fill placed.

The minimum relative compaction shall be obtained in accordance with accepted methods in the construction industry. The final grade of the structural areas shall be in a dense and smooth condition prior to placement of slabs-on-grade or pavement areas. No fill soils shall be placed, spread or compacted during unfavorable weather conditions. When the grading is interrupted by heavy rains, compaction operations shall not be resumed until approved by the Soils Engineering firm.

### **Grading Observations**

The controlling governmental agencies should be notified prior to commencement of any grading operations. This firm recommends that the grading operations be conducted under the observation of a Soils Engineering firm as deemed necessary. A 24 hour notice must be provided to this firm prior to the time of our initial inspection.

Observation shall include the clearing and grubbing operations to assure that all unsuitable materials have been properly removed; approve the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished grade and designate areas of overexcavation; and perform field compaction tests to determine relative compaction achieved during fill placement. In addition, all foundation excavations shall be observed by the Soils Engineering firm to confirm that appropriate bearing materials are present at the design grades and recommend any modifications to construct footings.

## Expansive Soil Guidelines

The following expansive soil guidelines are provided for your project. The intent of these guidelines is to inform you, the client, of the importance of proper design and maintenance of projects supported on expansive soils. ***You, as the owner or other interested party, should be warned that you have a duty to provide the information contained in the soil report including these guidelines to your design engineers, architects, landscapers and other design parties in order to enable them to provide a design that takes into consideration expansive soils.***

*In addition, you should provide the soil report with these guidelines to any property manager, lessee, property purchaser or other interested party that will have or assume the responsibility of maintaining the development in the future.*

Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The amount of this swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. Expansive soils are divided into five categories ranging from “very low” to “very high”. Expansion indices are assigned to each classification and are included in the laboratory testing section of this report. *If the expansion index of the soils on your site, as stated in this report, is 21 or higher, you have expansive soils.* The classifications of expansive soils are as follows:

### Classification of Expansive Soil\*

| Expansion Index | Potential Expansion |
|-----------------|---------------------|
| 0-20            | Very Low            |
| 21-50           | Low                 |
| 51-90           | Medium              |
| 91-130          | High                |
| Above 130       | Very High           |

When expansive soils are compacted during site grading operations, care is taken to place the materials at or slightly above optimum moisture levels and perform proper compaction operations. Any subsequent excessive wetting and/or drying of expansive soils will cause the soil materials to expand and/or contract. These actions are likely to cause distress of foundations, structures, slabs-on-grade, sidewalks and pavement over the life of the structure. ***It is therefore imperative that even after construction of improvements, the moisture contents are maintained at relatively constant levels, allowing neither excessive wetting or drying of soils.***

Evidence of excessive wetting of expansive soils may be seen in concrete slabs, both interior and exterior. Slabs may lift at construction joints producing a trip hazard or may crack from the pressure of soil expansion. Wet clays in foundation areas may result in lifting of the structure causing difficulty in the opening and closing of doors and windows, as well as cracking in exterior and interior wall surfaces. In extreme wetting of soils to depth, settlement of the structure may eventually result. Excessive wetting of soils in landscape areas adjacent to concrete or asphaltic pavement areas may also result in expansion of soils beneath pavement and resultant distress to the pavement surface.

Excessive drying of expansive soils is initially evidenced by cracking in the surface of the soils due to contraction. Settlement of structures and on-grade slabs may also eventually result along with problems in the operation of doors and windows.

*Projects located in areas of expansive clay soils will be subject to more movement and "hairline" cracking of walls and slabs than similar projects situated on non-expansive sandy soils.* There are, however, measures that developers and property owners may take to reduce the amount of movement over the life the development. The following guidelines are provided to assist you in both design and maintenance of projects on expansive soils:

- Drainage away from structures and pavement is essential to prevent excessive wetting of expansive soils. Grades should be designed to the latest building code and maintained to allow flow of irrigation and rain water to approved drainage devices or to the street. Any “ponding” of water adjacent to buildings, slabs and pavement after rains is evidence of poor drainage; the installation of drainage devices or regrading of the area may be required to assure proper drainage. Installation of rain gutters is also recommended to control the introduction of moisture next to buildings. Gutters should discharge into a drainage device or onto pavement which drains to roadways.
- Irrigation should be strictly controlled around building foundations, slabs and pavement and may need to be adjusted depending upon season. This control is essential to maintain a relatively uniform moisture content in the expansive soils and to prevent swelling and contracting. Over-watering adjacent to improvements may result in damage to those improvements. NorCal Engineering makes no specific recommendations regarding landscape irrigation schedules.
- Planting schemes for landscaping around structures and pavement should be analyzed carefully. Plants (including sod) requiring high amounts of water may result in excessive wetting of soils. Trees and large shrubs may actually extract moisture from the expansive soils, thus causing contraction of the fine-grained soils.
- Thickened edges on exterior slabs will assist in keeping excessive moisture from entering directly beneath the concrete. A six-inch thick or greater deepened edge on slabs may be considered. Underlying interior and exterior slabs with 6 to 12 inches or more of non-expansive soils and providing presaturation of the underlying clayey soils as recommended in the soil report will improve the overall performance of on-grade slabs.

- Increase the amount of steel reinforcing in concrete slabs, foundations and other structures to resist the forces of expansive soils. The precise amount of reinforcing should be determined by the appropriate design engineers and/or architects.
- Recommendations of the soil report should always be followed in the development of the project. Any recommendations regarding presaturation of the upper subgrade soils in slab areas should be performed in the field and verified by the Soil Engineer.



## **List of Appendices** (in order of appearance)

### **Appendix A - Log of Excavations**

- Log of Boring B-1
- Log of Trenches T-1 to T-12

### **Appendix B - Laboratory Tests**

- Table I - Maximum Dry Density
  - Table II – Expansion
  - Table III – Atterberg
  - Table IV – Corrosion
- Plates A and B- Direct Shear
- Plates C and D – Consolidation

### **Appendix C – Liquefaction Calculations**

## **Appendix A**

| MAJOR DIVISION   |   |  | GRAPHIC SYMBOL                                | LETTER SYMBOL | TYPICAL DESCRIPTIONS  |  |
|--|---|--|---|---------------|---|--|
| COARSE GRAINED SOILS   | GRAVEL AND GRAVELLY SOILS                                   | CLEAN GRAVELS (LITTLE OR NO FINES)                       |   | GW            | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES   |  |
|  |   |  |   | GP            | POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES |  |
|  |   | GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)         |   | GM            | SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES                        |  |
|  | MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE |   |               | GC  | CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES  |
|  |   |  | CLEAN SAND (LITTLE OR NO FINES)               |               | SW  | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES  |
|  |   | MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE  |   |               | SP  | POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES  |
|  |   |  | SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES) |               | SM  | SILTY SANDS, SAND-SILT MIXTURES  |
|  |   |  |   | SC            | CLAYEY SANDS, SAND-CLAY MIXTURES                                |  |
|  | FINE GRAINED SOILS  | SILTS AND CLAYS  | LIQUID LIMIT LESS THAN 50                     |               | ML  | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
|  |   |  |   |               | CL  | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS                  |
|  |   |  |   | OL            | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY         |  |
| MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE |   | SILTS AND CLAYS  | LIQUID LIMIT GREATER THAN 50                  |               | MH  | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS  |
|  |   |  |   |               | CH  | INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS  |
|  |   |  |   |               | OH  | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS  |
| HIGHLY ORGANIC SOILS   |   |  |   | PT            | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS             |  |

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

## UNIFIED SOIL CLASSIFICATION SYSTEM

**KEY:**

- Indicates 2.5-inch Inside Diameter. Ring Sample.
- ☒ Indicates 2-inch OD Split Spoon Sample (SPT).
- ◻ Indicates Shelby Tube Sample.
- ▢ Indicates No Recovery.
- ▣ Indicates SPT with 140# Hammer 30 in. Drop.
- ☑ Indicates Bulk Sample.
- ▤ Indicates Small Bag Sample.
- ▥ Indicates Non-Standard
- ⊠ Indicates Core Run.

**COMPONENT PROPORTIONS**

| DESCRIPTIVE TERMS | RANGE OF PROPORTION |
|-------------------|---------------------|
| Trace             | 1 - 5%              |
| Few               | 5 - 10%             |
| Little            | 10 - 20%            |
| Some              | 20 - 35%            |
| And               | 35 - 50%            |

**COMPONENT DEFINITIONS**

| COMPONENT     | SIZE RANGE                                 |
|---------------|--|
| Boulders      | Larger than 12 in                          |
| Cobbles       | 3 in to 12 in                              |
| Gravel        | 3 in to No 4 (4.5mm )                      |
| Coarse gravel | 3 in to 3/4 in                             |
| Fine gravel   | 3/4 in to No 4 ( 4.5mm )                   |
| Sand          | No. 4 ( 4.5 mm ) to No. 200 ( 0.074mm )    |
| Coarse sand   | No. 4 ( 4.5 mm ) to No. 10 ( 2.0 mm )      |
| Medium sand   | No. 10 ( 2.0 mm ) to No. 40 ( 0.42 mm )    |
| Fine sand     | No. 40 ( 0.42 mm ) to No. 200 ( 0.074 mm ) |
| Silt and Clay | Smaller than No. 200 ( 0.074 mm )          |

**MOISTURE CONTENT**

|       |  |
|-------|--|
| DRY   | Absence of moisture, dusty, dry to the touch.          |
| DAMP  | Some perceptible moisture; below optimum               |
| MOIST | No visible water; near optimum moisture content        |
| WET   | Visible free water, usually soil is below water table. |

**RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE**

| COHESIONLESS SOILS |                | COHESIVE SOILS |               |  |
|--------------------|----------------|----------------|---------------|--|
| Density            | N ( blows/ft ) | Consistency    | N (blows/ft ) | Approximate Undrained Shear Strength (psf) |
| Very Loose         | 0 to 4         | Very Soft      | 0 to 2        | < 250                                      |
| Loose              | 4 to 10        | Soft           | 2 to 4        | 250 - 500                                  |
| Medium Dense       | 10 to 30       | Medium Stiff   | 4 to 8        | 500 - 1000                                 |
| Dense              | 30 to 50       | Stiff          | 8 to 15       | 1000 - 2000                                |
| Very Dense         | over 50        | Very Stiff     | 15 to 30      | 2000 - 4000                                |
|                    |                | Hard           | over 30       | > 4000                                     |

**Newcastle Partners**  
18053-15

**Log of Boring B-1**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/21/15

Groundwater Depth: 40'

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs

Drop: 30"

Surface Elevation: Not Measured

| Depth (feet) | Lithology | Material Description   | Samples |             | Laboratory |             |                     |
|--------------|-----------|--|---------|-------------|------------|-------------|---------------------|
|              |           |  | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |           | FILL<br>Sandy SILT<br>Light grey, soft, damp                               |         |             |            |             |                     |
| 5            |           | NATURAL<br>Sandy SILT<br>Light grey, firm, damp                            | ☒       | 5/5/5       | 4.4        |             | 59                  |
| 10           |           |  | ☒       | 4/5/5       | 4.6        |             | 50                  |
| 15           |           | Silty (fine to medium grained) SAND<br>Brown, medium dense to dense, damp  | ☒       | 5/7/9       | 8.4        |             | 31                  |
| 20           |           | Gravelly (medium to coarse grained) SAND<br>Light brown, medium dense, dry | ☒       | 18/21/23    | 1.1        |             | 5                   |
| 25           |           | Sandy SILT<br>Grey-brown, stiff to very stiff, moist to very moist         | ☒       | 8/9/15      | 17.9       |             | 50                  |
| 30           |           |  | ☒       | 23/23/25    | 15.7       |             | 59                  |

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**NorCal Engineering**

**Newcastle Partners**  
18053-15

**Log of Boring B-1**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/21/15

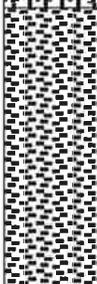
Groundwater Depth: 40'

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs

Drop: 30"

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description   | Samples   |             | Laboratory |             |
|--------------|---|--|---|-------------|------------|-------------|
|              |   |  | Type  | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 35           |    | Sandy SILT<br>Grey-brown, stiff to very stiff, moist to very moist |    | 10/13/19    | 23.4       | 60          |
| 40           |    | Silty (fine to medium grained) SAND<br>Brown, dense, wet           |    | 10/15/19    | 26.1       | 39          |
| 45           |   | SAND (fine to coarse grained)<br>Grey, dense, wet; slightly silty  |    | 24/36/40    | 17.3       | 8           |
| 50           |  | Sandy SILT<br>Grey, stiff, wet                                     |  | 9/12/19     | 26.1       | 53          |
|              |   | Boring completed at depth of 51.5'                                 |   |             |            |             |

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Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

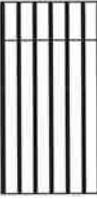
Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology  | Material Description   | Samples |             | Laboratory |             |                     |
|--------------|--|--|---------|-------------|------------|-------------|---------------------|
|              |  |  | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | <br>GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft, damp                                       |         |             |            |             |                     |
| 5            |  | NATURAL<br>Sandy SILT<br>Light grey, firm, damp<br>Boring completed at depth of 5' |         |             |            |             |                     |
| 10           |  |  |         |             |            |             |                     |
| 15           |  |  |         |             |            |             |                     |
| 20           |  |  |         |             |            |             |                     |
| 25           |  |  |         |             |            |             |                     |
| 30           |  |  |         |             |            |             |                     |
| 35           |  |  |         |             |            |             |                     |

**Newcastle Partners  
18053-15**

**Log of Trench T-2**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology           | Material Description   | Samples |             | Laboratory |             |                     |
|--------------|---------------------|--|---------|-------------|------------|-------------|---------------------|
|              |                     |  | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft, damp                           | ☒       |             | 4.9        | 90.3        |                     |
| 5            |                     | NATURAL<br>Sandy SILT<br>Light grey, firm, damp                        | ■       |             | 4.9        | 95.7        |                     |
| 10           |                     | Silty (fine to medium grained) SAND<br>Light brown, medium dense, damp | ■       |             | 3.9        | 94.9        |                     |
| 15           |                     | Boring completed at depth of 15'                                       | ■       |             | 2.2        | 92.2        |                     |

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**NorCal Engineering**

**Newcastle Partners**  
18053-15

**Log of Trench T-3**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet)                    | Lithology   | Material Description                            | Samples |             | Laboratory |             |                     |
|---------------------------------|---|---|---------|-------------|------------|-------------|---------------------|
|                                 |   |   | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0                               |  | FILL  | ■       |             | 3.7        | 91.9        |                     |
|                                 |   | Sandy SILT<br>Light grey, soft, damp            |         |             |            |             |                     |
| 5                               |   | NATURAL<br>Sandy SILT<br>Light grey, firm, damp |         |             |            |             |                     |
| Boring completed at depth of 7' |   |   |         |             |            |             |                     |
| 10                              |   |   |         |             |            |             |                     |
| 15                              |   |   |         |             |            |             |                     |
| 20                              |   |   |         |             |            |             |                     |
| 25                              |   |   |         |             |            |             |                     |
| 30                              |   |   |         |             |            |             |                     |
| 35                              |   |   |         |             |            |             |                     |

**NorCal Engineering**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description                 | Samples |             | Laboratory |             |                     |
|--------------|---|--------------------------------------|---------|-------------|------------|-------------|---------------------|
|              |   |                                      | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |  | FILL                                 |         |             |            |             |                     |
|              |   | Sandy SILT<br>Light grey, soft, damp |         |             |            |             |                     |
|              |   | NATURAL                              |         |             |            |             |                     |
|              |   | Sandy SILT                           |         |             |            |             |                     |
| 5            |   | Light grey, firm, damp               | ■       |             | 2.3        | 94.9        |                     |
|              |   | Silty (fine to medium grained) SAND  |         |             |            |             |                     |
|              |   | Light brown, medium dense, damp      |         |             |            |             |                     |
| 10           |   | Boring completed at depth of 10'     | ■       |             | 3.0        | 92.7        |                     |
| 15           |   |                                      |         |             |            |             |                     |
| 20           |   |                                      |         |             |            |             |                     |
| 25           |   |                                      |         |             |            |             |                     |
| 30           |   |                                      |         |             |            |             |                     |
| 35           |   |                                      |         |             |            |             |                     |

Date: 4/30/2015

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Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

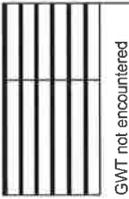
Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description                 | Samples |             | Laboratory |             |                     |
|--------------|---|--------------------------------------|---------|-------------|------------|-------------|---------------------|
|              |   |                                      | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |  | FILL                                 |         |             |            |             |                     |
|              |   | Sandy SILT<br>Light grey, soft, damp |         |             |            |             |                     |
|              |   | NATURAL                              |         |             |            |             |                     |
|              |   | Sandy SILT                           |         |             |            |             |                     |
| 5            |   | Light grey, firm, damp               |         |             |            |             |                     |
|              |   | Boring completed at depth of 5'      |         |             |            |             |                     |
| 10           |   |                                      |         |             |            |             |                     |
| 15           |   |                                      |         |             |            |             |                     |
| 20           |   |                                      |         |             |            |             |                     |
| 25           |   |                                      |         |             |            |             |                     |
| 30           |   |                                      |         |             |            |             |                     |
| 35           |   |                                      |         |             |            |             |                     |

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description                 | Samples |             | Laboratory |             |                     |
|--------------|---|--------------------------------------|---------|-------------|------------|-------------|---------------------|
|              |   |                                      | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |  | FILL                                 |         |             |            |             |                     |
|              |   | Sandy SILT<br>Light grey, soft, damp |         |             |            |             |                     |
|              |   | NATURAL                              |         |             |            |             |                     |
|              |   | Sandy SILT                           |         |             |            |             |                     |
| 5            |   | Light grey, firm, damp               |         |             |            |             |                     |
| 10           |   | Boring completed at depth of 9.5'    |         |             |            |             |                     |
| 15           |   |                                      |         |             |            |             |                     |
| 20           |   |                                      |         |             |            |             |                     |
| 25           |   |                                      |         |             |            |             |                     |
| 30           |   |                                      |         |             |            |             |                     |
| 35           |   |                                      |         |             |            |             |                     |

**Newcastle Partners**  
18053-15

**Log of Trench T-7**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description   | Samples |             | Laboratory |             |                     |
|--------------|---|--|---------|-------------|------------|-------------|---------------------|
|              |   |  | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |  | FILL<br>Sandy SILT<br>Light grey, soft, damp                           |         |             |            |             |                     |
| 5            |   | NATURAL<br>Sandy SILT<br>Light grey, firm, damp                        | ■       |             | 4.6        | 87.9        |                     |
| 10           |   | Silty (fine to coarse grained) SAND<br>Light brown, medium dense, damp | ■       |             | 2.3        | 93.9        |                     |
|              |   | Boring completed at depth of 10'                                       |         |             |            |             |                     |

**NorCal Engineering**

**Newcastle Partners  
18053-15**

**Log of Trench T-8**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology   | Material Description                            | Samples |             | Laboratory |             |                     |
|--------------|---|---|---------|-------------|------------|-------------|---------------------|
|              |   |   | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            |  | FILL  |         |             |            |             |                     |
|              |   | Sandy SILT<br>Light grey, soft, damp            | ■       |             | 2.7        | 90.3        |                     |
|              |   | NATURAL<br>Sandy SILT<br>Light grey, firm, damp | ■       |             | 2.9        | 93.3        |                     |
| 10           |   | Boring completed at depth of 10'                | ■       |             | 3.3        | 95.1        |                     |

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**Newcastle Partners**  
18053-15

**Log of Trench T-9**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology  | Material Description  | Samples |             | Laboratory |             |                     |
|--------------|--|---|---------|-------------|------------|-------------|---------------------|
|              |  |   | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | <br>GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft to firm, dry to damp | ■       |             | 4.2        | 87.7        |                     |
| 5            |  | NATURAL<br>Sandy SILT<br>Light grey, firm, damp             | ■       |             | 4.7        | 95.9        |                     |
| 10           | Boring completed at depth of 10'   |   |         |             |            |             |                     |
| 15           |  |   |         |             |            |             |                     |
| 20           |  |   |         |             |            |             |                     |
| 25           |  |   |         |             |            |             |                     |
| 30           |  |   |         |             |            |             |                     |
| 35           |  |   |         |             |            |             |                     |

**Newcastle Partners**  
18053-15

**Log of Trench T-10**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology           | Material Description   | Samples |             | Laboratory |             |                     |
|--------------|---------------------|--|---------|-------------|------------|-------------|---------------------|
|              |                     |  | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft, damp   |         |             | 2.2        | 96.6        |                     |
| 5            |                     | NATURAL<br>Sandy SILT<br>Light grey, firm, damp  |         |             | 2.4        | 98.7        |                     |
| 10           |                     | Silty (fine to medium grained) SAND<br>Brown, medium dense, damp; with occasional gravel |         |             | 3.6        | 99.1        |                     |
| 15           |                     | Boring completed at depth of 15  |         |             | 4.3        | 97.4        |                     |

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Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology           | Material Description                            | Samples |             | Laboratory |             |                     |
|--------------|---------------------|---|---------|-------------|------------|-------------|---------------------|
|              |                     |   | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft, damp    | ■       |             | 1.8        | 96.6        |                     |
| 5            |                     | NATURAL<br>Sandy SILT<br>Light grey, firm, damp | ■       |             | 3.6        | 102.5       |                     |
| 10           |                     | Boring completed at depth of 10'                |         |             |            |             |                     |
| 15           |                     |   |         |             |            |             |                     |
| 20           |                     |   |         |             |            |             |                     |
| 25           |                     |   |         |             |            |             |                     |
| 30           |                     |   |         |             |            |             |                     |
| 35           |                     |   |         |             |            |             |                     |

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**Newcastle Partners**  
18053-15

**Log of Trench T-12**

Boring Location: SWC Waterman & Dumas

Date of Drilling: 4/20/15

Groundwater Depth: Not Encountered

Drilling Method: Backhoe

Hammer Weight:

Drop:

Surface Elevation: Not Measured

| Depth (feet) | Lithology  | Material Description                            | Samples |             | Laboratory |             |                     |
|--------------|--|---|---------|-------------|------------|-------------|---------------------|
|              |  |   | Type    | Blow Counts | Moisture   | Dry Density | % Passing 200 Sieve |
| 0            | <br>GWT not encountered | FILL<br>Sandy SILT<br>Light grey, soft, damp    |         |             |            |             |                     |
| 5            |  | NATURAL<br>Sandy SILT<br>Light grey, firm, damp |         |             |            |             |                     |
|              |  | Boring completed at depth of 7.5'               |         |             |            |             |                     |
| 10           |  |   |         |             |            |             |                     |
| 15           |  |   |         |             |            |             |                     |
| 20           |  |   |         |             |            |             |                     |
| 25           |  |   |         |             |            |             |                     |
| 30           |  |   |         |             |            |             |                     |
| 35           |  |   |         |             |            |             |                     |

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## **Appendix B**

**TABLE I**  
**MAXIMUM DENSITY TESTS**

| <u>Sample</u> | <u>Classification</u> | <u>Optimum Moisture</u> | <u>Maximum Dry Density (lbs./cu.ft.)</u> |
|---------------|-----------------------|-------------------------|--|
| T-2 @ 2'      | Sandy SILT            | 12.0                    | <del>108.0</del> 108.0                   |
| T-10 @ 2'     | Sandy SILT            | 11.0                    | 112.0                                    |

**TABLE II**  
**EXPANSION INDEX TESTS**

| <u>Soil Type</u> | <u>Classification</u> | <u>Expansion Index</u> |
|------------------|-----------------------|------------------------|
| T-2 @ 2'         | Sandy SILT            | 17                     |
| T-10 @ 2'        | Sandy SILT            | 11                     |

**TABLE III**  
**ATTERBERG LIMITS**

| <u>Sample</u> | <u>Liquid Limit</u> | <u>Plastic Limit</u> | <u>Plasticity Index</u> |
|---------------|---------------------|----------------------|-------------------------|
| B-1 @ 5'      | 27                  | 20                   | 7                       |
| B-1 @ 25'     | 26                  | 20                   | 6                       |
| B-1 @ 35'     | 29                  | 21                   | 8                       |

**TABLE IV**  
**CORROSION TESTS**

| <u>Sample</u> | <u>pH</u> | <u>Electrical Resistivity (ohm-cm)</u> | <u>Sulfate (%)</u> | <u>Chloride (ppm)</u> |
|---------------|-----------|--|--------------------|-----------------------|
| T-2 @ 2'      | 7.2       | 12,772                                 | 0.002              | 216                   |
| T-10 @ 2'     | 7.1       | 6,343                                  | 0.002              | 197                   |

ND denotes not detected  
 % by weight  
 ppm – mg/kg

## **Appendix C**

SITE LOCATION: \_\_\_\_\_

GEOLOGICAL REPORT: \_\_\_\_\_

GEOLOGY REPORT: \_\_\_\_\_

DEPTH TO WATER TABLE = 30'  
 EARTHQUAKE MAGNITUDE = 6.7  
 PEAK GROUND ACCELERATION = 0.932

| DEPTH BELOW FINAL GRADE (FEET) | MOIST DENSITY (PCF) | $\sigma_0$ TOTAL STRESS (PSF) | $\sigma_0$ EFFECTIVE STRESS (PSF) | $\sigma_0/\sigma_0'$ (-) | $r_d$ (-) | $T_{h1}/\sigma_0$ (-) | N VALUE (BLOWS/FT) | RELATIVE DENSITY (%) | $C_u$ (-) | $C_E$ (-) | $C_B$ (-) | $C_R$ (-) | $C_S$ (-) | (N <sub>1</sub> ) <sub>60</sub> (BLOWS/FT) | FINES (%) | CRR M=7.5 (-) | MSF (-) | CRR M=6.7 (-) | U.R. F.S. |
|--------------------------------|---------------------|-------------------------------|-----------------------------------|--------------------------|-----------|-----------------------|--------------------|----------------------|-----------|-----------|-----------|-----------|-----------|--|-----------|---------------|---------|---------------|-----------|
| 5                              | 100                 | 500                           | Same                              | 1.0                      | 0.99      | 0.61                  | 10                 | 70                   | >1.6      | 1.00      | 1.05      | 0.70      | 1.20      | >14  | 59        | >0.24         | 1.5     | >0.36         | >0.6      |
| 10                             |                     | 1000                          |                                   |                          | 0.96      | 0.59                  | 10                 | 65                   | 1.4       |           |           | 0.75      |           | 13   | 50        | >0.23         |         | >0.35         | >0.6      |
| 15                             |                     | 1500                          |                                   |                          | 0.92      | 0.56                  | 16                 | 70                   | 1.15      |           |           | 0.85      |           | 20   | 31        | 0.34          |         | 0.51          | 0.9       |
| 20                             |                     | 2000                          |                                   |                          | 0.87      | 0.53                  | 44                 | >90                  | 1.0       |           |           | 0.90      |           | 50   | 5         | >0.50         |         | >0.75         | >1.4      |
| 25                             |                     | 2500                          |                                   |                          | 0.80      | 0.49                  | 24                 | 80                   | 0.9       |           |           | 0.95      |           | 26   | 50        |               |         |               | >1.5      |
| 30                             |                     | 3000                          |                                   |                          | 0.74      | 0.45                  | 48                 | >90                  | 0.85      |           |           | 1.00      |           | 51   | 59        |               |         |               | >1.7      |
| 35                             |                     | 3500                          | 3188                              | 1.10                     | 0.68      | 0.46                  | 32                 | 80                   | 0.79      |           |           |           |           | 32   | 60        |               |         |               | >1.6      |
| 40                             |                     | 4000                          | 3376                              | 1.18                     | 0.64      | 0.46                  | 34                 | 80                   | 0.75      |           |           |           |           | 32   | 39        |               |         |               | >1.6      |
| 45                             |                     | 4500                          | 3564                              | 1.26                     | 0.61      | 0.47                  | 76                 | >90                  | 0.73      |           |           |           |           | 70   | 8         |               |         |               | >1.6      |
| 50                             |                     | 5000                          | 3752                              | 1.33                     | 0.58      | 0.47                  | 31                 | 70                   | 0.71      |           |           |           |           | 28   | 53        |               |         |               | >1.6      |

① INDUCED CYCLIC STRESS RATIO =  $T_{h1}/\sigma_0 = 0.65 \cdot \frac{\sigma_{0, \max}}{g} \cdot \frac{\sigma_0}{\sigma_0} \cdot r_d$

•  $C_E$  = CORR. - Energy Ratio = Energy Ratio / 60%

•  $C_B$  = CORR. - Borehole Dia. = 1.15 for 8" dia. borehole

•  $C_R$  = CORR. - Rod Length

•  $C_S$  = CORR. - Sampling Method

Actual Energy Ratio = 0.67 - 1.17 (Safety Hammer)

= 0.50 - 1.00 (Dowt Hammer)

Sampling Method = 1.0 Standard sampler

= 1.2 Sampler w/ liners

**NorCal Engineering**  
 SOILS AND GEOTECHNICAL CONSULTANTS

EVALUATION OF LIQUEFACTION POTENTIAL

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

# USGS Design Maps Summary Report

## User-Specified Input

**Building Code Reference Document** ASCE 7-10 Standard  
(which utilizes USGS hazard data available in 2008)

**Site Coordinates** 34.077°N, 117.281°W

**Site Soil Classification** Site Class D - "Stiff Soil"

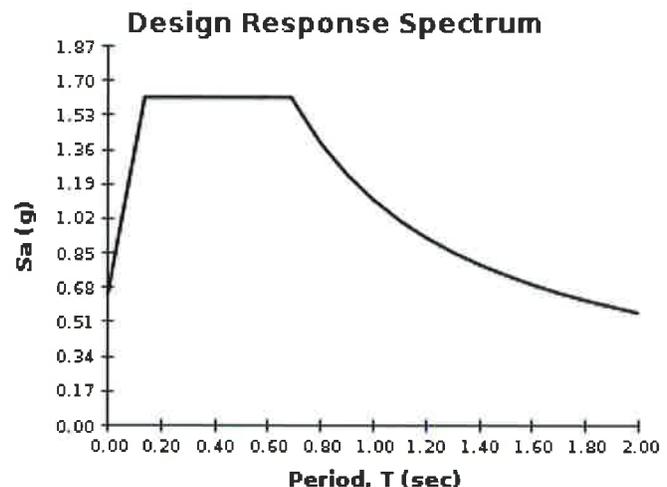
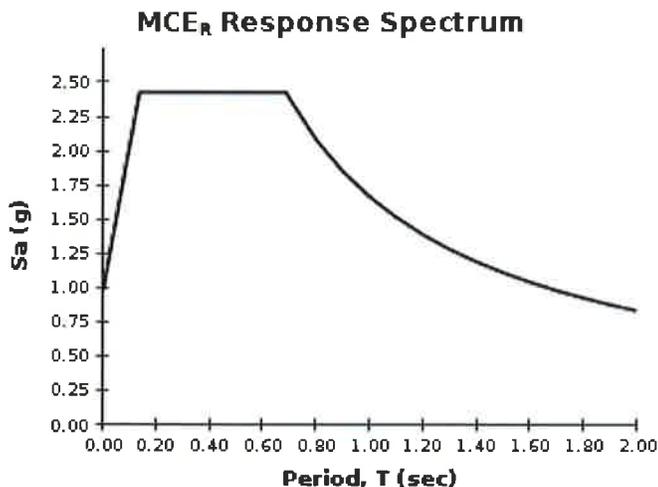
**Risk Category** I/II/III



## USGS-Provided Output

$$\begin{array}{lll}
 S_s = 2.426 \text{ g} & S_{MS} = 2.426 \text{ g} & S_{DS} = 1.617 \text{ g} \\
 S_1 = 1.111 \text{ g} & S_{M1} = 1.666 \text{ g} & S_{D1} = 1.111 \text{ g}
 \end{array}$$

For information on how the  $S_s$  and  $S_1$  values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



For  $PGA_M$ ,  $T_L$ ,  $C_{RS}$ , and  $C_{R1}$  values, please [view the detailed report](#).

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter


**Design Maps Detailed Report**

ASCE 7-10 Standard (34.077°N, 117.281°W)

Site Class D – “Stiff Soil”, Risk Category I/II/III

**Section 11.4.1 — Mapped Acceleration Parameters**

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain  $S_s$ ) and 1.3 (to obtain  $S_1$ ). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

**From Figure 22-1 <sup>[1]</sup>** $S_s = 2.426 \text{ g}$ **From Figure 22-2 <sup>[2]</sup>** $S_1 = 1.111 \text{ g}$ **Section 11.4.2 — Site Class**

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

| <b>Site Class</b>   | $\bar{v}_s$         | $\bar{N}$ or $\bar{N}_{ch}$ | $\bar{s}_u$        |
|---|---------------------|-----------------------------|--------------------|
| A. Hard Rock  | >5,000 ft/s         | N/A                         | N/A                |
| B. Rock   | 2,500 to 5,000 ft/s | N/A                         | N/A                |
| C. Very dense soil and soft rock  | 1,200 to 2,500 ft/s | >50                         | >2,000 psf         |
| D. Stiff Soil   | 600 to 1,200 ft/s   | 15 to 50                    | 1,000 to 2,000 psf |
| E. Soft clay soil   | <600 ft/s           | <15                         | <1,000 psf         |
| Any profile with more than 10 ft of soil having the characteristics:  |                     |                             |                    |
| <ul style="list-style-type: none"> <li>• Plasticity index <math>PI &gt; 20</math>,</li> <li>• Moisture content <math>w \geq 40\%</math>, and</li> <li>• Undrained shear strength <math>\bar{s}_u &lt; 500 \text{ psf}</math></li> </ul> |                     |                             |                    |
| F. Soils requiring site response analysis in accordance with Section 21.1   | See Section 20.3.1  |                             |                    |

For SI: 1ft/s = 0.3048 m/s 1lb/ft<sup>2</sup> = 0.0479 kN/m<sup>2</sup>

### Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake ( $MCE_R$ ) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient  $F_a$ 

| Site Class | Mapped $MCE_R$ Spectral Response Acceleration Parameter at Short Period |              |              |              |                 |
|------------|---|--------------|--------------|--------------|-----------------|
|            | $S_s \leq 0.25$   | $S_s = 0.50$ | $S_s = 0.75$ | $S_s = 1.00$ | $S_s \geq 1.25$ |
| A          | 0.8   | 0.8          | 0.8          | 0.8          | 0.8             |
| B          | 1.0   | 1.0          | 1.0          | 1.0          | 1.0             |
| C          | 1.2   | 1.2          | 1.1          | 1.0          | 1.0             |
| D          | 1.6   | 1.4          | 1.2          | 1.1          | 1.0             |
| E          | 2.5   | 1.7          | 1.2          | 0.9          | 0.9             |
| F          | See Section 11.4.7 of ASCE 7  |              |              |              |                 |

Note: Use straight-line interpolation for intermediate values of  $S_s$

**For Site Class = D and  $S_s = 2.426$  g,  $F_a = 1.000$**

Table 11.4-2: Site Coefficient  $F_v$ 

| Site Class | Mapped $MCE_R$ Spectral Response Acceleration Parameter at 1-s Period |              |              |              |                 |
|------------|---|--------------|--------------|--------------|-----------------|
|            | $S_1 \leq 0.10$   | $S_1 = 0.20$ | $S_1 = 0.30$ | $S_1 = 0.40$ | $S_1 \geq 0.50$ |
| A          | 0.8   | 0.8          | 0.8          | 0.8          | 0.8             |
| B          | 1.0   | 1.0          | 1.0          | 1.0          | 1.0             |
| C          | 1.7   | 1.6          | 1.5          | 1.4          | 1.3             |
| D          | 2.4   | 2.0          | 1.8          | 1.6          | 1.5             |
| E          | 3.5   | 3.2          | 2.8          | 2.4          | 2.4             |
| F          | See Section 11.4.7 of ASCE 7  |              |              |              |                 |

Note: Use straight-line interpolation for intermediate values of  $S_1$

**For Site Class = D and  $S_1 = 1.111$  g,  $F_v = 1.500$**

**Equation (11.4-1):**  $S_{MS} = F_a S_S = 1.000 \times 2.426 = 2.426 \text{ g}$

**Equation (11.4-2):**  $S_{M1} = F_v S_1 = 1.500 \times 1.111 = 1.666 \text{ g}$

#### Section 11.4.4 — Design Spectral Acceleration Parameters

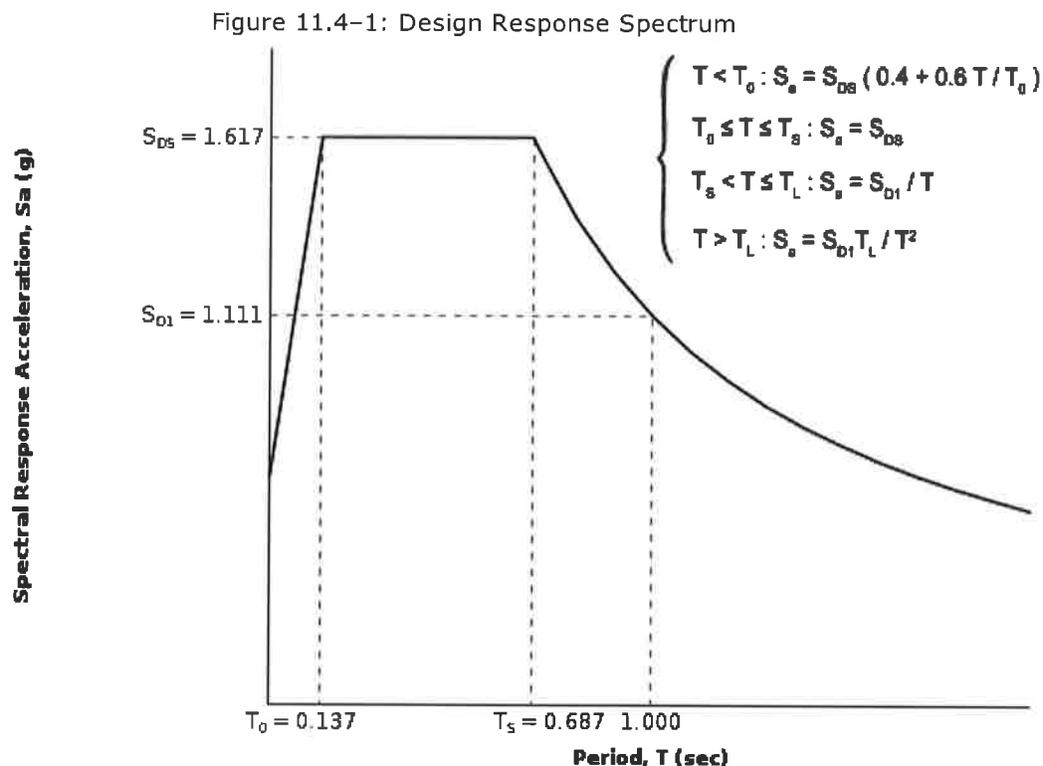
**Equation (11.4-3):**  $S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 2.426 = 1.617 \text{ g}$

**Equation (11.4-4):**  $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 1.666 = 1.111 \text{ g}$

#### Section 11.4.5 — Design Response Spectrum

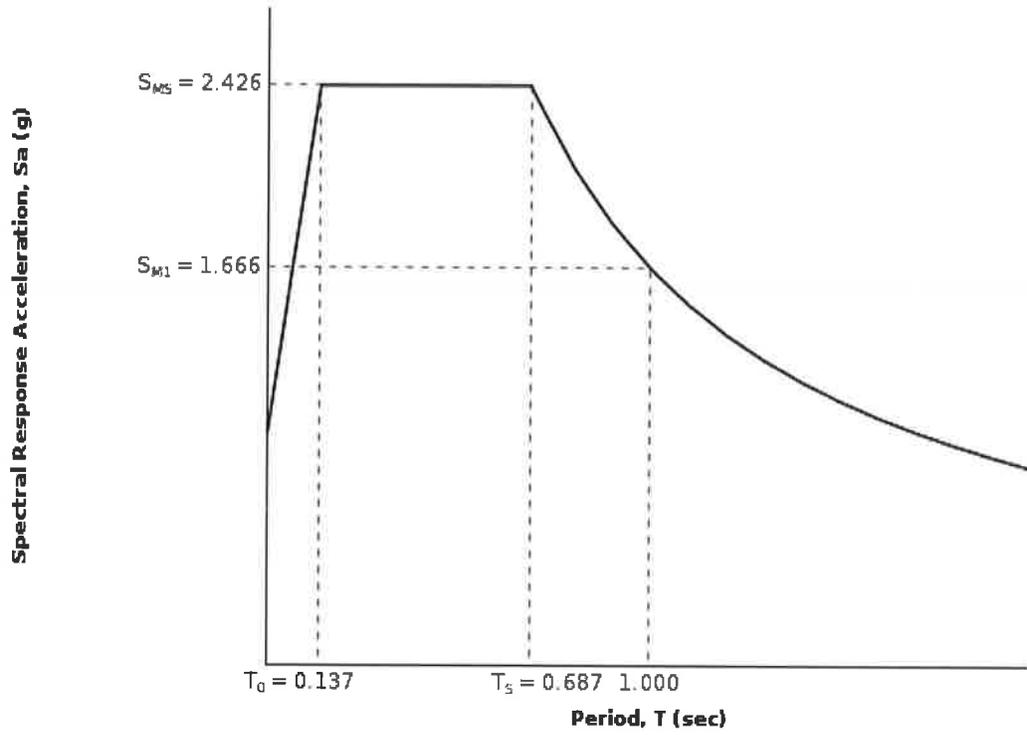
From **Figure 22-12** <sup>[3]</sup>

$T_L = 8 \text{ seconds}$



### Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE<sub>R</sub>) Response Spectrum

The MCE<sub>R</sub> Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



### Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From **Figure 22-7** <sup>[4]</sup>

$$PGA = 0.932$$

**Equation (11.8-1):**

$$PGA_M = F_{PGA} PGA = 1.000 \times 0.932 = 0.932 \text{ g}$$

Table 11.8-1: Site Coefficient  $F_{PGA}$

| Site Class | Mapped MCE Geometric Mean Peak Ground Acceleration, PGA |            |            |            |            |
|------------|---|------------|------------|------------|------------|
|            | PGA ≤ 0.10  | PGA = 0.20 | PGA = 0.30 | PGA = 0.40 | PGA ≥ 0.50 |
| A          | 0.8   | 0.8        | 0.8        | 0.8        | 0.8        |
| B          | 1.0   | 1.0        | 1.0        | 1.0        | 1.0        |
| C          | 1.2   | 1.2        | 1.1        | 1.0        | 1.0        |
| D          | 1.6   | 1.4        | 1.2        | 1.1        | 1.0        |
| E          | 2.5   | 1.7        | 1.2        | 0.9        | 0.9        |
| F          | See Section 11.4.7 of ASCE 7                            |            |            |            |            |

Note: Use straight-line interpolation for intermediate values of PGA

**For Site Class = D and PGA = 0.932 g,  $F_{PGA} = 1.000$**

### Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From **Figure 22-17** <sup>[5]</sup>

$$C_{RS} = 1.011$$

From **Figure 22-18** <sup>[6]</sup>

$$C_{R1} = 0.964$$

## Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

| VALUE OF $S_{DS}$            | RISK CATEGORY |     |    |
|------------------------------|---------------|-----|----|
|                              | I or II       | III | IV |
| $S_{DS} < 0.167g$            | A             | A   | A  |
| $0.167g \leq S_{DS} < 0.33g$ | B             | B   | C  |
| $0.33g \leq S_{DS} < 0.50g$  | C             | C   | D  |
| $0.50g \leq S_{DS}$          | D             | D   | D  |

**For Risk Category = I and  $S_{DS} = 1.617 g$ , Seismic Design Category = D**

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

| VALUE OF $S_{D1}$             | RISK CATEGORY |     |    |
|-------------------------------|---------------|-----|----|
|                               | I or II       | III | IV |
| $S_{D1} < 0.067g$             | A             | A   | A  |
| $0.067g \leq S_{D1} < 0.133g$ | B             | B   | C  |
| $0.133g \leq S_{D1} < 0.20g$  | C             | C   | D  |
| $0.20g \leq S_{D1}$           | D             | D   | D  |

**For Risk Category = I and  $S_{D1} = 1.111 g$ , Seismic Design Category = D**

Note: When  $S_1$  is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category  $\equiv$  "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

### References

1. Figure 22-1: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-1.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf)
2. Figure 22-2: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-2.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf)
3. Figure 22-12: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-12.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf)
4. Figure 22-7: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-7.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf)
5. Figure 22-17: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-17.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf)
6. Figure 22-18: [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010\\_ASCE-7\\_Figure\\_22-18.pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf)

## **APPENDIX E**

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### Noise Impact Analysis



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER**

**NOISE IMPACT ANALYSIS**

**October 1, 2015**



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER**

**NOISE IMPACT ANALYSIS**

**October 1, 2015**

Prepared by:

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## **I. Introduction and Setting**

---

### **A. Purpose and Objectives**

The purpose of this report is to provide an assessment of the noise impacts that may occur with the development of the proposed Waterman Industrial Center project and to identify mitigation measures that may be necessary to reduce those impacts.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to noise analysis, a glossary of terms is provided in Appendix A of this report.

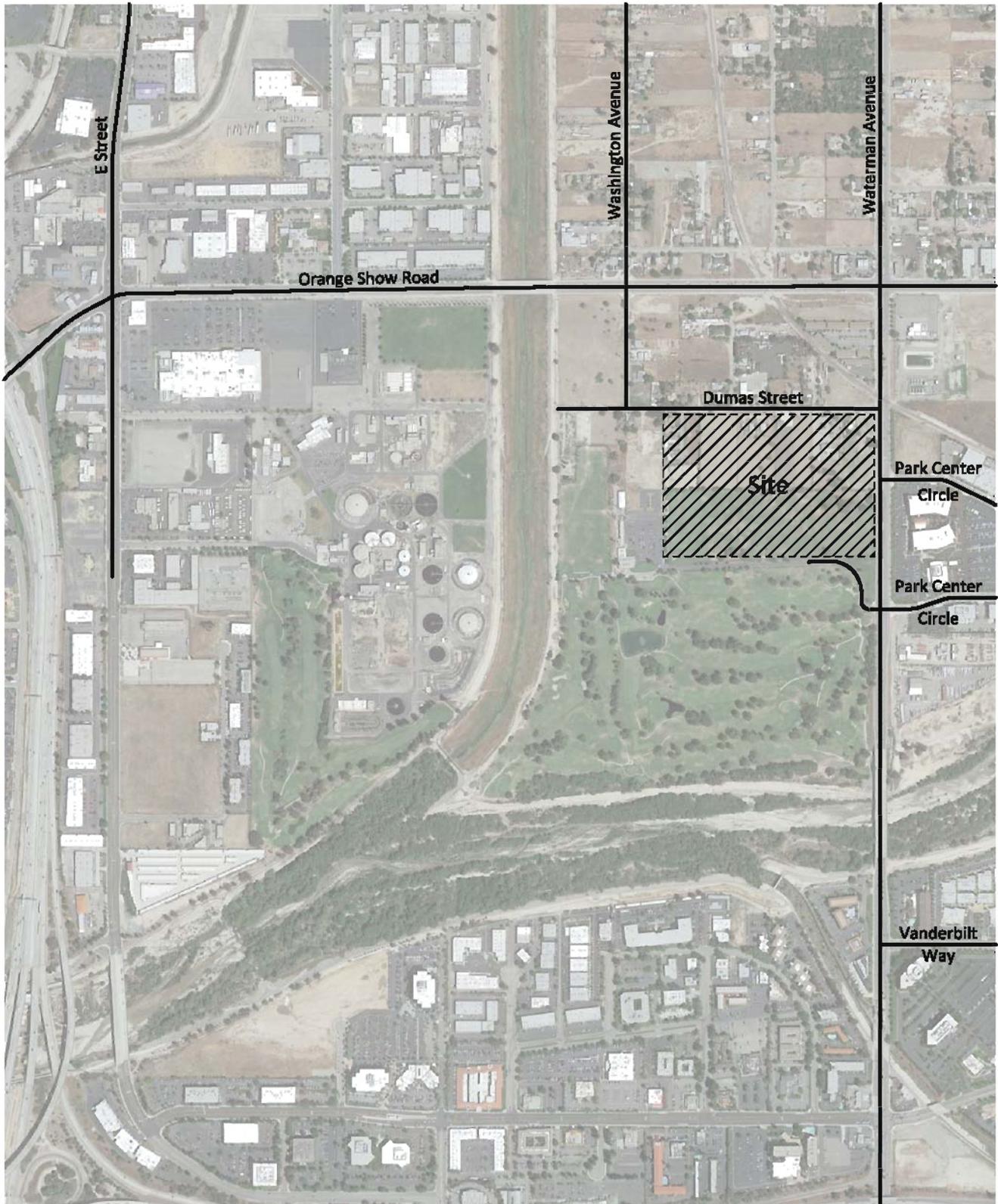
### **B. Project Location**

The project is located within the City of San Bernardino, on the southwest corner of the Waterman Avenue and Dumas Drive. A vicinity map showing the project location is provided on Figure 1.

### **C. Project Description**

The approximately 25.25 acre project site is proposed to be developed with a 564,652 square foot high-cube warehouse distribution center with 452 total parking stalls, including 281 warehouse parking spaces and 171 trailer parking spaces, and 24 bicycle stalls. The project also includes 103,585 gross square feet of landscaping. The proposed project will have access to Waterman Avenue and Dumas Drive. Figure 2 illustrates the project site plan.

**Figure 1**  
**Project Location Map**





## II. Noise and Vibration Fundamentals

---

### A. Noise Fundamentals

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease.

Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as  $\text{dBA}_{\text{Leq}}$ , or the equivalent noise level for that period of time. For example,  $\text{Leq}(3)$  would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level ( $L_{\text{dn}}$ ). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human

sensitivity to noise during the evening and nighttime hours.  $L_{dn}$  is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation's Traffic Noise Analysis Protocol for New Highway and Reconstruction Projects (2009).

## **B. Vibration Fundamentals**

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Construction operations generally include a wide range of activities that can generate groundborne vibration. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, or the differential settlement of pavement all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions.

Typically, particle velocity or acceleration (measured in gravities) is used to describe vibration. Table 1 shows the peak particle velocities (PPV) of some common construction equipment and Table 2 shows typical human reactions to various levels of PPV as well as the effect of PPV on buildings.

**Table 1****Vibration Source Levels for Construction Equipment<sup>1</sup>**

| Equipment                      | Peak Particle Velocity<br>(inches/second) at 25 feet | Approximate Vibration Level<br>LV (dVB) at 25 feet |
|--------------------------------|--|--|
| Pile driver (impact)           | 1.518 (upper range)                                  | 112  |
|                                | 0.644 (typical)                                      | 104  |
| Pile driver (sonic)            | 0.734 upper range                                    | 105  |
|                                | 0.170 typical  | 93   |
| Clam shovel drop (slurry wall) | 0.202  | 94   |
| Hydromill                      | 0.008 in soil  | 66   |
| (slurry wall)                  | 0.017 in rock  | 75   |
| Vibratory Roller               | 0.21   | 94   |
| Hoe Ram                        | 0.089  | 87   |
| Large bulldozer                | 0.089  | 87   |
| Caisson drill                  | 0.089  | 87   |
| Loaded trucks                  | 0.076  | 86   |
| Jackhammer                     | 0.035  | 79   |
| Small bulldozer                | 0.003  | 58   |

<sup>1</sup> Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

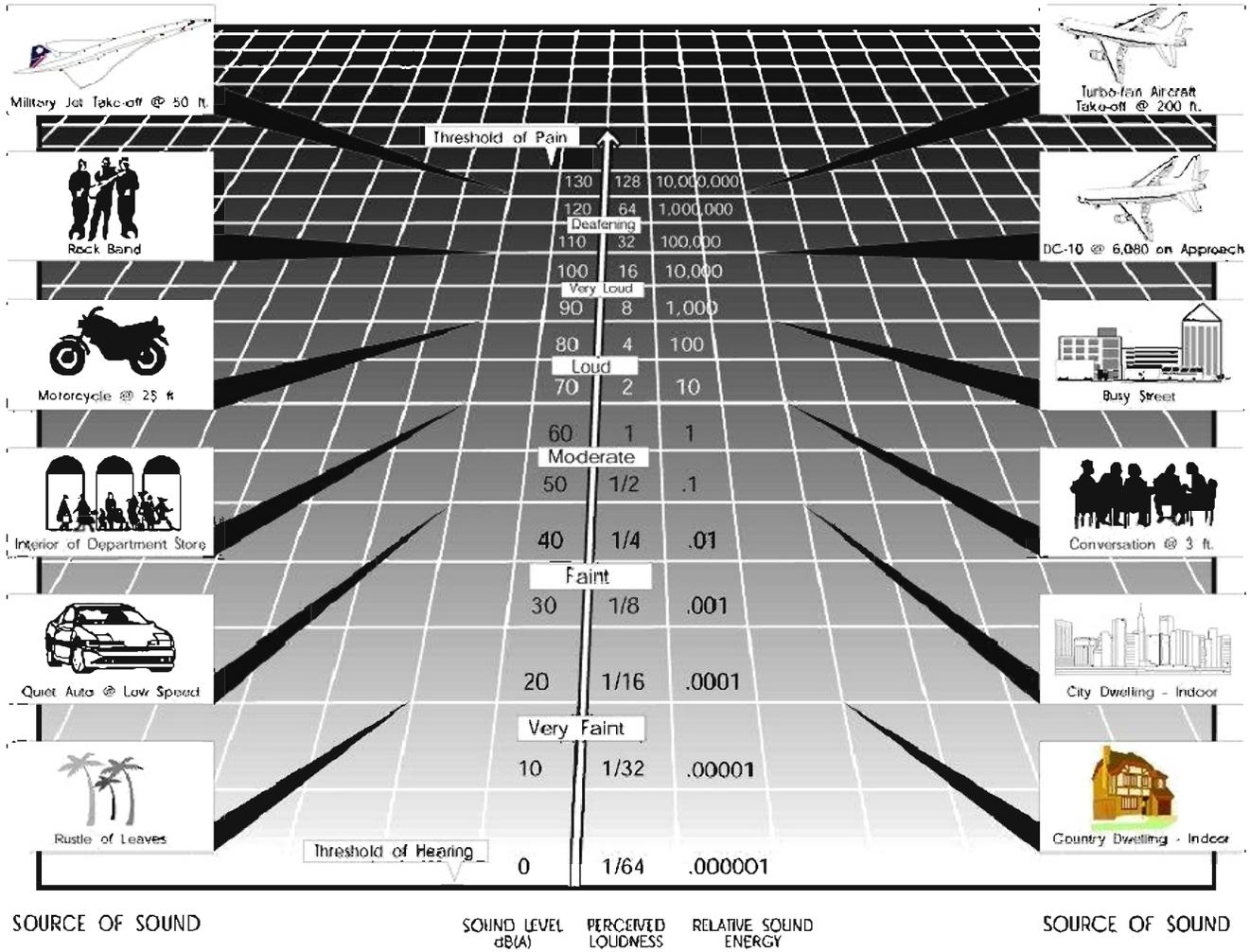
**Table 2**

**Typical Human Reaction and Effect on Buildings Due to Groundborne Vibration<sup>1</sup>**

| Vibration Level<br>Peak Particle Velocity (PPV) | Human Reaction   | Effect on Buildings  |
|---|--|--|
| 0.006–0.019 in/sec                              | Threshold of perception, possibility of intrusion  | Vibrations unlikely to cause damage of any type  |
| 0.08 in/sec                                     | Vibrations readily perceptible   | Recommended upper level of vibration to which ruins and ancient monuments should be subjected  |
| 0.10 in/sec                                     | Level at which continuous vibration begins to annoy people   | Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings   |
| 0.20 in/sec                                     | Vibrations annoying to people in buildings   | Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings                     |
| 0.4–0.6 in/sec                                  | Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges | Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage |

<sup>1</sup> Source: Caltrans, 2002

### Figure 3 Common Noise Sources and Noise Levels



### III. Existing Noise Environment

---

#### A. Existing Land Uses and Sensitive Receptors

The project site is bordered on the north by Dumas Street and on the east by Waterman Avenue. Just past Dumas Street are single-family detached residential dwelling units, while vacant land and office land uses are located just past Waterman Avenue. To the south, adjacent to the project site, is the San Bernardino Public Golf Course. To the west of the project site are a single-family detached residential dwelling unit and the San Bernardino Public Golf Course's parking lot.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Sensitive receptors that may be affected by project generated noise include the surrounding single-family detached residential dwelling units adjacent to and in the vicinity of the project site.

#### B. Ambient Noise Measurements

An American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, four (4) 10-minute daytime noise measurements were taken between 11:15 AM and 12:22 PM on September 23, 2015. Field sheets and measurement output data is included in Appendix C.

As shown on Figure 4, the noise measurements were taken near existing noise sensitive areas surrounding the project site. Table 3 provides a summary of the short-term ambient noise data. Ambient noise levels ranged from 44.0 to 60.1 dBA  $L_{eq}$  during the daytime and are estimated to range from 49.0 to 65.1 dBA  $L_{eq}$  during the nighttime hours. The dominant noise source was from vehicles traveling along roadways. Conversations of nearby persons and bird chirping were also audible.

Figure 4  
Noise Measurement Location Map



**Legend**  
⊗ = Noise Measurement Location

**Table 3**

**Short-Term Noise Measurement Summary (dBA)<sup>1, 2</sup>**

| Daytime       |              |      |      |      |      |      |       |       |       |
|---------------|--------------|------|------|------|------|------|-------|-------|-------|
| Site Location | Time Started | Leq  | Lmax | Lmin | L(2) | L(8) | L(25) | L(50) | L(90) |
| 1             | 11:15 AM     | 44.0 | 51.5 | 41.1 | 49.3 | 47.0 | 43.9  | 43.0  | 41.9  |
| 2             | 11:37 AM     | 60.1 | 68.1 | 46.2 | 66.0 | 64.0 | 61.6  | 58.1  | 50.4  |
| 3             | 11:55 AM     | 55.3 | 65.3 | 47.3 | 61.6 | 57.4 | 55.6  | 54.1  | 50.9  |

<sup>1</sup> See Figure 4 for noise measurement location. Each measurement was performed over a 10-minute duration.

<sup>2</sup> Noise measurements performed on June 24, 2015.

## IV. Regulatory Setting

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### A. Federal Regulations

#### 1. Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

### B. State Regulations

#### 1. State of California General Plan Guidelines 2003

Though not adopted by law, the State of California General Plan Guidelines 2003, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provide guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the Normally Acceptable outdoor exposure of noise-sensitive uses. The OPR

Guidelines include a Noise and Land Use Compatibility Matrix identifies acceptable and unacceptable community noise exposure limits for various land use categories. The City of San Bernardino utilizes the compatibility matrix.

**C. Local Regulations**

The City of San Bernardino outlines their noise regulations and standards within the Noise Element from the General Plan and the Municipal Code. For purposes of this analysis, the City of San Bernardino’s Noise Element was used to evaluate both the traffic and stationary noise impacts from the proposed project.

Since there are sensitive receptors near the project site, this analysis applies to the City’s residential noise standards. The City specifies that the exterior noise levels at residential locations should not exceed 65 dBA CNEL while interior levels shall not exceed 45 dBA CNEL.

In addition, this analysis compares the proposed project to the Land Use Compatibility Matrix (see Figure 3) to gauge the compatibility of land uses relative to existing and future noise levels.

**Land Use Compatibility for Community Noise Exposure**

The City utilizes the Land Use Compatibility for Community Noise Exposure Guidelines (shown in Table 4) to gauge the compatibility of land uses relative to existing and future noise levels. Based on guidelines shown in Table 4, single-family detached residential dwelling units are considered to be normally acceptable in noise environments of up to 60 dBA CNEL and conditionally acceptable in noise environments that reach up to 70 dBA CNEL. New construction projects in areas where future noise levels are expected to range between 60-70 dBA CNEL should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

**Goals, Policies, and Implementation Measures**

The City utilizes the following General Plan Noise Element goals, policies and implementation measures to assess and evaluate the project’s suitability in light of noise impacts.

**Goal 14.1** Ensure that residents are protected from excessive noise through careful land planning.

*Policies:*

14.1.2 Require that automobile and truck access to commercial properties abutting residential parcels be located at the maximum practical distance from the residential parcel.

14.1.3 Require that all parking for commercial uses abutting residential areas be enclosed within a structure, buffered by walls, and/or limited hours of operation.

**Goal 14.2** Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.

*Policies:*

14.2.3 Require that development that increases the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures.

14.2.17 Ensure that new development is compatible with the noise compatibility criteria and noise contours as defined in the Comprehensive Land Use Plan shown in Table 4.

**Goal 14.3** Protect residents from the negative effects of “spill over” or nuisance noise.

*Policies:*

14.3.1 Require that construction activities adjacent to residential units be limited as necessary to prevent adverse noise impacts.

14.3.2 Require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses.

1. City of San Bernardino Municipal Ordinance

Section 8.54 and 19.20.15 outline the City’s noise ordinance which is intended to establish city-wide standards for the regulation noise.

City of San Bernardino Ordinance 8.54.050 prohibits loading or unloading, operation of dollies, carts, forklifts, or other wheeled equipment that may cause impulsive sound, raucous, or unnecessary noise within one thousand (1,000) feet of a residence between the hours of 8:00 a.m. and 8:00 p.m. in residential zones and other than between the hours of 7:00 a.m. and 8:00 p.m. in all other zones.

Per City of San Bernardino Ordinance 8.54.070, no person shall be engaged or employed in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours of 7:00 am and 8:00 pm.

Section 19.20.15 specifies residential exterior/interior noise levels shall not exceed 65 dBA and 45 dBA, respectively.

2. Vibration

Section 19.20.28 states that no vibration associated with any use shall be permitted which is discernible beyond the boundary line of the property.

Table 4

Noise and Land Use Compatibility Matrix<sup>1</sup>

| Land Use Category   | COMMUNITY NOISE EXPOSURE LEVEL Ldn or CNEL, dBA |    |    |    |    |    |
|---|---|----|----|----|----|----|
|   | 55  | 60 | 65 | 70 | 75 | 80 |
| Residential-Low Density<br>Single Family, Duplex,<br>Mobile Homes |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Residential-Multiple Family                                       |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Transient Lodging: Motels,<br>Hotels                              |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Schools, Libraries,<br>Churches, Hospitals,<br>Nursing Homes      |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Auditoriums, Concert Halls,<br>Amphitheaters                      |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Sports Arenas, Outdoor<br>Spectator Sports                        |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Playgrounds,<br>Neighborhood Parks                                |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Golf Courses, Riding<br>Stables, Water Recreation,<br>Cemeteries  |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Office Buildings,<br>Businesses, Commercial<br>and Professional   |   |    |    |    |    |    |
|   |   |    |    |    |    |    |
| Industrial, Manufacturing,<br>Utilities, Agriculture              |   |    |    |    |    |    |
|   |   |    |    |    |    |    |

|  |   |   |   |
|--|---|---|---|
|  |   |   |   |
| <p><b>Normally Acceptable:</b></p> <p>Specified land uses is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation or requirements.</p> | <p><b>Conditionally Acceptable:</b></p> <p>New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.</p> | <p><b>Normally Unacceptable:</b></p> <p>New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.</p> | <p><b>Clearly Unacceptable:</b></p> <p>New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.</p> |

<sup>1</sup> Source: San Bernardino General Plan 2005: Figure N-1, 2005

## V. Impact Analysis

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### A. Noise Impacts

#### 1. Construction Noise

Construction noise is considered a short-term impact and would be considered significant if construction activities are undertaken outside the allowable times as described by the City's Municipal Code (Section 8.54.070). Existing single-family detached residential dwelling units located adjacent to the project site may be affected by short-term noise impacts associated the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities.

Project generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. Site preparation is expected to produce the highest sustained construction noise levels. Typical noise sources and noise levels associated with the site grading phase of construction are shown in Table 5. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. A likely worst-case construction noise scenario assuming the use of this equipment was calculated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM) (see Appendix D) assuming the use of a grader, a dozer, excavator and a dump truck all operating between 75 and 250 feet from the nearest sensitive receptor. Assuming a use factor of 40 percent for each piece of equipment, unmitigated noise levels at would reach 78.2 dBA  $L_{eq}$  and 81.5 dBA $L_{max}$  at the nearest residential structures.

As stated earlier, the City has an exemption for construction-related noise however noise reduction measures are provided to reduce temporary noise levels in Section VI of this report. These reduction measures yield up to a 10 dBA reduction in the noise such that noise levels during construction would be reduced to 68.2 dBA  $L_{eq}$  and 71.5 dBA $L_{max}$ .

#### 2. Project Generated On-Site Operational Noise

Sensitive receptors that may be affected by project operational noise include single-family detached residential dwelling units north and west of the project site. Although not normally considered to be noise sensitive land uses, the golf course located south and southwest of the project site and the office buildings located east of the project site have been assigned normally acceptable, conditionally acceptable and normally unacceptable noise levels in the Land Use Compatibility for Noise Exposure Table (see Table 4).

On-site project operational noise was modeled utilizing the SoundPLAN model. Modeled noise sources including noise associated with parking areas, idling trucks, loading and unloading activities, trucks' diesel engines, exhaust systems, braking, and forklifts and potential rooftop HVAC. The noisiest hour for all of these activities occurring simultaneously was modeled in SoundPLAN. Worst-case CNELs (assuming continuous 24-hour operation, were also calculated.

Loading/unloading area were modeled as area sources and include activities such as trucks' diesel engines, exhaust systems, braking, and forklifts. Noise levels associated with loading/unloading can range between 65 to 80 dBA.

Parking lot noise was modeling based on the number of expected parking movements during the peak hour. Noise associated with parking lots include but are not limited to idling cars, doors closing, and starting engine noise. Noise levels associated with parking lots can reach peak levels of 80 dBA.

The rooftop HVAC equipment was modeled as a point source and was placed on-top of the structure's roof. SoundPLAN's reference level of 70.3 dBA was utilized for modeling purposes.

As shown on Figures 5 and 6, a total of sixteen (16) sensitive receptors were modeled to accurately evaluate the proposed project's operational noise impact. A receptor is denoted by a yellow dot. Figure 5 shows the unmitigated operational noise levels at the nearest sensitive receptors. Unmitigated peak hour noise levels at nearby land uses would range between 50.5 to 62.9 dBA  $L_{eq}$  (peak hr.) and 57-70 CNEL. More specifically, project operational noise levels at nearby single-family detached residential dwelling units would range between 62-70; between 57-68 at the adjacent golf course facilities; and between 58-60 at the office buildings located east of the project site. The unmitigated operational noise levels at residences directly north of the project site will exceed the City's 65 dBA CNEL limit and therefore the project requires an eight (8) foot barrier to reduce the noise level below the City's 65 dBA limit. The proposed wall location is shown on Figure 6. The City's applicable land use compatibility criteria for the adjacent golf course (75 dBA CNEL) and the nearby office buildings (70 dBA CNEL) will not be exceeded.

Figure 6 shows that with construction of the proposed barrier operational noise levels are expected to range from 50.5 to 58.2 dBA  $L_{eq}$  (peak hr.) and 57-65 dBA CNEL and will not exceed the City's 65 dBA CNEL noise level criteria and is therefore consistent with the City's Noise Element.

## 2. Noise Impacts to Off-Site Receptors Due to Project Generated Traffic

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 50 feet from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project

conditions. In addition, the noise contours for 55, 60, 65 and 70 dBA CNEL were calculated. Roadway input parameters including average daily traffic volumes (ADTs), speeds, and vehicle distribution data is shown in Table 6. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

*Existing Year (without Project):* This scenario refers to existing year traffic noise conditions and is demonstrated in Table 7.

*Existing Year (Plus Project):* This scenario refers to existing year traffic noise conditions and is demonstrated in Table 8.

Table 9 compares the without and with project scenario and shows the change in traffic noise levels as a result of the proposed project. It takes a change of 3 dB or more to hear an audible difference. As demonstrated in Table 9, the project is anticipated to change the noise nominal amount (approximately 0 to 0.3 dBA CNEL). The change in noise level would not be audible and would be considered less than significant. Traffic noise calculation outputs are included as Appendix E.

## **B. Vibration Impacts**

This impact discussion analyzes the potential for the proposed project to cause an exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Vibration levels in the project area may be influenced by construction. A vibration impact would generally be considered significant if it involves any construction-related or operations-related impacts in excess of 0.2 +inches per second (in/sec) PPV.

### **1. Construction Vibration**

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table 2 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

The City prohibits any uses that generate a discernible vibration impact beyond the property line. The nearest existing structure to the project site is located approximately 65-feet to the north of the project site. Due to the proximity of adjacent single-family detached residential dwelling units, project construction activities may result in ground borne vibration that is annoying but would be limited to activities within 100 feet of sensitive receptors and would only occur during site grading and preparation activities.

As shown in Table 2, the threshold at which there may be a risk of architectural damage to normal houses with plastered walls and ceilings is 0.20 PPV in/second. Primary sources of vibration during construction would be from bulldozers and

vibratory rollers. As shown in Table 2, a vibratory roller could produce a PPV of 0.21 inch per second at 25 feet and a large bulldozer could produce up to 0.089 PPV at 25 feet.

Use of vibratory equipment within 25 feet of adjacent residential structures and improvements could result in structural damage. Caution should be utilized if large equipment is utilized within 10 feet of property line. Mitigation measures to reduce potential impacts to structures are presented in Section VII of this report. Annoyance related impacts would be short-term and would only occur during site grading and preparation activities.

**Table 5****Typical Construction Equipment Noise Levels<sup>1</sup>**

| Type of Equipment    | Range of Maximum Sound Levels Measured (dBA at 50ft.) | Suggested Maximum Sound Levels for Analysis (dBA at 50ft.) |
|----------------------|---|--|
| Rock Drills          | 83-99   | 96   |
| Jack Hammers         | 75-85   | 82   |
| Pneumatic Tools      | 78-88   | 85   |
| Pumps                | 74-84   | 80   |
| Dozers               | 77-90   | 85   |
| Scrappers            | 83-91   | 87   |
| Haul Trucks          | 83-94   | 88   |
| Cranes               | 79-86   | 82   |
| Portable Generators  | 71-87   | 80   |
| Rollers              | 75-82   | 80   |
| Tractors             | 77-82   | 80   |
| Front-End Loaders    | 77-90   | 86   |
| Hydraulic Excavators | 81-90   | 86   |
| Graders              | 79-89   | 86   |
| Air Compressors      | 76-89   | 86   |
| Trucks               | 81-87   | 86   |

<sup>1</sup> Source: Bolt, Beranek & Newman; Noise Control for Buildings and Manufacturing Plants, 1987.

**Table 6**

**Project Average Daily Traffic Volumes and Roadway Parameters**

| Roadway           | Segment  | Average Daily Traffic Volumes |                       | Posted Travel Speeds (MPH) |
|-------------------|--|-------------------------------|-----------------------|----------------------------|
|                   |  | Existing                      | Existing Plus Project |                            |
| Orange Show Road  | West of E Street                                     | 33,600                        | 34,100                | 50                         |
|                   | E Street to Washington Avenue                        | 25,500                        | 25,600                | 50                         |
|                   | Washington Avenue to Waterman Avenue                 | 25,000                        | 25,200                | 50                         |
|                   | East of Waterman Avenue                              | 22,500                        | 22,700                | 50                         |
| Dumas Street      | Washington Avenue to Waterman Avenue                 | 300                           | 500                   | 25                         |
| Washington Avenue | North of Orange Show Road                            | 700                           | 738                   | 25                         |
|                   | Orange Show Road to Dumas Street                     | 300                           | 600                   | 25                         |
| Waterman Avenue   | North of Orange Show Road                            | 19,700                        | 19,900                | 50                         |
|                   | Orange Show Road to Dumas Street                     | 23,600                        | 24,100                | 50                         |
|                   | Dumas Street to Park Center Circle North             | 23,600                        | 24,200                | 50                         |
|                   | Park Center Circle North to Park Center Circle South | 22,500                        | 22,900                | 50                         |
|                   | Park Center Circle South to Vanderbilt Way           | 24,000                        | 24,400                | 50                         |
|                   | South of Vanderbilt Way                              | 25,000                        | 25,400                | 50                         |

| Vehicle Distribution (Truck Mix) <sup>2</sup> |                            |                             |                           |
|---|----------------------------|-----------------------------|---------------------------|
| Motor-Vehicle Type                            | Daytime %<br>(7 AM - 7 PM) | Evening %<br>(7 PM - 10 PM) | Night %<br>(10 PM - 7 AM) |
| Automobiles                                   | 75.5                       | 12.9                        | 9.6                       |
| Medium Trucks                                 | 84.8                       | 4.9                         | 10.3                      |
| Heavy Trucks                                  | 86.5                       | 2.7                         | 10.8                      |

<sup>1</sup> ADTs obtained from the Waterman Industrial Center Traffic Impact Analysis prepared by Kunzman Associates, Inc. (September 2015).

<sup>2</sup> Vehicle percentages are typical for Southern California roadway, San Bernardino County Mix.

**Table 7**

**Existing (Without Project) Exterior Noise Levels Along Roadways (dBA CNEL)<sup>1</sup>**

| Roadway            | Segment                                 | CNEL at 50 feet (dBA) | Distance to Contour (feet) |             |             |             |
|--------------------|---|-----------------------|----------------------------|-------------|-------------|-------------|
|                    |   |                       | 70 dBA CNEL                | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| Waterman Avenue    | Mill Street to Central Avenue           | 74.4                  | 99                         | 212         | 457         | 985         |
|                    | Central Avenue to Orange Show Road      | 74.4                  | 98                         | 211         | 454         | 978         |
| Valley View Avenue | Mill Street to Central Avenue           | 61.2                  | 13                         | 28          | 60          | 129         |
|                    | Central Avenue to Orange Show Road      | 63.9                  | 20                         | 42          | 91          | 196         |
| Tippecanoe Avenue  | Mill Street to Central Avenue           | 77.5                  | 159                        | 343         | 739         | 1593        |
|                    | Central Avenue to Orange Show Road      | 76.4                  | 134                        | 288         | 621         | 1337        |
| Mill Avenue        | Waterman Avenue to Valley View Avenue   | 69.9                  | 49                         | 106         | 228         | 490         |
|                    | Valley View Avenue to Tippecanoe Avenue | 70.0                  | 50                         | 107         | 230         | 497         |
| Central Avenue     | East of Waterman Avenue                 | 65.2                  | 24                         | 52          | 112         | 241         |
|                    | Waterman Avenue to Valley View Avenue   | 67.6                  | 34                         | 74          | 160         | 344         |
|                    | Valley View Avenue to Tippecanoe Avenue | 67.8                  | 36                         | 77          | 166         | 358         |
|                    | West of Tippecanoe Avenue               | 70.7                  | 56                         | 121         | 260         | 560         |
| Orange Show Road   | Waterman Avenue to Valley View Avenue   | 72.2                  | 70                         | 150         | 323         | 696         |
|                    | Valley View Avenue to Tippecanoe Avenue | 71.3                  | 61                         | 131         | 283         | 610         |

<sup>1</sup> Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.

**Table 8**

**Existing Plus Project Exterior Noise Levels Along Roadways (dBA CNEL)<sup>1</sup>**

| Roadway            | Segment                                 | CNEL at 50 feet (dBA) | Distance to Contour (feet) |             |             |             |
|--------------------|---|-----------------------|----------------------------|-------------|-------------|-------------|
|                    |   |                       | 70 dBA CNEL                | 65 dBA CNEL | 60 dBA CNEL | 55 dBA CNEL |
| Waterman Avenue    | Mill Street to Central Avenue           | 74.4                  | 99                         | 213         | 459         | 988         |
|                    | Central Avenue to Orange Show Road      | 74.4                  | 98                         | 212         | 456         | 982         |
| Valley View Avenue | Mill Street to Central Avenue           | 61.2                  | 13                         | 28          | 60          | 129         |
|                    | Central Avenue to Orange Show Road      | 64.2                  | 21                         | 44          | 95          | 206         |
| Tippecanoe Avenue  | Mill Street to Central Avenue           | 77.6                  | 160                        | 344         | 741         | 1597        |
|                    | Central Avenue to Orange Show Road      | 76.5                  | 135                        | 290         | 625         | 1346        |
| Mill Avenue        | Waterman Avenue to Valley View Avenue   | 69.9                  | 49                         | 106         | 228         | 490         |
|                    | Valley View Avenue to Tippecanoe Avenue | 70.0                  | 50                         | 108         | 232         | 500         |
| Central Avenue     | East of Waterman Avenue                 | 65.3                  | 24                         | 53          | 114         | 245         |
|                    | Waterman Avenue to Valley View Avenue   | 67.8                  | 35                         | 76          | 165         | 355         |
|                    | Valley View Avenue to Tippecanoe Avenue | 67.9                  | 36                         | 79          | 169         | 365         |
|                    | West of Tippecanoe Avenue               | 70.7                  | 56                         | 121         | 260         | 560         |
| Orange Show Road   | Waterman Avenue to Valley View Avenue   | 72.2                  | 70                         | 151         | 325         | 700         |
|                    | Valley View Avenue to Tippecanoe Avenue | 71.3                  | 61                         | 132         | 285         | 614         |

<sup>1</sup> Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.

**Table 9**

**Change in Existing Noise Levels Along Roadways as a Result of Project (dBA CNEL)<sup>1</sup>**

| Roadway            | Segment                                 | CNEL at 50 Feet dBA      |                       |                       |                              |
|--------------------|---|--------------------------|-----------------------|-----------------------|------------------------------|
|                    |   | Existing Without Project | Existing Plus Project | Change in Noise Level | Potential Significant Impact |
| Waterman Avenue    | Mill Street to Central Avenue           | 74.4                     | 74.4                  | 0.0                   | No                           |
|                    | Central Avenue to Orange Show Road      | 74.4                     | 74.4                  | 0.0                   | No                           |
| Valley View Avenue | Mill Street to Central Avenue           | 61.2                     | 61.2                  | 0.0                   | No                           |
|                    | Central Avenue to Orange Show Road      | 63.9                     | 64.2                  | 0.3                   | No                           |
| Tippecanoe Avenue  | Mill Street to Central Avenue           | 77.5                     | 77.6                  | 0.0                   | No                           |
|                    | Central Avenue to Orange Show Road      | 76.4                     | 76.5                  | 0.0                   | No                           |
| Mill Avenue        | Waterman Avenue to Valley View Avenue   | 69.9                     | 69.9                  | 0.0                   | No                           |
|                    | Valley View Avenue to Tippecanoe Avenue | 70.0                     | 70.0                  | 0.0                   | No                           |
| Central Avenue     | East of Waterman Avenue                 | 65.2                     | 65.3                  | 0.1                   | No                           |
|                    | Waterman Avenue to Valley View Avenue   | 67.6                     | 67.8                  | 0.2                   | No                           |
|                    | Valley View Avenue to Tippecanoe Avenue | 67.8                     | 67.9                  | 0.1                   | No                           |
|                    | West of Tippecanoe Avenue               | 70.7                     | 70.7                  | 0.0                   | No                           |
| Orange Show Road   | Waterman Avenue to Valley View Avenue   | 72.2                     | 72.2                  | 0.0                   | No                           |
|                    | Valley View Avenue to Tippecanoe Avenue | 71.3                     | 71.3                  | 0.0                   | No                           |

<sup>1</sup> Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.

Figure 5

Project Operational Noise Levels Without Mitigation

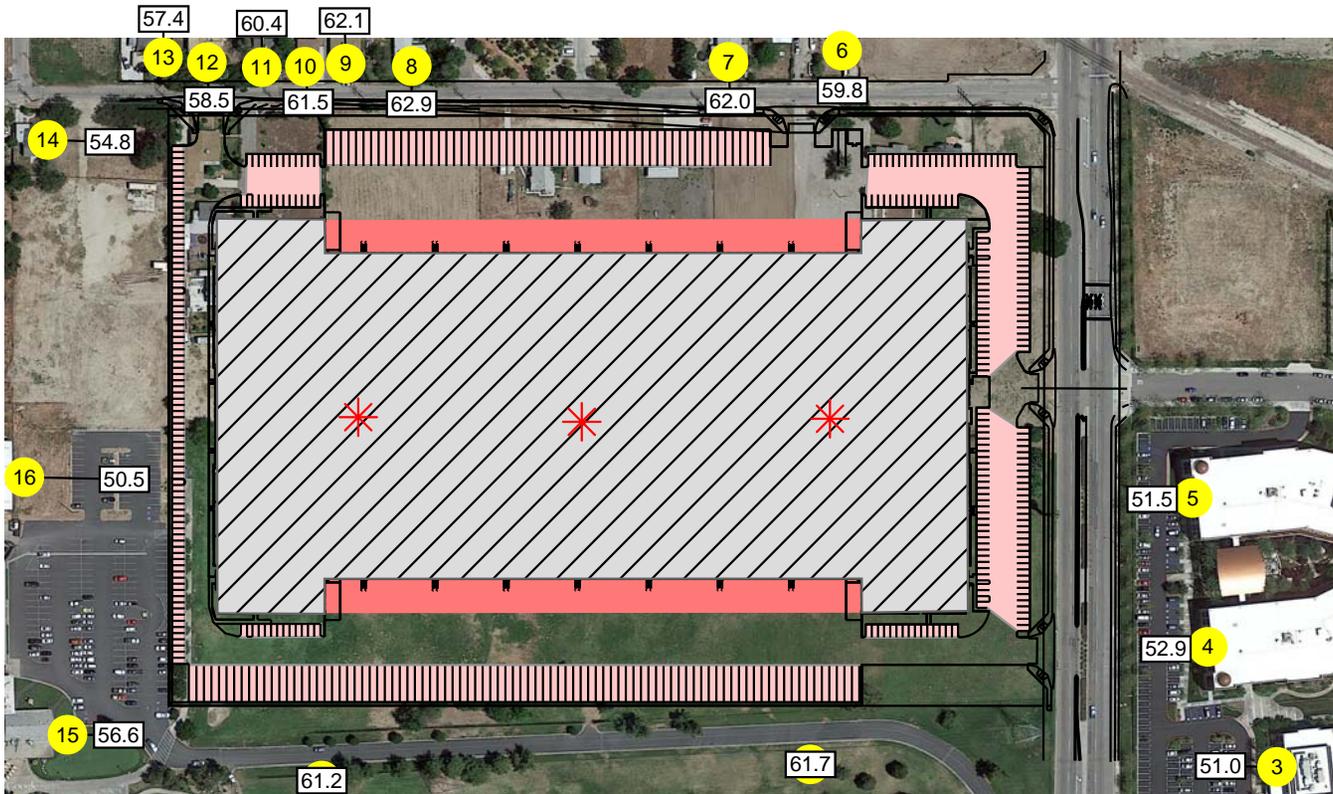
Peak Hour Noise Levels are shown in the boxes adjacent to the yellow receiver locations.

CNELs are expected to range:

62-70 at the residences located north and west of the project site;

57-68 at the adjacent golf course facilities; and

58-60 at the office buildings located east of the project site.



Signs and symbols

-  Proposed building
-  Receiver
-  HVAC
-  Loading/Unloading Areas
-  Parking Areas

Level tables

|   |      |      |
|---|------|------|
| 3 | 59.3 | 57.8 |
| 2 | 58.3 | 56.8 |
| 1 | 57.3 | 49.8 |

Noise Levels

1 : 3343



Figure 6

### Project Operational Noise Levels With Mitigation

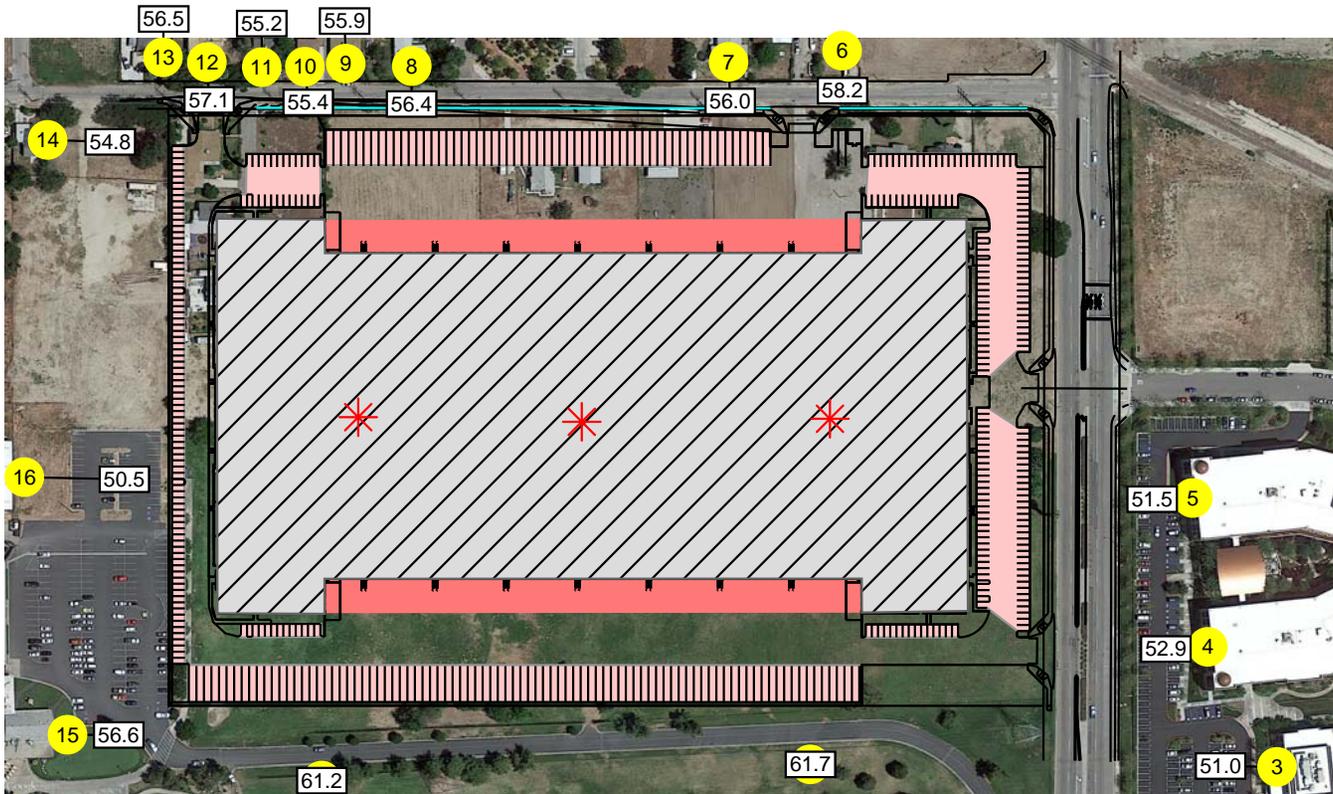
Peak Hour Noise Levels are shown in the boxes adjacent to the yellow receiver locations.

CNELs are expected to range:

62-65 at the residences located north and west of the project site;

57-69 at the adjacent golf course facilities; and

58-60 at the office buildings located east of the project site.



### Signs and symbols

- Wall
- Proposed building
- Receiver
- HVAC
- Loading/Unloading Areas
- Parking Areas

### Level tables

| Receiver | Noise Levels |
|----------|--------------|
| 3        | 50.3/51.8    |
| 2        | 56.3/50.8    |
| 1        | 57.3/49.8    |

1 : 3343



## **VI. Measures to Reduce Impacts**

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### **A. Construction Mitigation Measures**

In addition to adherence to the City of San Bernardino and policies found in the Noise Element and Municipal Code limiting the construction hours of operation, the following measures are recommended to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
3. Equipment shall be shut off and not left to idle when not in use.
4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
5. The project proponent shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.
6. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.
7. Limit the use of heavy equipment or vibratory rollers and soil compressors along the project boundaries to the greatest degree possible. It is acknowledged that some soil compression may be necessary along the project boundaries.
8. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.
9. For the duration of construction activities, the construction manager shall serve as the contact person should noise levels become disruptive to local residents. A sign should be posted at the project site with the contact phone number.

### **B. Operational Mitigation Measures**

1. The project shall construct an 8-foot noise barrier along the northern project boundary as shown on Figure 6. The wall shall be positioned at the top of slope or pad, whichever is greater such that it provides optimum sound attenuation.

## VII. References

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## **Appendices**

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**Appendix A – List of Acronyms**

**Appendix B – Definitions of Acoustical Terms**

**Appendix C – Noise Monitoring Field Sheets**

**Appendix D – RCNM Noise Modeling Output**

**Appendix E –Project Generated Traffic FHWA Worksheets**

**APPENDIX A**

**List of Acronyms**

| Acronym                          | Definition  |
|----------------------------------|---|
| ADT                              | Average Daily Trips   |
| ANSI                             | American National Standard Institute  |
| CEQA                             | California Environmental Quality Act  |
| CNEL                             | Community Noise Equivalent Level  |
| D/E/N                            | Day / Evening / Night   |
| dB                               | Decibel   |
| dBA or dB(A)                     | Decibel "A-Weighted"  |
| dBA/DD                           | Decibel per Double Distance   |
| dBA $L_{eq}$                     | Average Noise Level over a Period of Time   |
| EPA                              | Environmental Protection Agency   |
| FHWA                             | Federal Highway Administration  |
| $L_{02}, L_{08}, L_{50}, L_{90}$ | A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period |
| $L_{dn}$                         | Day-Night Average Noise Level   |
| $L_{eq(x)}$                      | Equivalent Noise Level for "x" period of time   |
| $L_{eq}$                         | Equivalent Noise Level  |
| $L_{max}$                        | Maximum Level of Noise (measured using a sound level meter)   |
| $L_{min}$                        | Minimum Level of Noise (measured using a sound level meter)   |
| LOS C                            | Level of Service C  |
| OPR                              | California Governor's Office of Planning and Research   |
| PPV                              | Peak Particle Velocities  |
| RCNM                             | Road Construction Noise Model   |
| REMEL                            | Reference Energy Mean Emission Level  |
| RMS                              | Root Mean Square  |

**APPENDIX B**

**Definitions of Acoustical Terms**

| Term  | Definition   |
|---|--|
| Decibel, dB   | A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.  |
| Frequency, Hertz  | In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).  |
| A-Weighted Sound Level, dBA   | The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.  |
| Root Mean Square (RMS)  | A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.                   |
| Fast/Slow Meter Response  | The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.  |
| L <sub>02</sub> , L <sub>08</sub> , L <sub>50</sub> , L <sub>90</sub> | The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.   |
| Equivalent Continuous Noise Level, L <sub>eq</sub>                    | A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.   |
| L <sub>max</sub> , L <sub>min</sub>                                   | L <sub>max</sub> is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L <sub>min</sub> is the minimum level.   |
| Ambient Noise Level   | The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.   |
| Offensive/ Offending/ Intrusive Noise                                 | The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level. |

**APPENDIX C**

**Noise Monitoring Field Sheets**

**Summary** NM1  
**Filename** LxT\_Data.051  
**Serial Number** 3099  
**Model** SoundTrack LxT®  
**Firmware Version** 2.301  
**User** Guillermo Rodriguez  
**Start** 2015/09/23 11:15:19  
**Stop** 2015/09/23 11:25:19  
**Duration** 0:10:00.0  
**Run Time** 0:10:00.0  
**Pause** 0:00:00.0

**Pre Calibration** 2015/08/21 11:12:11  
**Post Calibration** None  
**Calibration Deviation** ---

**Overall Settings**

**RMS Weight** A Weighting  
**Peak Weight** A Weighting  
**Detector** Slow  
**Preamp** PRMLxT1L  
**Microphone Correction** Off  
**Integration Method** Linear  
**OBA Range** Normal  
**OBA Bandwidth** 1/1 and 1/3  
**OBA Freq. Weighting** A Weighting  
**OBA Max Spectrum** Bin Max  
**Overload** 121.7 dB

**Results**

**LAeq** 44.0 dB  
**LAE** 71.8 dB  
**EA** 1.677  $\mu\text{Pa}^2\text{h}$   
**EA8** 80.475  $\mu\text{Pa}^2\text{h}$   
**EA40** 402.377  $\mu\text{Pa}^2\text{h}$   
**LApeak (max)** 2015/09/23 11:18:46 66.8 dB  
**LASmax** 2015/09/23 11:23:29 51.1 dB  
**LASmin** 2015/09/23 11:17:25 41.1 dB  
**SEA** -99.9 dB

|                     |         |                   |         |
|---------------------|---------|-------------------|---------|
| <b>LCeq</b>         | 63.3 dB | <b>Statistics</b> |         |
| <b>LAeq</b>         | 44.0 dB | <b>LAS2.00</b>    | 49.3 dB |
| <b>LCeq - LAeq</b>  | 19.3 dB | <b>LAS8.00</b>    | 47.0 dB |
| <b>LAlaq</b>        | 45.9 dB | <b>LAS10.00</b>   | 46.2 dB |
| <b>LAeq</b>         | 44.0 dB | <b>LAS25.00</b>   | 43.9 dB |
| <b>LAlaq - LAeq</b> | 1.9 dB  | <b>LAS50.00</b>   | 43.0 dB |
| <b># Overloads</b>  | 0       | <b>LAS90.00</b>   | 41.9 dB |

**Summary** NM2  
**Filename** LxT\_Data.052  
**Serial Number** 3099  
**Model** SoundTrack LxT®  
**Firmware Version** 2.301  
**User** Guillermo Rodriguez  
**Start** 2015/09/23 11:37:51  
**Stop** 2015/09/23 11:47:51  
**Duration** 0:10:00.0  
**Run Time** 0:10:00.0  
**Pause** 0:00:00.0

**Pre Calibration** 2015/08/21 11:12:11  
**Post Calibration** None  
**Calibration Deviation** ---

**Overall Settings**

**RMS Weight** A Weighting  
**Peak Weight** A Weighting  
**Detector** Slow  
**Preamp** PRMLxT1L  
**Microphone Correction** Off  
**Integration Method** Linear  
**OBA Range** Normal  
**OBA Bandwidth** 1/1 and 1/3  
**OBA Freq. Weighting** A Weighting  
**OBA Max Spectrum** Bin Max  
**Overload** 121.7 dB

**Results**

**LAeq** 60.1 dB  
**LAE** 87.9 dB  
**EA** 67.948  $\mu\text{Pa}^2\text{h}$   
**EA8** 3.262  $\text{mPa}^2\text{h}$   
**EA40** 16.308  $\text{mPa}^2\text{h}$   
**LApeak (max)** 2015/09/23 11:42:59 84.7 dB  
**LASmax** 2015/09/23 11:38:15 68.1 dB  
**LASmin** 2015/09/23 11:46:09 46.2 dB  
**SEA** -99.9 dB

|                     |         |                   |         |
|---------------------|---------|-------------------|---------|
| <b>LCeq</b>         | 72.9 dB | <b>Statistics</b> |         |
| <b>LAeq</b>         | 60.1 dB | <b>LAS2.00</b>    | 66.0 dB |
| <b>LCeq - LAeq</b>  | 12.9 dB | <b>LAS8.00</b>    | 64.0 dB |
| <b>LAlaq</b>        | 61.0 dB | <b>LAS10.00</b>   | 63.7 dB |
| <b>LAeq</b>         | 60.1 dB | <b>LAS25.00</b>   | 61.6 dB |
| <b>LAlaq - LAeq</b> | 0.9 dB  | <b>LAS50.00</b>   | 58.1 dB |
| <b># Overloads</b>  | 0       | <b>LAS90.00</b>   | 50.4 dB |

**Summary** NM3  
**Filename** LxT\_Data.053  
**Serial Number** 3099  
**Model** SoundTrack LxT®  
**Firmware Version** 2.301  
**User** Guillermo Rodriguez  
**Start** 2015/09/23 11:55:38  
**Stop** 2015/09/23 12:05:38  
**Duration** 0:10:00.0  
**Run Time** 0:10:00.0  
**Pause** 0:00:00.0

**Pre Calibration** 2015/08/21 11:12:11  
**Post Calibration** None  
**Calibration Deviation** ---

**Overall Settings**

**RMS Weight** A Weighting  
**Peak Weight** A Weighting  
**Detector** Slow  
**Preamp** PRMLxT1L  
**Microphone Correction** Off  
**Integration Method** Linear  
**OBA Range** Normal  
**OBA Bandwidth** 1/1 and 1/3  
**OBA Freq. Weighting** A Weighting  
**OBA Max Spectrum** Bin Max  
**Overload** 121.7 dB

**Results**

**LAeq** 55.3 dB  
**LAE** 83.1 dB  
**EA** 22.525  $\mu\text{Pa}^2\text{h}$   
**EA8** 1.081  $\text{mPa}^2\text{h}$   
**EA40** 5.406  $\text{mPa}^2\text{h}$   
**LApeak (max)** 2015/09/23 11:58:47 80.3 dB  
**LASmax** 2015/09/23 11:58:48 65.3 dB  
**LASmin** 2015/09/23 11:55:56 47.3 dB  
**SEA** -99.9 dB

|                     |         |                   |         |
|---------------------|---------|-------------------|---------|
| <b>LCeq</b>         | 68.8 dB | <b>Statistics</b> |         |
| <b>LAeq</b>         | 55.3 dB | <b>LAS2.00</b>    | 61.6 dB |
| <b>LCeq - LAeq</b>  | 13.5 dB | <b>LAS8.00</b>    | 57.4 dB |
| <b>LAlaq</b>        | 56.5 dB | <b>LAS10.00</b>   | 57.0 dB |
| <b>LAeq</b>         | 55.3 dB | <b>LAS25.00</b>   | 55.6 dB |
| <b>LAlaq - LAeq</b> | 1.2 dB  | <b>LAS50.00</b>   | 54.1 dB |
| <b># Overloads</b>  | 0       | <b>LAS90.00</b>   | 50.9 dB |

|                              |       |
|------------------------------|-------|
| <b>Overload Duration</b>     | 0.0 s |
| <b># OBA Overloads</b>       | 0     |
| <b>OBA Overload Duration</b> | 0.0 s |

**APPENDIX D**

**RCNM Noise Modeling Output**

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/11/2015  
 Case Description: 5629a Waterman Industrial Center

---- Receptor #1 ----

| Description | Land Use    | Baselines (dBA) |         |       |
|-------------|-------------|-----------------|---------|-------|
|             |             | Daytime         | Evening | Night |
| Residential | Residential | 65              | 65      | 45    |

| Description | Impact Device | Usage(%) | Equipment       |                   |                          |                           |
|-------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|             |               |          | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Grader      | No            | 40       | 85              |                   | 75                       | 0                         |
| Dozer       | No            | 40       |                 | 81.7              | 150                      | 0                         |
| Dump Truck  | No            | 40       |                 | 76.5              | 200                      | 0                         |
| Excavator   | No            | 40       |                 | 80.7              | 250                      | 0                         |

| Equipment  | Calculated (dBA) |      | Results  |
|------------|------------------|------|----------|
|            | *Lmax            | Leq  | Day Lmax |
| Grader     | 81.5             | 77.5 | N/A      |
| Dozer      | 72.1             | 68.1 | N/A      |
| Dump Truck | 64.4             | 60.4 | N/A      |
| Excavator  | 66.7             | 62.8 | N/A      |
| Total      | 81.5             | 78.2 | N/A      |

\*Calculated Lmax is the Loudest value.

**APPENDIX E**

**Project Generated Traffic  
FHWA Worksheets**

Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Orange Show Road**  
 Segment: **West of E Street**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 895.16  | 0.60     | 1.68     | 166.15      | 0.03     | 0.07     | 123.65    | 0.63     | 1.75     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 22.22   | -9.48    | -5.04    | 14.91       | -23.28   | -18.84   | 13.63     | -9.30    | -4.87    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 69.20  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 68.41  |
| LEQ                | 68.27   | 44.24    | 52.91    | 60.96       | 30.44    | 39.11    | 59.68     | 44.42    | 53.09    | Day hour     | 89.00  |
|                    | DAY LEQ | 68.41    |          | EVENING LEQ | 60.99    |          | NIGHT LEQ | 60.64    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 69.20    |             |          |          |           |          |          | GRADE dB     | 0.00   |

**Existing Plus Project Traffic Noise**

Project: **5629a Waterman Avenue**  
 Road: **Orange Show Road**  
 Segment: **West of E Street**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |          |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |          |
| -----              |         |          |          |             |          |          |           |          |          |              |          |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour  | 906.68  | 0.62     | 1.76     | 168.29      | 0.03     | 0.07     | 125.24    | 0.64     | 1.84     | % A          | 34100.00 |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              | 50.00    |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              | 50.00    |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 91.82    |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 3.01     |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |          |
| Flow               | 22.28   | -9.41    | -4.83    | 14.97       | -23.21   | -18.63   | 13.68     | -9.23    | -4.65    |              |          |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 69.27    |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 68.47    |
| LEQ                | 68.33   | 44.32    | 53.12    | 61.02       | 30.52    | 39.32    | 59.73     | 44.50    | 53.30    | Day hour     | 89.00    |
|                    | DAY LEQ | 68.47    |          | EVENING LEQ | 61.05    |          | NIGHT LEQ | 60.73    |          | Absorbitive? | no       |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no       |
|                    | CNEL    |          | 69.27    |             |          |          |           |          |          | GRADE dB     | 0.00     |

Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Orange Show Road**  
 Segment: **E Street to Washington Avenue**

|                           | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 25500.00 |
|---------------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                           | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        | 50.00    |
|                           | -----   |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| <b>INPUT PARAMETERS</b>   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour         | 679.36  | 0.46     | 1.28     | 126.10      | 0.02     | 0.05     | 93.84     | 0.48     | 1.33     | % A          | 92       |
| Speed in MPH              | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle                | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle               | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3        |
| <b>NOISE CALCULATIONS</b> |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels          | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5        |
| <b>ADJUSTMENTS</b>        |         |          |          |             |          |          |           |          |          |              |          |
| Flow                      | 21.03   | -10.68   | -6.24    | 13.71       | -24.48   | -20.04   | 12.43     | -10.50   | -6.06    |              |          |
| Distance                  | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier                   | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade                     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 68.00    |
| Constant                  | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 67.22    |
| LEQ                       | 67.08   | 43.05    | 51.71    | 59.76       | 29.24    | 37.91    | 58.48     | 43.22    | 51.89    | Day hour     | 89.00    |
|                           | DAY LEQ | 67.22    |          | EVENING LEQ | 59.79    |          | NIGHT LEQ | 59.44    |          | Absorbitive? | no       |
|                           |         |          |          |             |          |          |           |          |          | Use hour?    | no       |
|                           | CNEL    |          | 68.00    |             |          |          |           |          |          | GRADE dB     | 0.00     |



Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Orange Show Road**  
 Segment: **Washington Avenue to Waterman Avenue**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 666.04  | 0.45     | 1.25     | 123.63      | 0.02     | 0.05     | 92.00     | 0.47     | 1.30     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 20.94   | -10.76   | -6.33    | 13.63       | -24.57   | -20.13   | 12.34     | -10.59   | -6.15    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.91  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 67.13  |
| LEQ                | 66.99   | 42.96    | 51.62    | 59.68       | 29.16    | 37.82    | 58.39     | 43.14    | 51.80    | Day hour     | 89.00  |
|                    | DAY LEQ | 67.13    |          | EVENING LEQ | 59.71    |          | NIGHT LEQ | 59.36    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 67.91    |             |          |          |           |          |          | GRADE dB     | 0.00   |



Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Orange Show Road**  
 Segment: **East of Waterman Avenue**

|                           | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 22500.00 |
|---------------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                           | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        | 50.00    |
|                           | -----   |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| <b>INPUT PARAMETERS</b>   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour         | 599.44  | 0.41     | 1.13     | 111.26      | 0.02     | 0.05     | 82.80     | 0.42     | 1.17     | % A          | 92       |
| Speed in MPH              | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle                | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle               | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3        |
| <b>NOISE CALCULATIONS</b> |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels          | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5        |
| <b>ADJUSTMENTS</b>        |         |          |          |             |          |          |           |          |          |              |          |
| Flow                      | 20.48   | -11.22   | -6.78    | 13.17       | -25.02   | -20.59   | 11.88     | -11.04   | -6.61    |              |          |
| Distance                  | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier                   | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade                     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.46    |
| Constant                  | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.67    |
| LEQ                       | 66.53   | 42.50    | 51.17    | 59.22       | 28.70    | 37.36    | 57.93     | 42.68    | 51.34    | Day hour     | 89.00    |
|                           | DAY LEQ | 66.67    |          | EVENING LEQ | 59.25    |          | NIGHT LEQ | 58.90    |          | Absorbitive? | no       |
|                           |         |          |          |             |          |          |           |          |          | Use hour?    | no       |
|                           | CNEL    |          | 67.46    |             |          |          |           |          |          | GRADE dB     | 0.00     |



Existing Traffic Noise

Project: **5629a Waterman Industrial Center**  
 Road: **Dumas Street**  
 Segment: **Washington Avenue to Waterman Avenue**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 8.96    | 0.00     | 0.00     | 1.66        | 0.00     | 0.00     | 1.24      | 0.00     | 0.00     | % A          | 97.4   |
| Speed in MPH       | 25.00   | 25.00    | 25.00    | 25.00       | 25.00    | 25.00    | 25.00     | 25.00    | 25.00    |              | 25.00  |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 1.84   |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 59.44   | 71.09    | 77.24    | 59.44       | 71.09    | 77.24    | 59.44     | 71.09    | 77.24    | % HT         | 0.74   |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 5.24    | -31.13   | -39.18   | -2.10       | -44.65   | -48.60   | -3.34     | -31.13   | -39.18   |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 40.09  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 39.63  |
| LEQ                | 39.61   | 14.89    | 12.99    | 32.27       | 1.37     | 3.57     | 31.03     | 14.89    | 12.99    | Day hour     | 89.00  |
|                    | DAY LEQ | 39.63    |          | EVENING LEQ | 32.28    |          | NIGHT LEQ | 31.20    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 40.09    |             |          |          |           |          |          | GRADE dB     | 0.00   |



Existing Traffic Noise

Project: **5629a Waterman Industrial Center**  
 Road: **Washington Avenue**  
 Segment: **North of Orange Show Road**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 20.91   | 0.00     | 0.00     | 3.86        | 0.00     | 0.00     | 2.90      | 0.00     | 0.00     | % A          | 97.4   |
| Speed in MPH       | 25.00   | 25.00    | 25.00    | 25.00       | 25.00    | 25.00    | 25.00     | 25.00    | 25.00    |              | 25.00  |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 1.84   |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 59.44   | 71.09    | 77.24    | 59.44       | 71.09    | 77.24    | 59.44     | 71.09    | 77.24    | % HT         | 0.74   |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 8.92    | -27.45   | -35.50   | 1.58        | -40.97   | -44.92   | 0.34      | -27.45   | -35.50   |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 43.77  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 43.31  |
| LEQ                | 43.29   | 18.57    | 16.67    | 35.95       | 5.05     | 7.25     | 34.71     | 18.57    | 16.67    | Day hour     | 89.00  |
|                    | DAY LEQ | 43.31    |          | EVENING LEQ | 35.96    |          | NIGHT LEQ | 34.88    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 43.77    |             |          |          |           |          |          | GRADE dB     | 0.00   |

**Existing Plus Project Traffic Noise**

Project: **5629a Waterman Industrial Center**  
 Road: **Washington Avenue**  
 Segment: **North of Orange Show Road**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS |              |        |
| -----              |         |          |          |             |          |          |           |          |          | 738.00       |        |
|                    |         |          |          |             |          |          |           |          |          | SPEED        | 25.00  |
|                    |         |          |          |             |          |          |           |          |          | DISTANCE     | 50.00  |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 21.84   | 0.01     | 0.00     | 4.03        | 0.00     | 0.00     | 3.03      | 0.01     | 0.00     | % A          | 96.48  |
| Speed in MPH       | 25.00   | 25.00    | 25.00    | 25.00       | 25.00    | 25.00    | 25.00     | 25.00    | 25.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 1.92   |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 59.44   | 71.09    | 77.24    | 59.44       | 71.09    | 77.24    | 59.44     | 71.09    | 77.24    | % HT         | 1.58   |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 9.11    | -27.02   | -31.99   | 1.77        | -40.55   | -41.41   | 0.53      | -27.02   | -31.99   |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 44.00  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 43.51  |
| LEQ                | 43.48   | 18.99    | 20.18    | 36.14       | 5.47     | 10.76    | 34.90     | 18.99    | 20.18    | Day hour     | 89.00  |
|                    |         |          |          |             |          |          |           |          |          | Absorbitive? | no     |
|                    | DAY LEQ | 43.51    |          | EVENING LEQ | 36.16    |          | NIGHT LEQ | 35.15    |          | Use hour?    | no     |
|                    | CNEL    |          | 44.00    |             |          |          |           |          |          | GRADE dB     | 0.00   |

Existing Traffic Noise

Project: **5629a Waterman Industrial Center**  
 Road: **Washington Avenue**  
 Segment: **Orange Show Road to Dumas Street**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 8.96    | 0.00     | 0.00     | 1.66        | 0.00     | 0.00     | 1.24      | 0.00     | 0.00     | % A          | 97.4   |
| Speed in MPH       | 25.00   | 25.00    | 25.00    | 25.00       | 25.00    | 25.00    | 25.00     | 25.00    | 25.00    |              | 25.00  |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 1.84   |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 59.44   | 71.09    | 77.24    | 59.44       | 71.09    | 77.24    | 59.44     | 71.09    | 77.24    | % HT         | 0.74   |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 5.24    | -31.13   | -39.18   | -2.10       | -44.65   | -48.60   | -3.34     | -31.13   | -39.18   |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 40.09  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 39.63  |
| LEQ                | 39.61   | 14.89    | 12.99    | 32.27       | 1.37     | 3.57     | 31.03     | 14.89    | 12.99    | Day hour     | 89.00  |
|                    | DAY LEQ | 39.63    |          | EVENING LEQ | 32.28    |          | NIGHT LEQ | 31.20    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 40.09    |             |          |          |           |          |          | GRADE dB     | 0.00   |



Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **North of Orange Show Road**

|                           | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 19700.00 |
|---------------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                           | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        | 50.00    |
|                           | -----   |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| <b>INPUT PARAMETERS</b>   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour         | 524.84  | 0.35     | 0.99     | 97.42       | 0.01     | 0.04     | 72.50     | 0.37     | 1.03     | % A          | 92       |
| Speed in MPH              | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle                | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle               | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3        |
| <b>NOISE CALCULATIONS</b> |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels          | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5        |
| <b>ADJUSTMENTS</b>        |         |          |          |             |          |          |           |          |          |              |          |
| Flow                      | 19.90   | -11.80   | -7.36    | 12.59       | -25.60   | -21.16   | 11.31     | -11.62   | -7.18    |              |          |
| Distance                  | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier                   | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade                     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 66.88    |
| Constant                  | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.10    |
| LEQ                       | 65.95   | 41.93    | 50.59    | 58.64       | 28.12    | 36.79    | 57.36     | 42.10    | 50.77    | Day hour     | 89.00    |
|                           | DAY LEQ | 66.10    |          | EVENING LEQ | 58.67    |          | NIGHT LEQ | 58.32    |          | Absorbitive? | no       |
|                           |         |          |          |             |          |          |           |          |          | Use hour?    | no       |
|                           | CNEL    |          | 66.88    |             |          |          |           |          |          | GRADE dB     | 0.00     |

**Existing Plus Project Traffic Noise**

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **North of Orange Show Road**

|                           | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 19900.00 |
|---------------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                           | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS |              |          |
| -----                     |         |          |          |             |          |          |           |          |          | SPEED        | 50.00    |
| -----                     |         |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| <b>INPUT PARAMETERS</b>   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour         | 529.45  | 0.36     | 1.02     | 98.27       | 0.01     | 0.04     | 73.13     | 0.37     | 1.06     | % A          | 91.88    |
| Speed in MPH              | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle                | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle               | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3.00     |
| <b>NOISE CALCULATIONS</b> |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels          | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5.12     |
| <b>ADJUSTMENTS</b>        |         |          |          |             |          |          |           |          |          |              |          |
| Flow                      | 19.94   | -11.75   | -7.21    | 12.63       | -25.55   | -21.02   | 11.35     | -11.57   | -7.04    |              |          |
| Distance                  | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier                   | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade                     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 66.93    |
| Constant                  | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.14    |
| LEQ                       | 65.99   | 41.98    | 50.74    | 58.68       | 28.17    | 36.93    | 57.40     | 42.15    | 50.91    | Day hour     | 89.00    |
|                           |         |          |          |             |          |          |           |          |          | Absorbitive? | no       |
|                           | DAY LEQ | 66.14    |          | EVENING LEQ | 58.71    |          | NIGHT LEQ | 58.38    |          | Use hour?    | no       |
|                           | CNEL    |          | 66.93    |             |          |          |           |          |          | GRADE dB     | 0.00     |

Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **Orange Show Road to Dumas Street**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 628.74  | 0.42     | 1.18     | 116.70      | 0.02     | 0.05     | 86.85     | 0.44     | 1.23     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 20.69   | -11.01   | -6.58    | 13.38       | -24.82   | -20.38   | 12.09     | -10.84   | -6.40    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.66  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.88  |
| LEQ                | 66.74   | 42.71    | 51.37    | 59.43       | 28.91    | 37.57    | 58.14     | 42.89    | 51.55    | Day hour     | 89.00  |
|                    | DAY LEQ | 66.88    |          | EVENING LEQ | 59.46    |          | NIGHT LEQ | 59.11    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 67.66    |             |          |          |           |          |          | GRADE dB     | 0.00   |



Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **Dumas Street to Park Center Circle North**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 628.74  | 0.42     | 1.18     | 116.70      | 0.02     | 0.05     | 86.85     | 0.44     | 1.23     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 20.69   | -11.01   | -6.58    | 13.38       | -24.82   | -20.38   | 12.09     | -10.84   | -6.40    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.66  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.88  |
| LEQ                | 66.74   | 42.71    | 51.37    | 59.43       | 28.91    | 37.57    | 58.14     | 42.89    | 51.55    | Day hour     | 89.00  |
|                    | DAY LEQ | 66.88    |          | EVENING LEQ | 59.46    |          | NIGHT LEQ | 59.11    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 67.66    |             |          |          |           |          |          | GRADE dB     | 0.00   |

Existing Plus Project Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **Dumas Street to Park Center Circle North**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 24200.00 |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS |              |          |
| -----              |         |          |          |             |          |          |           |          |          | SPEED        | 50.00    |
| -----              |         |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour  | 642.57  | 0.44     | 1.28     | 119.27      | 0.02     | 0.05     | 88.76     | 0.46     | 1.34     | % A          | 91.69    |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3.01     |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5.30     |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |          |
| Flow               | 20.78   | -10.89   | -6.22    | 13.47       | -24.69   | -20.02   | 12.19     | -10.71   | -6.04    |              |          |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.79    |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.98    |
| LEQ                | 66.83   | 42.84    | 51.73    | 59.52       | 29.03    | 37.93    | 58.24     | 43.01    | 51.91    | Day hour     | 89.00    |
|                    |         |          |          |             |          |          |           |          |          | Absorbitive? | no       |
|                    | DAY LEQ | 66.98    |          | EVENING LEQ | 59.55    |          | NIGHT LEQ | 59.25    |          | Use hour?    | no       |
|                    | CNEL    |          | 67.79    |             |          |          |           |          |          | GRADE dB     | 0.00     |

Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **Park Center Circle North to Park Center Circle South**

|                           | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          | 22500.00 |
|---------------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|----------|
|                           | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        | 50.00    |
|                           | -----   |          |          |             |          |          |           |          |          | DISTANCE     | 50.00    |
| <b>INPUT PARAMETERS</b>   |         |          |          |             |          |          |           |          |          |              |          |
| Vehicles per hour         | 599.44  | 0.41     | 1.13     | 111.26      | 0.02     | 0.05     | 82.80     | 0.42     | 1.17     | % A          | 92       |
| Speed in MPH              | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |          |
| Left angle                | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |          |
| Right angle               | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3        |
| <b>NOISE CALCULATIONS</b> |         |          |          |             |          |          |           |          |          |              |          |
| Reference levels          | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5        |
| <b>ADJUSTMENTS</b>        |         |          |          |             |          |          |           |          |          |              |          |
| Flow                      | 20.48   | -11.22   | -6.78    | 13.17       | -25.02   | -20.59   | 11.88     | -11.04   | -6.61    |              |          |
| Distance                  | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00   |
| Finite Roadway            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00    |
| Barrier                   | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |          |
| Grade                     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.46    |
| Constant                  | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.67    |
| LEQ                       | 66.53   | 42.50    | 51.17    | 59.22       | 28.70    | 37.36    | 57.93     | 42.68    | 51.34    | Day hour     | 89.00    |
|                           | DAY LEQ | 66.67    |          | EVENING LEQ | 59.25    |          | NIGHT LEQ | 58.90    |          | Absorbitive? | no       |
|                           |         |          |          |             |          |          |           |          |          | Use hour?    | no       |
|                           | CNEL    |          | 67.46    |             |          |          |           |          |          | GRADE dB     | 0.00     |



Existing Traffic Noise

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **Park Center Circle South to Vanderbilt Way**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 639.40  | 0.43     | 1.20     | 118.68      | 0.02     | 0.05     | 88.32     | 0.45     | 1.25     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 20.76   | -10.94   | -6.50    | 13.45       | -24.74   | -20.31   | 12.17     | -10.76   | -6.33    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.74  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 66.95  |
| LEQ                | 66.81   | 42.78    | 51.45    | 59.50       | 28.98    | 37.64    | 58.22     | 42.96    | 51.62    | Day hour     | 89.00  |
|                    | DAY LEQ | 66.95    |          | EVENING LEQ | 59.53    |          | NIGHT LEQ | 59.18    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 67.74    |             |          |          |           |          |          | GRADE dB     | 0.00   |



Existing Traffic Noise

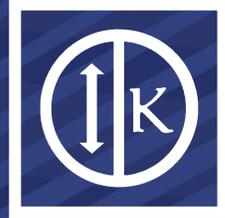
Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **South of Vanderbilt Way**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS | SPEED        |        |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 666.04  | 0.45     | 1.25     | 123.63      | 0.02     | 0.05     | 92.00     | 0.47     | 1.30     | % A          | 92     |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3      |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5      |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 20.94   | -10.76   | -6.33    | 13.63       | -24.57   | -20.13   | 12.34     | -10.59   | -6.15    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.91  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 67.13  |
| LEQ                | 66.99   | 42.96    | 51.62    | 59.68       | 29.16    | 37.82    | 58.39     | 43.14    | 51.80    | Day hour     | 89.00  |
|                    | DAY LEQ | 67.13    |          | EVENING LEQ | 59.71    |          | NIGHT LEQ | 59.36    |          | Absorbitive? | no     |
|                    |         |          |          |             |          |          |           |          |          | Use hour?    | no     |
|                    | CNEL    |          | 67.91    |             |          |          |           |          |          | GRADE dB     | 0.00   |

**Existing Plus Project Traffic Noise**

Project: **5629a Waterman Avenue**  
 Road: **Waterman Avenue**  
 Segment: **South of Vanderbilt Way**

|                    | DAYTIME |          |          | EVENING     |          |          | NIGHTTIME |          |          | ADT          |        |
|--------------------|---------|----------|----------|-------------|----------|----------|-----------|----------|----------|--------------|--------|
|                    | AUTOS   | M.TRUCKS | H.TRUCKS | AUTOS       | M.TRUCKS | H.TRUCKS | AUTOS     | M.TRUCKS | H.TRUCKS |              |        |
| -----              |         |          |          |             |          |          |           |          |          | 25400.00     |        |
|                    |         |          |          |             |          |          |           |          |          | SPEED        | 50.00  |
|                    |         |          |          |             |          |          |           |          |          | DISTANCE     | 50.00  |
| -----              |         |          |          |             |          |          |           |          |          |              |        |
| INPUT PARAMETERS   |         |          |          |             |          |          |           |          |          |              |        |
| Vehicles per hour  | 675.26  | 0.46     | 1.32     | 125.34      | 0.02     | 0.05     | 93.27     | 0.48     | 1.37     | % A          | 91.80  |
| Speed in MPH       | 50.00   | 50.00    | 50.00    | 50.00       | 50.00    | 50.00    | 50.00     | 50.00    | 50.00    |              |        |
| Left angle         | -90.00  | -90.00   | -90.00   | -90.00      | -90.00   | -90.00   | -90.00    | -90.00   | -90.00   |              |        |
| Right angle        | 90.00   | 90.00    | 90.00    | 90.00       | 90.00    | 90.00    | 90.00     | 90.00    | 90.00    | % MT         | 3.01   |
| NOISE CALCULATIONS |         |          |          |             |          |          |           |          |          |              |        |
| Reference levels   | 71.12   | 78.79    | 83.02    | 71.12       | 78.79    | 83.02    | 71.12     | 78.79    | 83.02    | % HT         | 5.19   |
| ADJUSTMENTS        |         |          |          |             |          |          |           |          |          |              |        |
| Flow               | 21.00   | -10.68   | -6.10    | 13.69       | -24.49   | -19.90   | 12.40     | -10.51   | -5.92    |              |        |
| Distance           | -0.07   | -0.07    | -0.07    | -0.07       | -0.07    | -0.07    | -0.07     | -0.07    | -0.07    | LEFT         | -90.00 |
| Finite Roadway     | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | RIGHT        | 90.00  |
| Barrier            | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     |              |        |
| Grade              | 0.00    | 0.00     | 0.00     | 0.00        | 0.00     | 0.00     | 0.00      | 0.00     | 0.00     | CNEL         | 67.99  |
| Constant           | -25.00  | -25.00   | -25.00   | -25.00      | -25.00   | -25.00   | -25.00    | -25.00   | -25.00   | DAY LEQ      | 67.20  |
| LEQ                | 67.05   | 43.04    | 51.85    | 59.74       | 29.24    | 38.05    | 58.45     | 43.22    | 52.03    | Day hour     | 89.00  |
|                    |         |          |          |             |          |          |           |          |          | Absorbitive? | no     |
|                    | DAY LEQ | 67.20    |          | EVENING LEQ | 59.77    |          | NIGHT LEQ | 59.45    |          | Use hour?    | no     |
|                    | CNEL    |          | 67.99    |             |          |          |           |          |          | GRADE dB     | 0.00   |



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## **APPENDIX F**

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Traffic Impact Analysis and Traffic Impact Analysis Addendum



**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER  
TRAFFIC IMPACT ANALYSIS (REVISED)**

**APRIL 22, 2015**



**Kunzman Associates, Inc.**

**WATERMAN INDUSTRIAL CENTER (REVISED)**

**TRAFFIC IMPACT ANALYSIS**

**April 22, 2016**

Prepared by:

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## I. EXECUTIVE SUMMARY

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The purpose of this report is to provide an assessment of the traffic impacts resulting from the development of the proposed Waterman Industrial Center project, and to identify the traffic mitigation measures necessary to maintain the established level of service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act.

The City of San Bernardino is the lead agency responsible for preparation of the traffic impact analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the Existing Plus Project, the anticipated opening date with full occupancy of the development in Year 2017 at which time it will be generating trips at its full potential, and for the Year 2035.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

### A. Analysis Methodology

A series of scoping discussions were conducted with the City of San Bernardino to define the desired analysis locations for each future analysis year. The project scoping agreement with the City of San Bernardino is included in Appendix B.

The analysis of the traffic impacts from the proposed development and the assessment of the required mitigation measures were based on an evaluation of the existing and forecast traffic conditions in the vicinity of the site with and without the project. The following analysis years are considered in this report:

- Existing Conditions (2015)
- Existing Plus Project<sup>1</sup> Conditions
- Existing Plus Ambient Growth (2017)                      Baseline Without Other Projects
- Opening Year (2017) Without Project                      With Cumulative Projects
- Opening Year (2017) With Project                      With Cumulative Projects
- Horizon Year Conditions (2035) Without Project
- Horizon Year Conditions (2035) With Project

The roadway elements that must be analyzed are dependent on both the analysis year (project Opening Year or Year 2035) and project generated trips. The identification of the study area, and the intersections and highway segments requiring analysis, was based on an estimate of the two-way traffic volumes on the roadway segments near the project site. All arterial segments have been included in the analysis when the anticipated project volume

---

<sup>1</sup> The existing plus project conditions has been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time. This scenario is provided for informational purposes only, and will not be used for impact determinations or mitigation.

equals or exceeds 50 two-way trips in the peak hours. The requirement is 100 two-way peak hour trips for freeways.

The project does not contribute trips greater than the freeway threshold volume of 100 two-way peak hour trips. The project does not contribute trips greater than the arterial link threshold volume of 50 two-way trips in the peak hours on intersections outside the City of San Bernardino.

**B. Definition of Deficiency and Significant Impact**

The following definitions of deficiencies and significant impacts have been developed in accordance with the City of San Bernardino requirements.

1. Definition of Deficiency

The definition of an intersection deficiency has been obtained from the City of San Bernardino General Plan. The General Plan states that peak hour intersection operations of Level of Service D or better are generally acceptable. Therefore, any intersection operating Level of Service E to F will be considered deficient.

For freeway facilities, the definition of deficiency is based on maintaining a level of service standard of Level of Service E or better, except where an existing Level of Service F condition is identified. A deficiency is, therefore, defined as any freeway segment operating or projected to operate at Level of Service F, unless the segment is currently identified.

2. Definition of Significant Impact

Based on the City of San Bernardino Development Services Department, Traffic Impact Study Guidelines (2015), the impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |                 |                      |
|--|-----------------|----------------------|
| Level of Service                               | Volume/Capacity | Incremental Increase |
| C  | 0.71-0.80       | 0.04 or more         |
| D  | 0.81-0.90       | 0.02 or more         |
| E/F  | 0.91 - more     | 0.01 or more         |

An intersection mitigation measure shall either fix the deficiency, or reduce the volume to capacity ratio so that it is below the level that occurs without the project.

A traffic impact is considered significant if the project both: i) contributes measurable traffic to and ii) substantially and adversely changes the level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the City of San Bernardino General Plan cannot be constructed.

**C. Project Description**

The proposed development is located on the southwest corner of the Waterman Avenue at Dumas Street intersection in the City of San Bernardino. A vicinity map showing the project location is provided on Figure 1.

The approximately 25 acre project site is proposed to be developed with 564,652 square feet of high-cube warehouse distribution center. The proposed project will have access to Waterman Avenue and Dumas Street. Figure 2 illustrates the project site plan.

**D. Existing Conditions**

The study area intersections currently operate at an acceptable Level of Service during the peak hours for existing traffic conditions.

**E. Project Traffic**

Project traffic volumes for all future projections were estimated using the manual approach. Trip generation has been estimated based on the Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012 and City of Fontana, Truck Trip Generation Study, August 2003 as well as the South Coast Air Quality Management District truck vehicle mix, January 2015.

Using the Fontana Study vehicle mix, the proposed development is projected to generate approximately 1,282 daily vehicle trips in Passenger Car Equivalents, 87 Passenger Car Equivalents of which will occur during the morning peak hour and 95 Passenger Car Equivalents of which will occur during the evening peak hour.

Using the South Coast Air Quality Management District vehicle mix, the proposed development is projected to generate approximately 1,569 daily vehicle trips in Passenger Car Equivalents, 110 Passenger Car Equivalents of which will occur during the morning peak hour and 116 Passenger Car Equivalents of which will occur during the evening peak hour.

To provide a more conservative analysis the South Coast Air Quality Management District trip generation values are used in the analysis for this report.

To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

**F. Future Conditions**

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, with improvements (see Table 5).

As shown in Table 6 for Existing Plus Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Ambient Growth traffic conditions without and with improvements (see Table 7).

For Existing Plus Ambient Growth traffic conditions, a traffic signal is projected to be warranted at the following study area intersection (see Appendix G):

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The unsignalized intersection has been evaluated for a traffic signal using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the California Manual of Uniform Traffic Control Devices (2014 Edition).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) Without Project traffic conditions without and with improvements (see Table 8).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, with improvements (see Table 9).

As shown in Table 10 for Opening Year (2017) With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 Without Project traffic conditions without and with improvements (see Table 11).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, with improvements (see Table 12).

As shown in Table 13 for Year 2035 With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

**G. Recommendations**

The recommendations in this section address on-site improvements, off-site improvements and the phasing (as needed) of all necessary study area transportation improvements.

Improvements to the Waterman Road and Park Center Circle North intersection adjacent to the project are project related and the applicant will be responsible for construction these improvements.

1. On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 40).

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North including Waterman Avenue northbound left turn lane improvements. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.

2. Off-Site Improvements

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

Figure 1  
Project Location Map

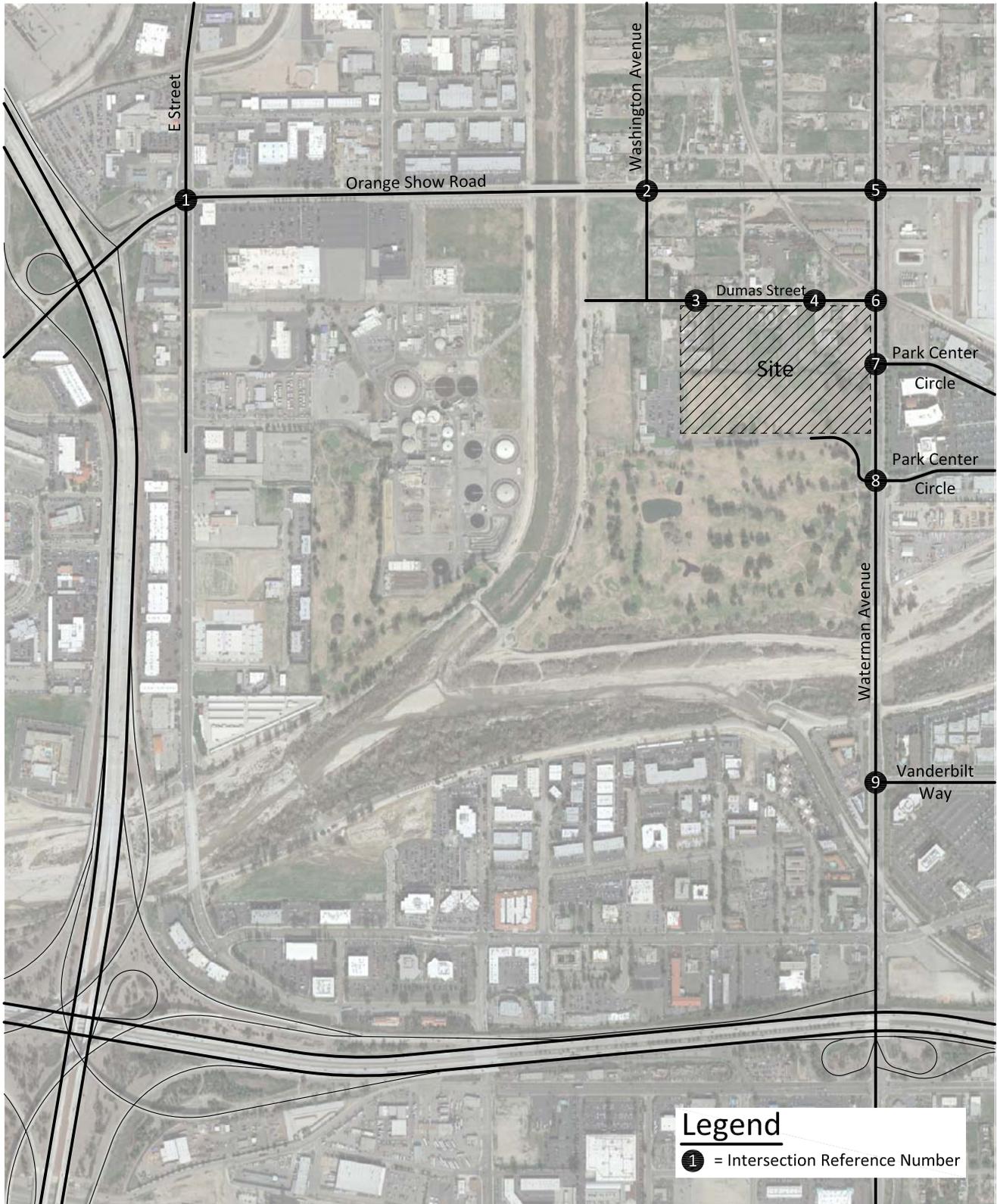
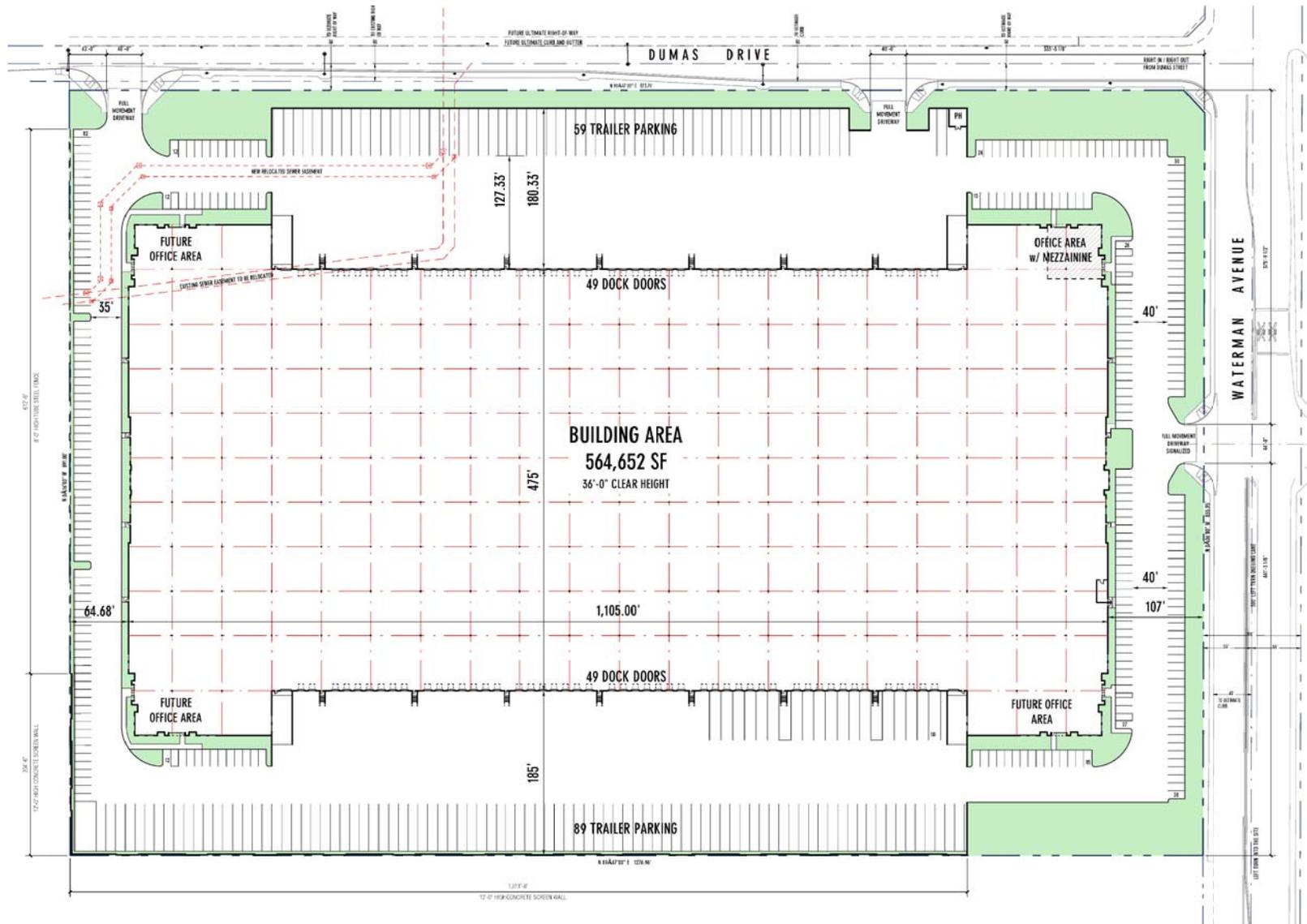


Figure 2  
Site Plan



## II. EXISTING CONDITIONS

---

### A. Existing Roadway System

Figure 3 identifies the existing conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

Local access is provided by various roadways in the vicinity of the site. The east-west roadways which will be most affected by the project include Orange Show Road, Dumas Street, Park Center Circle, and Vanderbilt Way. North-south roadways expected to provide local access include E Street, Washington Avenue, and Waterman Avenue.

### B. Existing Volumes

Figure 4 depicts the existing average daily traffic volumes. The existing average daily traffic volumes were factored from peak hour counts in Passenger Car Equivalent's (see Appendix C) obtained by Kunzman Associates, Inc. using the following formula for each intersection leg:

$$\text{PM Peak Hour (Approach + Exit Volume)} \times 11.5 = \text{Daily Leg Volume.}$$

This is a conservative estimate and may overestimate the average daily traffic volumes.

Existing intersection traffic conditions were established through morning and evening peak hour traffic counts obtained by Kunzman Associates, Inc. from August 2015 (see Appendix C). In addition, truck classification counts were conducted at the study area intersections. The existing volumes and types (number of axles) of trucks was used in the conversion of trucks to Passenger Car Equivalent's. The truck trips were converted using the following factors: 2 axle trucks = 2.0, 3 axle trucks = 2.5, and 4+ axle trucks = 3.0. The resulting Passenger Car Equivalents are shown on Figures 5 and 6, respectively. Explicit peak hour factors have been calculated using the data collected for this effort as well. The morning and evening peak hour traffic volumes were identified by counting the two-hour periods from 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM.

### C. Existing Level of Service

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F) based on the 2010 Highway Capacity Manual – Transportation Research Board Special Report 209. To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection. The signalized intersections are considered deficient (Level of Service F) if the overall intersection critical volume to capacity ratio equals or exceeds 1.0, even if the level of service defined by the delay value is below the defined Level of Service standard. The volume to capacity ratio is defined as the critical volumes divided by the intersection capacity. A volume to capacity ratio greater than 1.0 implies an infinite queue.

The Level of Service analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of two seconds per phase. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis. The following formula has been used to calculate the pedestrian minimum times for all Highway Capacity Manual runs:

$$(\text{Curb to curb distance}) / (3.5 \text{ feet/second}) + 7 \text{ seconds.}$$

For existing/Existing Plus Project/and Opening Year traffic conditions, saturation flow rates of 1,800 vehicles per hour of green for through and right turn lanes and 1,700 vehicles per lane for single left turn lanes, 1,600 vehicles per lane for dual left turn lanes and 1,500 vehicles per lane for triple left turn lanes have been assumed for the capacity analysis.

For Year 2035 traffic conditions, saturation flow rates of 1,900 vehicles per hour of green for through and right turn lanes and 1,800 vehicles per lane for single left turn lanes, 1,700 vehicles per lane for dual left turn lanes and 1,800 vehicles per lane for double right turn lanes have been assumed for the capacity analysis.

The peak hour traffic volumes have been adjusted to peak 15 minute volumes for analysis purposes using the existing observed peak 15 minute to peak hour factors (see Appendix C). The Year 2035 peak hour factor has been adjusted to 0.95. This is to account for the effects of congestion on peak spreading. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

The existing delay and Level of Service for intersections in the vicinity of the project are shown in Table 1. The study area intersections currently operate at an acceptable Level of Service during the peak hours for existing traffic conditions. Existing delay worksheets are provided in Appendix F.

**D. Planned Transportation Improvements and Relationship to General Plan**

The City of San Bernardino General Plan Circulation Element is shown on Figure 7. Both existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 7. This figure shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the land use element of the General Plan. The City of San Bernardino General Plan roadway cross-sections are illustrated on Figure 8.

**E. Transit Service**

Figure 9 depicts the San Bernardino Bus Transit System Map. Transit service is provided by Omnitrans. Transit Route 5 operates on Waterman Avenue, and Transit Routes 2 and 15 operate on E Street.

**F. Bicycle and Pedestrian Facilities**

The City of San Bernardino designated bike paths are illustrated on Figure 10 and the existing pedestrian facilities adjacent to the project are shown in Figure 11.

**Table 1**

**Existing Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 22.4               | C                | 0.398            | 26.1               | C                | 0.710            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 19.1               | B                | 0.307            | 17.1               | B                | 0.386            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 20.6               | C                | 0.525            | 26.1               | C                | 0.717            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 19.8               | C                | N/A              | 20.8               | C                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 20.8               | C                | N/A              | 19.0               | C                | N/A              |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 3.6                | A                | 0.412            | 8.9                | A                | 0.487            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | <1> | 0   | 1.5       | 0.5 | 1  | 16.4               | B                | 0.632            | 21.0               | C                | 0.786            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

Figure 3  
Existing Through Travel Lanes and Intersection Controls

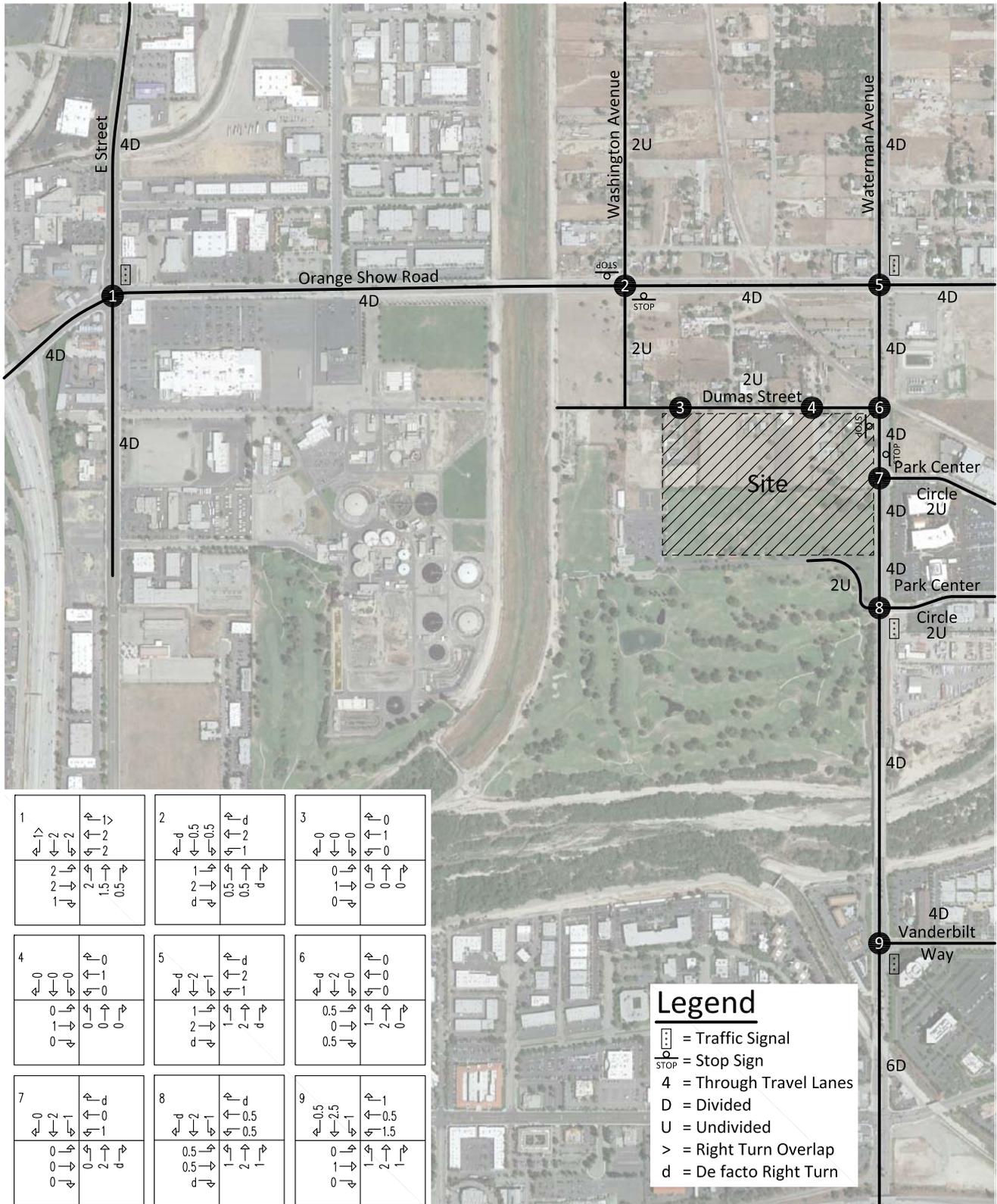
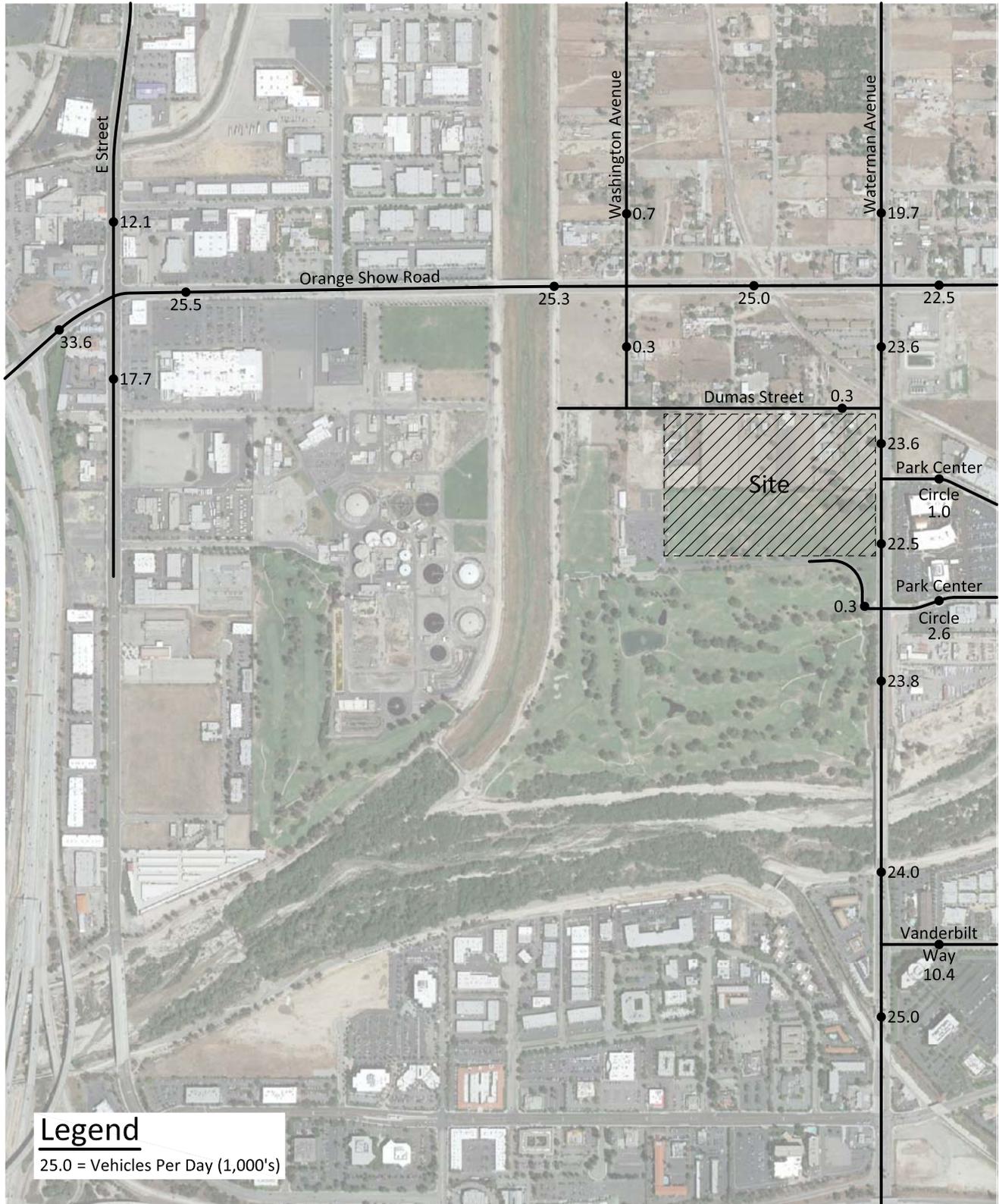


Figure 4  
Existing Average Daily Traffic Volumes

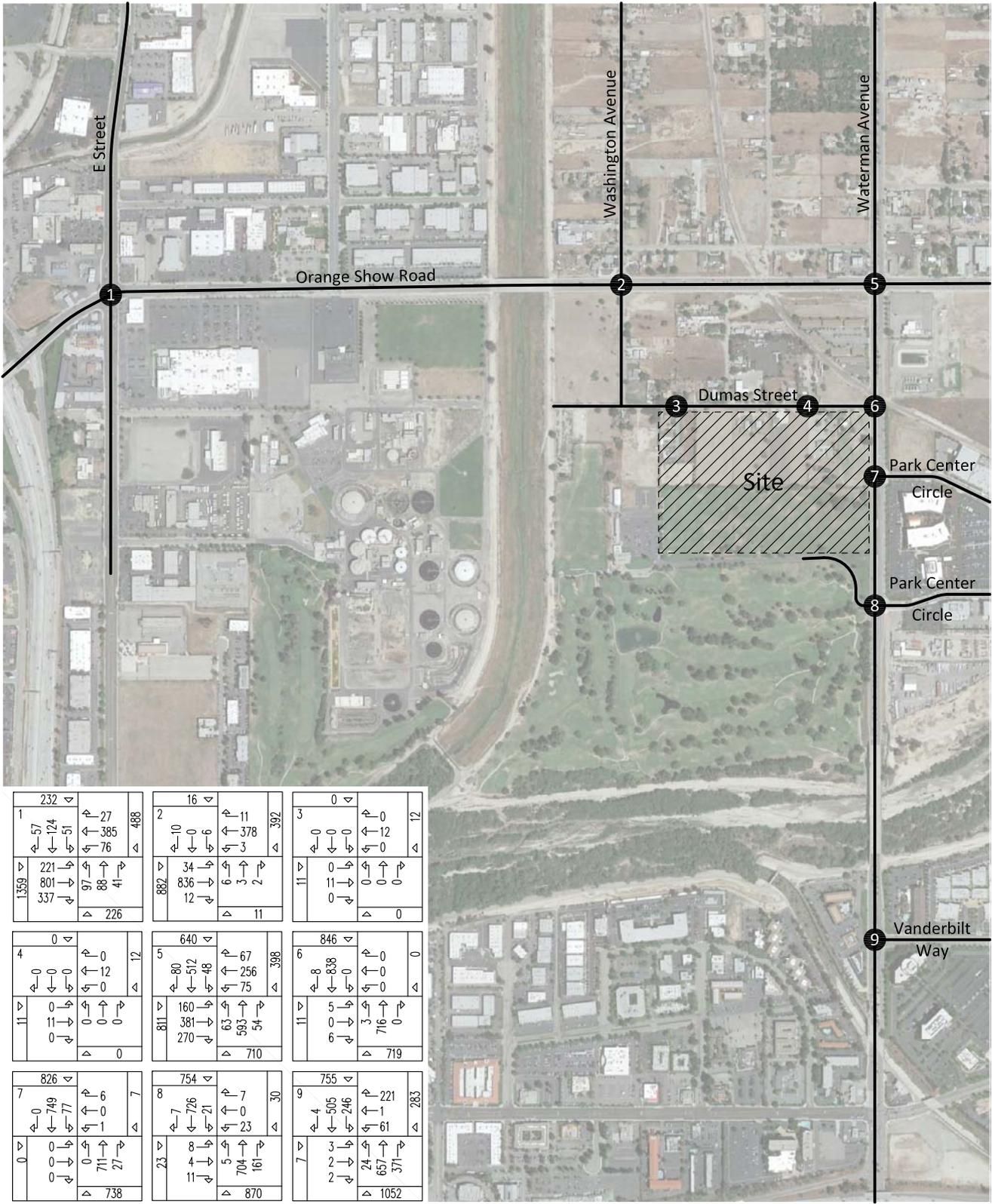


**Legend**

25.0 = Vehicles Per Day (1,000's)



# Figure 5 Existing Morning Peak Hour Intersection Turning Movement Volumes



|   |  |   |  |   |   |
|---|--|---|--|---|---|
| 1 | 232<br>← 57<br>← 124<br>← 51<br>↑ 27<br>↑ 385<br>↑ 76<br>↓ 488 | 2 | 16<br>← 10<br>← 0<br>← 6<br>↑ 11<br>↑ 378<br>↑ 3<br>↓ 392      | 3 | 0<br>← 0<br>← 0<br>← 0<br>↑ 0<br>↑ 12<br>↑ 0<br>↓ 12          |
| 4 | 0<br>← 0<br>← 0<br>← 0<br>↑ 0<br>↑ 12<br>↑ 0<br>↓ 12           | 5 | 640<br>← 80<br>← 512<br>← 48<br>↑ 67<br>↑ 256<br>↑ 75<br>↓ 398 | 6 | 846<br>← 8<br>← 838<br>← 0<br>↑ 0<br>↑ 0<br>↑ 0<br>↓ 0        |
| 7 | 826<br>← 0<br>← 749<br>← 77<br>↑ 6<br>↑ 1<br>↑ 0<br>↓ 738      | 8 | 754<br>← 7<br>← 726<br>← 21<br>↑ 7<br>↑ 0<br>↑ 23<br>↓ 870     | 9 | 755<br>← 4<br>← 505<br>← 246<br>↑ 221<br>↑ 61<br>↑ 0<br>↓ 283 |

# Figure 6 Existing Evening Peak Hour Intersection Turning Movement Volumes

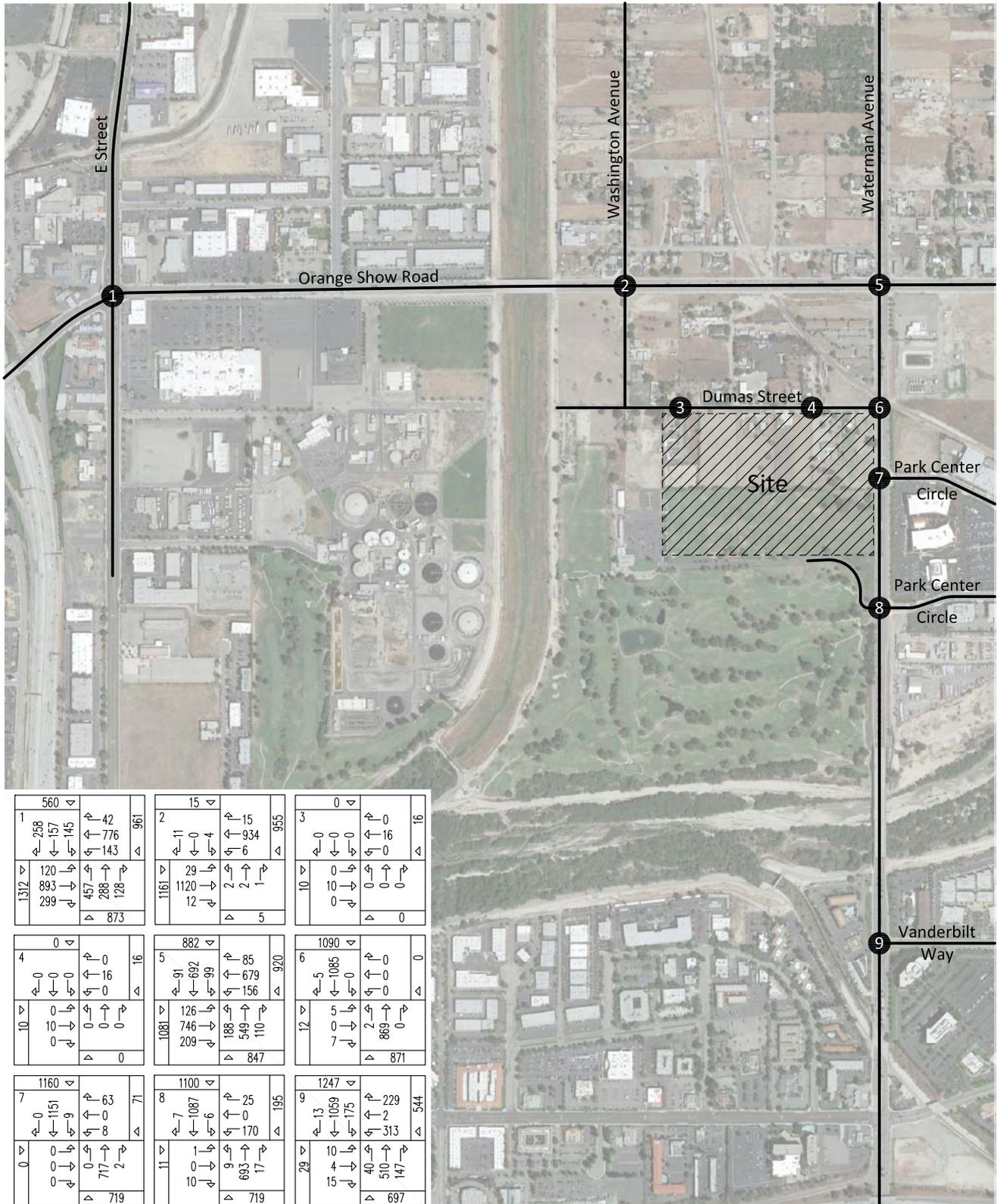
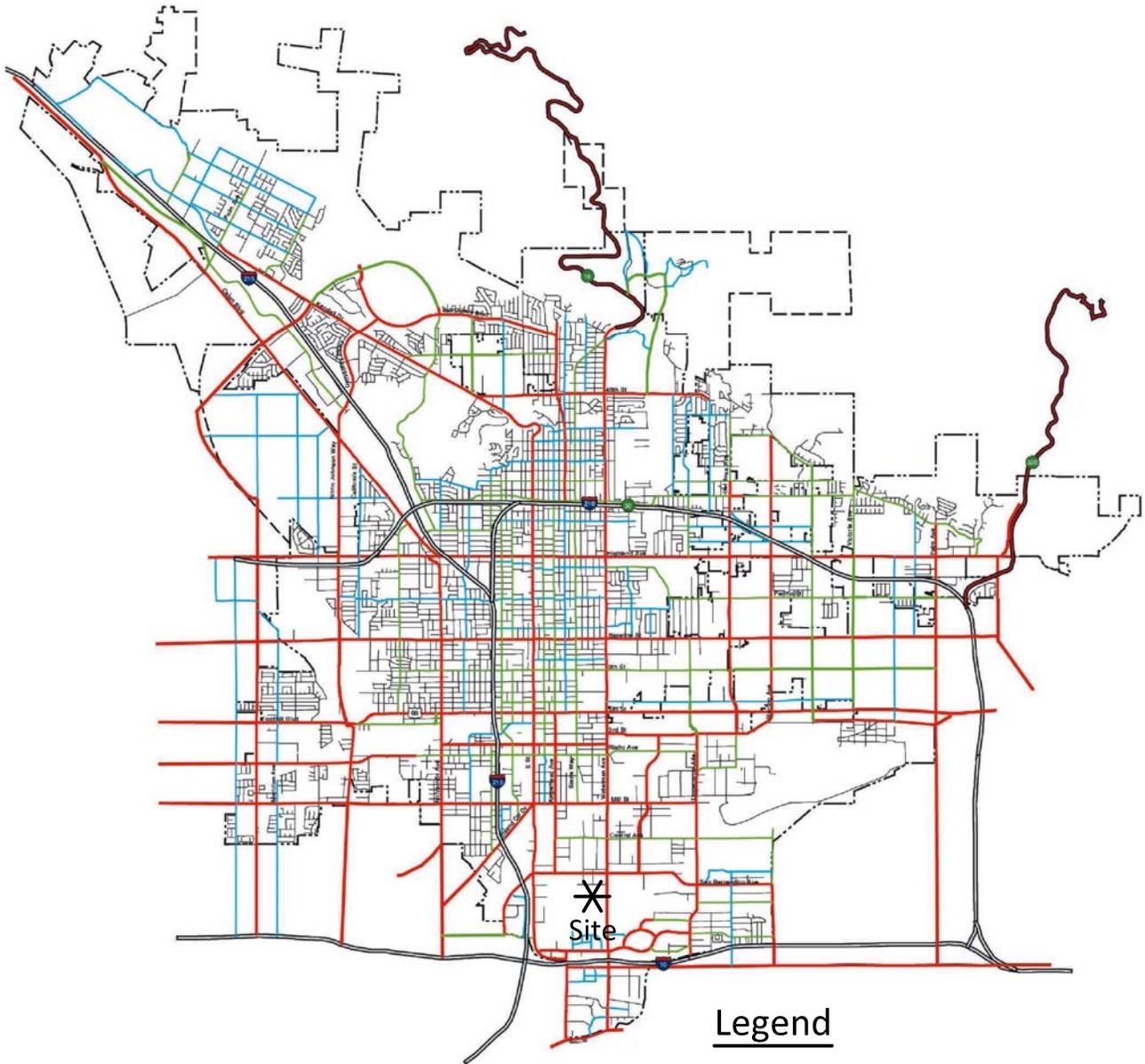


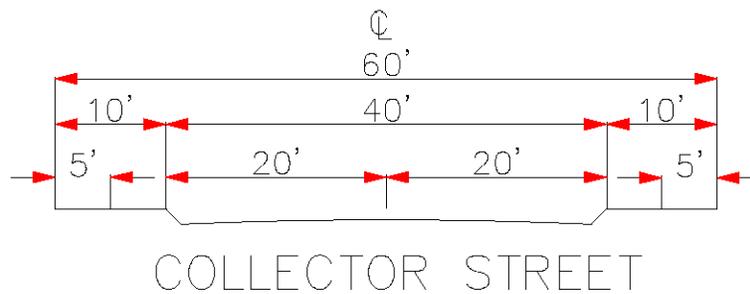
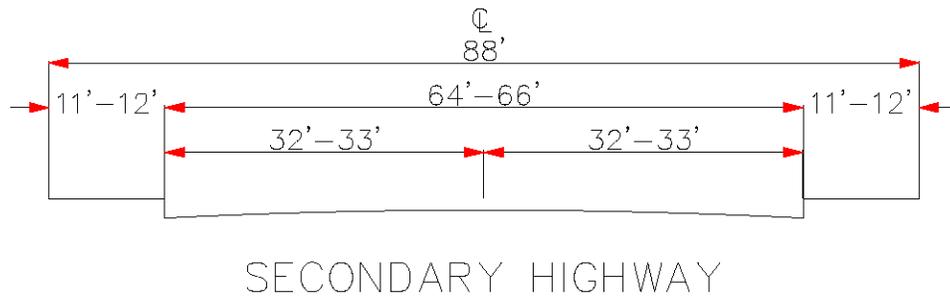
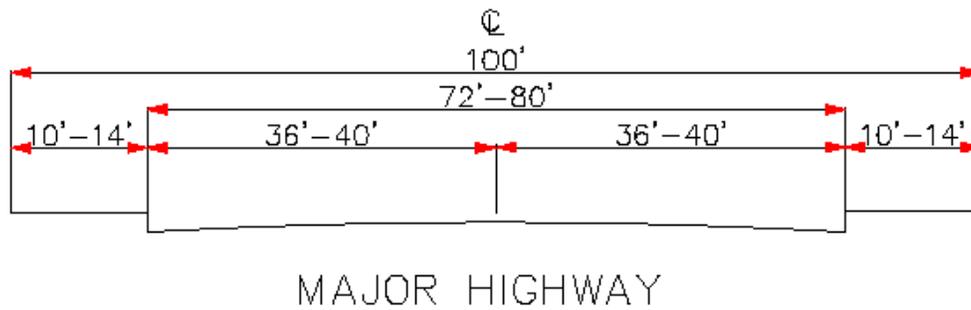
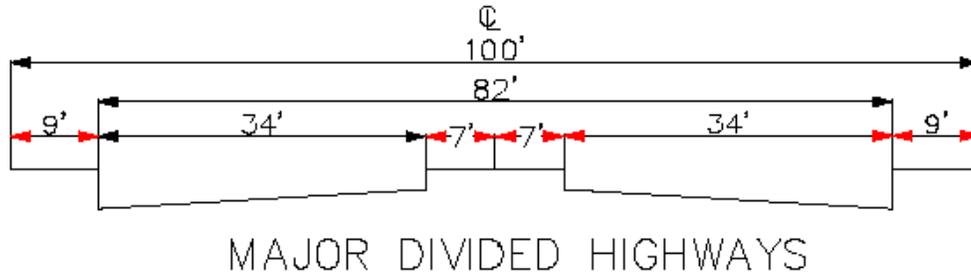
Figure 7  
 City of San Bernardino General Plan Circulation Element



**Legend**

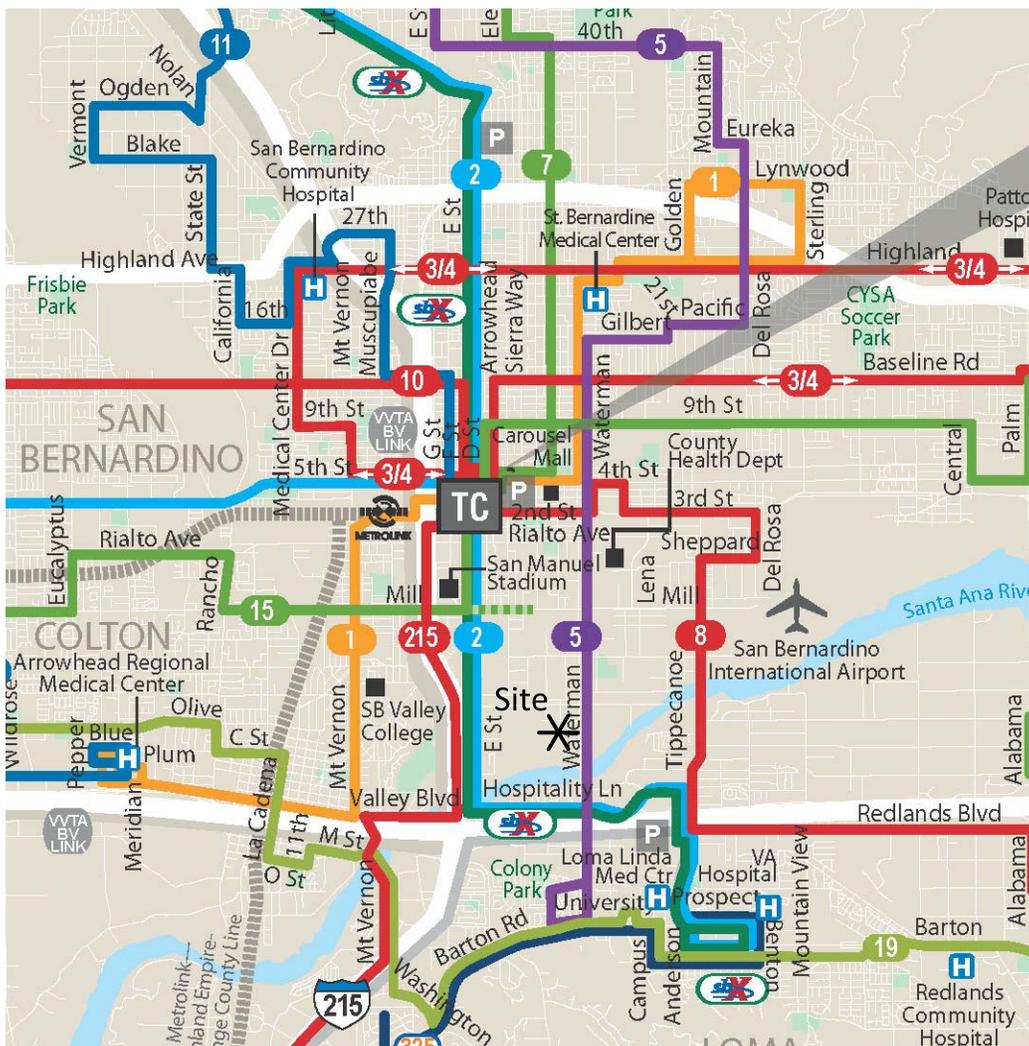
-  Freeway
-  State Highway
-  Major Arterial
-  Secondary Arterial
-  Collector
-  Local
-  City Boundary
-  Sphere of Influence Boundary

Figure 8  
 City of San Bernardino General Plan Roadway Cross-Sections



FOR USE IN QUARTER MILE STREETS,  
 SCHOOL AND INDUSTRIAL AREAS.

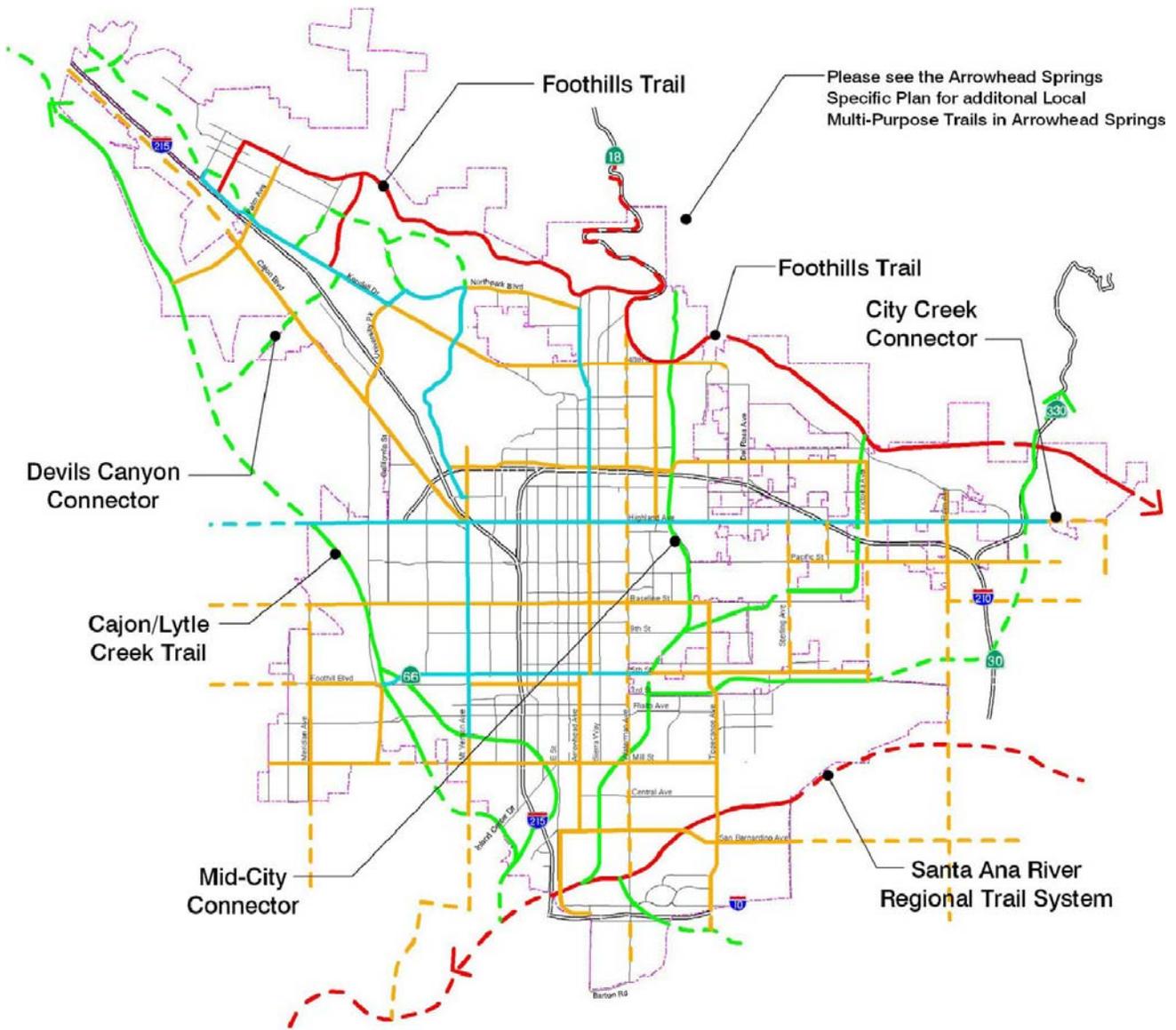
Figure 9  
City of San Bernardino Transit Routes



**Legend**

- | Route       | Route Name                                   |
|-------------|--|
| 308/309/310 | Palm/Kendall - CSUSB - VA Hospital           |
| 1           | ARMC - San Bernardino Del Rosa               |
| 2           | Cal St - E St - Loma Linda                   |
| 3/4         | Baseline - Highland - San Bdn                |
| 5           | South Waterman - Del Rosa - Cal State        |
| 7           | N San Bdn - Sierra Way - San Bdn             |
| 8           | San Bdn - Mentone - Crafton Hills College    |
| 10          | Fontana - Baseline - San Bernardino          |
| 11          | San Bernardino - Muscog - Cal State          |
| 14          | Fontana - Foothill - San Bernardino          |
| 15          | Fontana - San Bernardino/Highland - Redlands |
| 19          | Fontana - Colton - Redlands - Yucaipa        |
| 20          | Fontana - Metrolink - Via Hemlock - Kaiser   |
| 22          | North Rialto - Riverside Ave - ARMC          |
| 29          | Bloomington - Valley Blvd - Kaiser           |
| 61          | Fontana - Ontario Mills - Pomona             |
| 63          | Chino - Ontario - Upland                     |
| 65          | Montclair - Chino Hills                      |
| 66          | Fontana - Foothill Blvd - Montclair          |
| 67          | Montclair - Baseline - Fontana               |
| 68          | Chino - Montclair - Chaffey College          |
| 80          | Montclair - Ont Corv Cntr - Chaffey College  |
| 81          | Ontario - Ontario Mills - Chaffey College    |
| 82          | Rancho Cucamonga - Fontana - Sierra Lakes    |
| 83          | Upland - Euclid - Chino                      |
| 215         | San Bernardino - Riverside                   |
| 308/309/310 | OmniGo Yucaipa                               |
| 325         | OmniGo Grand Terrace                         |
| 385         | OmniGo Chino/Chino Hills                     |

Figure 10  
 City of San Bernardino General Plan Bicycle Routes



**Legend**

Proposed by or Within Other Jurisdictions

Existing Proposed



Primary Regional Multi-Purpose Trails  
 Regional Multi-Purpose Trails  
 Local Multi-Purpose Trails  
 Bicycle Routes

City Boundary



KUNZMAN ASSOCIATES, INC.

Source: City of San Bernardino

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### III. PROJECT TRIPS

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#### A. Project Description

The approximately 25 acre project site is proposed to be developed with 564,652 square feet of high-cube warehouse distribution center. The proposed project will have access to Waterman Avenue and Dumas Street.

#### B. Trip Generation

The trips generated by the project are determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic and morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land use. By multiplying the trip generation rates by the land use quantity, the traffic volumes are determined. Table 2 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012 and City of Fontana, Truck Trip Generation Study, August 2003. Table 3 shows a trip generation comparison using the South Coast Air Quality Management District truck vehicle mix, January 2015, compared to the Fontana vehicle mix

Using the Fontana Study vehicle mix, the proposed development is projected to generate approximately 1,282 daily vehicle trips in Passenger Car Equivalents, 87 Passenger Car Equivalents of which will occur during the morning peak hour and 95 Passenger Car Equivalents of which will occur during the evening peak hour.

Using the South Coast Air Quality Management District vehicle mix, the proposed development is projected to generate approximately 1,569 daily vehicle trips in Passenger Car Equivalents, 110 Passenger Car Equivalents of which will occur during the morning peak hour and 116 Passenger Car Equivalents of which will occur during the evening peak hour.

To provide a more conservative analysis the South Coast Air Quality Management District trip generation values are used in the analysis for this report.

#### C. Trip Distribution

Figures 12 and 13 contain the directional distributions of the project trips for the proposed land use. To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

**D. Trip Assignment**

Based on the identified trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 14. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 15 and 16, respectively.

**E. Traffic Contribution Test**

No analysis is required further than 5 miles from the project site. The roadway elements that must be analyzed are dependent on both the analysis year (project Opening Year or Year 2035) and project generated trips. The identification of the study area, and the intersections and highway segments requiring analysis, was based on an estimate of the two-way traffic volumes on the roadway segments near the project site. All arterial segments have been included in the analysis when the anticipated project volume equals or exceeds 50 two-way trips in the peak hours. The requirement is 100 two-way peak hour trips for freeways. Figure 17 graphically depicts the project traffic contribution test volumes on all of the roadway segments adjacent to the potential intersection analysis locations until the project volume contribution has clearly dropped below the 50 trip threshold.

The project does not contribute trips greater than the freeway threshold volume of 100 two-way peak hour trips. The project does not contribute trips greater than the arterial link threshold volume of 50 two-way trips in the peak hours on intersections outside of the City of San Bernardino.

**Table 2**

**Proposed Project Trip Generation Based on Fontana Vehicle Mix<sup>1</sup>**

| Land Use                     | Quantity       | Units <sup>2</sup> | PCE<br>Factor <sup>3</sup> | Vehicle<br>Percent <sup>4</sup> | Peak Hour |           |           |           |           |           | Daily        |
|------------------------------|----------------|--------------------|----------------------------|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
|                              |                |                    |                            |                                 | Morning   |           |           | Evening   |           |           |              |
|                              |                |                    |                            |                                 | Inbound   | Outbound  | Total     | Inbound   | Outbound  | Total     |              |
| <u>Trip Generation Rates</u> |                |                    |                            |                                 |           |           |           |           |           |           |              |
| Warehouse                    |                | TSF                |                            |                                 | 0.08      | 0.03      | 0.11      | 0.04      | 0.08      | 0.12      | 1.68         |
| <u>Trips Generated</u>       |                |                    |                            |                                 |           |           |           |           |           |           |              |
| Warehouse Trucks 2 Axle      |                |                    | 2.0                        | 3.46%                           | 4         | 2         | 6         | 2         | 4         | 6         | 66           |
| Warehouse Trucks 3 Axle      |                |                    | 2.5                        | 4.64%                           | 5         | 3         | 8         | 3         | 5         | 8         | 110          |
| Warehouse Trucks 4+ Axle     |                |                    | 3.0                        | 12.33%                          | 18        | 6         | 24        | 9         | 18        | 27        | 351          |
| Warehouse Truck Subtotal     |                | PCE                |                            | 20.43%                          | 27        | 11        | 38        | 14        | 27        | 41        | 527          |
| Warehouse Car Subtotal       |                | PCE                | 1.0                        | 79.57%                          | 36        | 13        | 49        | 18        | 36        | 54        | 755          |
| <b>Total</b>                 | <b>564.652</b> | <b>TSF</b>         |                            |                                 | <b>63</b> | <b>24</b> | <b>87</b> | <b>32</b> | <b>63</b> | <b>95</b> | <b>1,282</b> |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Category 150.

<sup>2</sup> TSF = Thousand Square Feet; PCE = Passenger Car Equivalent.

<sup>3</sup> Passenger Car Equivalent factors are per City of San Bernardino recommended values.

<sup>4</sup> Source: City of Fontana Truck Trip Generation Study, August 2003.

**Table 3**

**Proposed Project Trip Generation Comparison of Fontana versus SCAQMD Vehicle Mix<sup>1</sup>**

| Land Use                           | Quantity       | Units <sup>2</sup> | PCE Factor <sup>3</sup> | Vehicle Percent <sup>4</sup> | Peak Hour |           |            |           |           |            | Daily        |
|------------------------------------|----------------|--------------------|-------------------------|------------------------------|-----------|-----------|------------|-----------|-----------|------------|--------------|
|                                    |                |                    |                         |                              | Morning   |           |            | Evening   |           |            |              |
|                                    |                |                    |                         |                              | Inbound   | Outbound  | Total      | Inbound   | Outbound  | Total      |              |
| <u>Trip Generation Rates</u>       |                |                    |                         |                              |           |           |            |           |           |            |              |
| High Cube Warehouse                |                | TSF                |                         |                              | 0.08      | 0.03      | 0.11       | 0.04      | 0.08      | 0.12       | 1.68         |
| Car Trip Generation                |                |                    |                         | 61.90%                       | 0.06      | 0.02      | 0.08       | 0.02      | 0.06      | 0.08       | 1.04         |
| Truck Trip Generation              |                |                    |                         | 38.10%                       | 0.02      | 0.01      | 0.03       | 0.01      | 0.03      | 0.04       | 0.64         |
| <u>Trips Generated</u>             |                |                    |                         |                              |           |           |            |           |           |            |              |
| High Cube Warehouse Trucks 2 Axle  |                |                    | 2.0                     | 6.45%                        | 6         | 2         | 8          | 3         | 6         | 9          | 122          |
| High Cube Warehouse Trucks 3 Axle  |                |                    | 2.5                     | 8.65%                        | 10        | 4         | 14         | 5         | 10        | 15         | 205          |
| High Cube Warehouse Trucks 4+ Axle |                |                    | 3.0                     | 23.00%                       | 31        | 12        | 43         | 16        | 31        | 47         | 655          |
| High Cube Warehouse Truck Subtotal |                | PCE                |                         | 38.10%                       | 47        | 18        | 65         | 24        | 47        | 71         | 982          |
| High Cube Warehouse Car Subtotal   |                | PCE                | 1.0                     | 61.90%                       | 34        | 11        | 45         | 11        | 34        | 45         | 587          |
| <b>Total</b>                       | <b>564.652</b> | <b>TSF</b>         |                         |                              | <b>81</b> | <b>29</b> | <b>110</b> | <b>35</b> | <b>81</b> | <b>116</b> | <b>1,569</b> |
| Previous Trip Generation           | 564.652        | TSF                |                         |                              | 63        | 24        | 87         | 32        | 63        | 95         | 1,282        |
| Difference                         |                |                    |                         |                              | 18        | 5         | 23         | 3         | 18        | 21         | 287          |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Category 150.

<sup>2</sup> TSF = Thousand Square Feet; PCE = Passenger Car Equivalent.

<sup>3</sup> Passenger Car Equivalent factors are per City of San Bernardino recommended values.

<sup>4</sup> Source: South Coast Air Quality Management District Letter, dated January 2, 2015.

Figure 12  
Project Trip Distribution - Cars

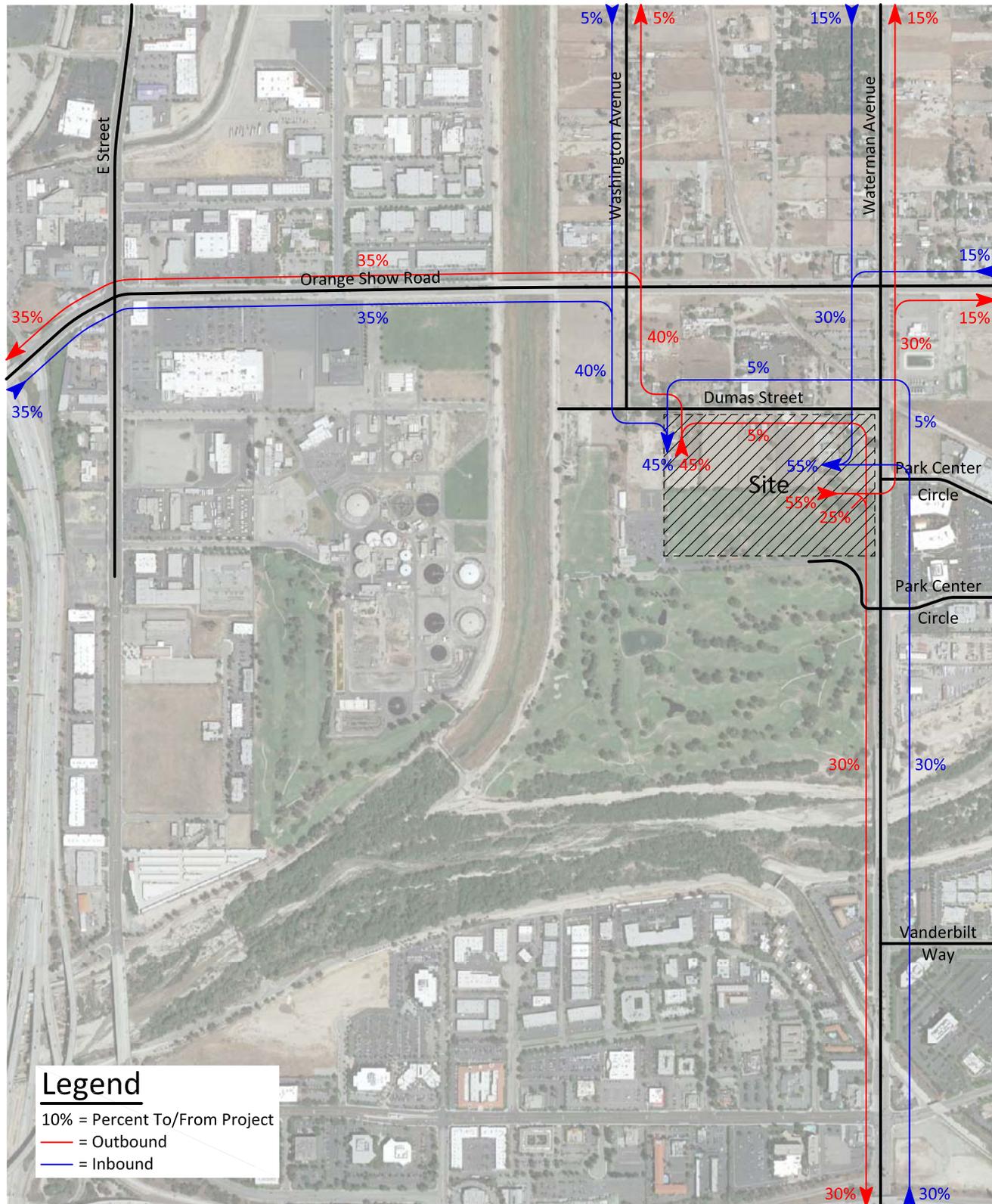


Figure 13  
Project Trip Distribution - Trucks

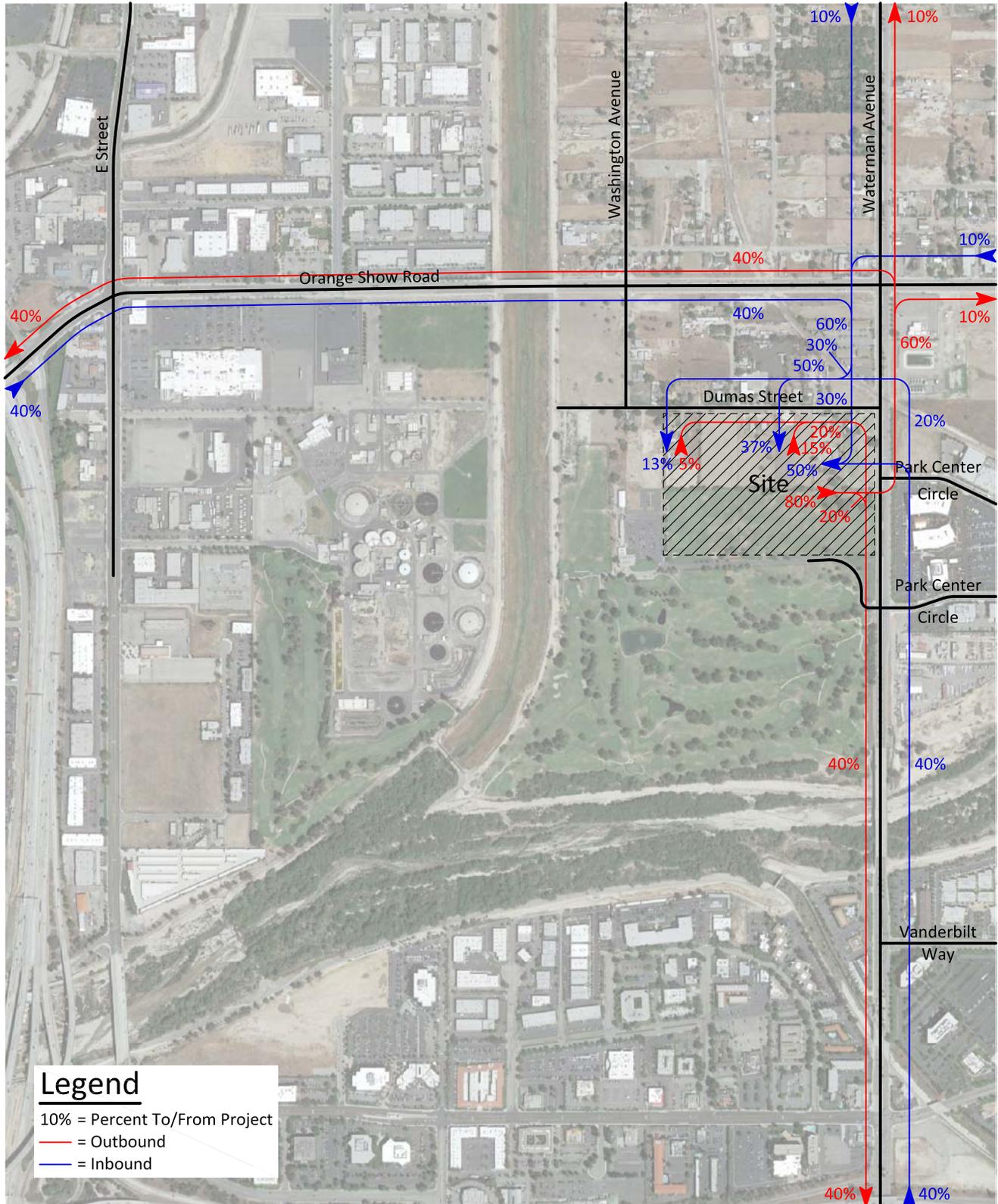
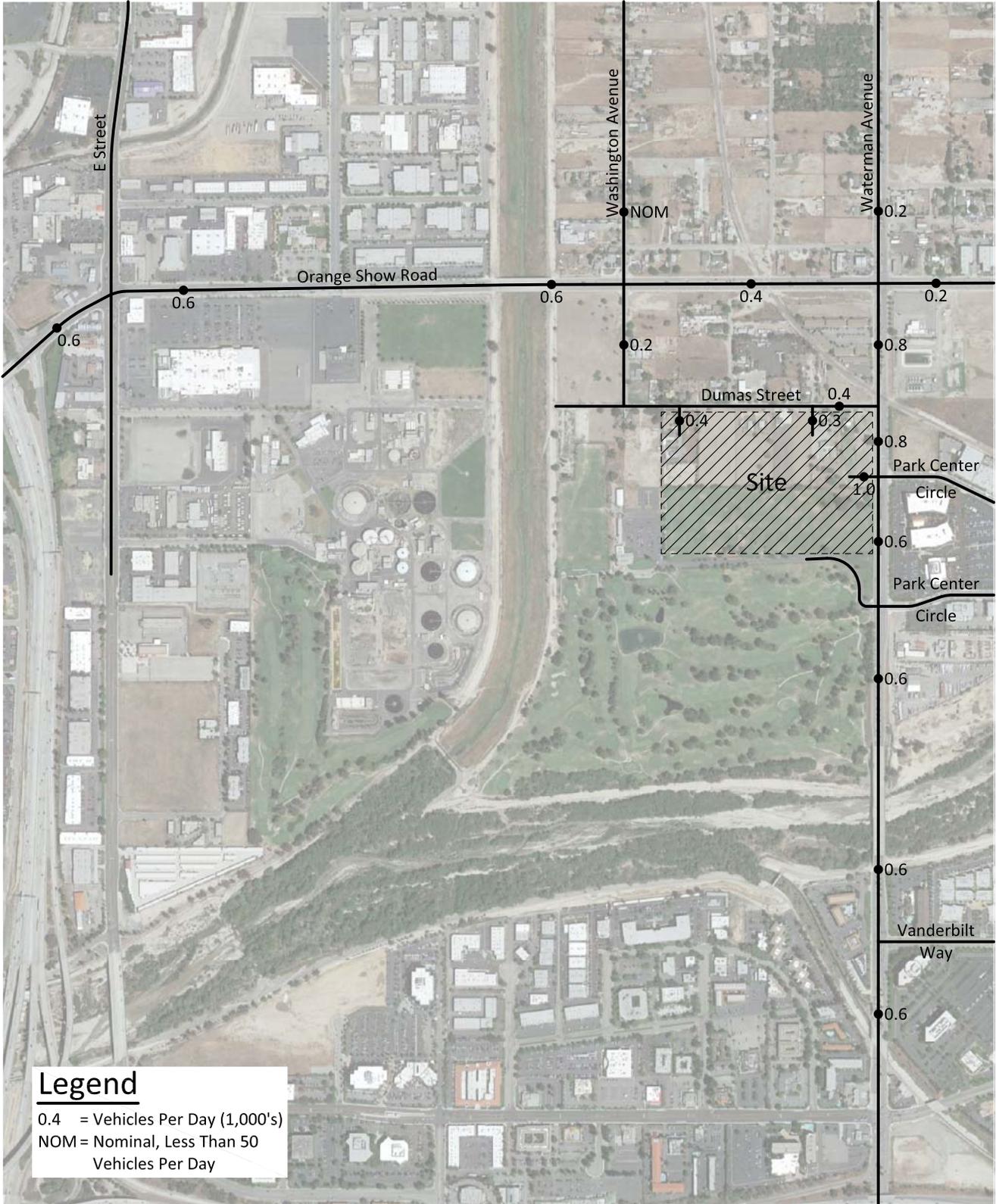


Figure 14  
 Project Average Daily Traffic Volumes

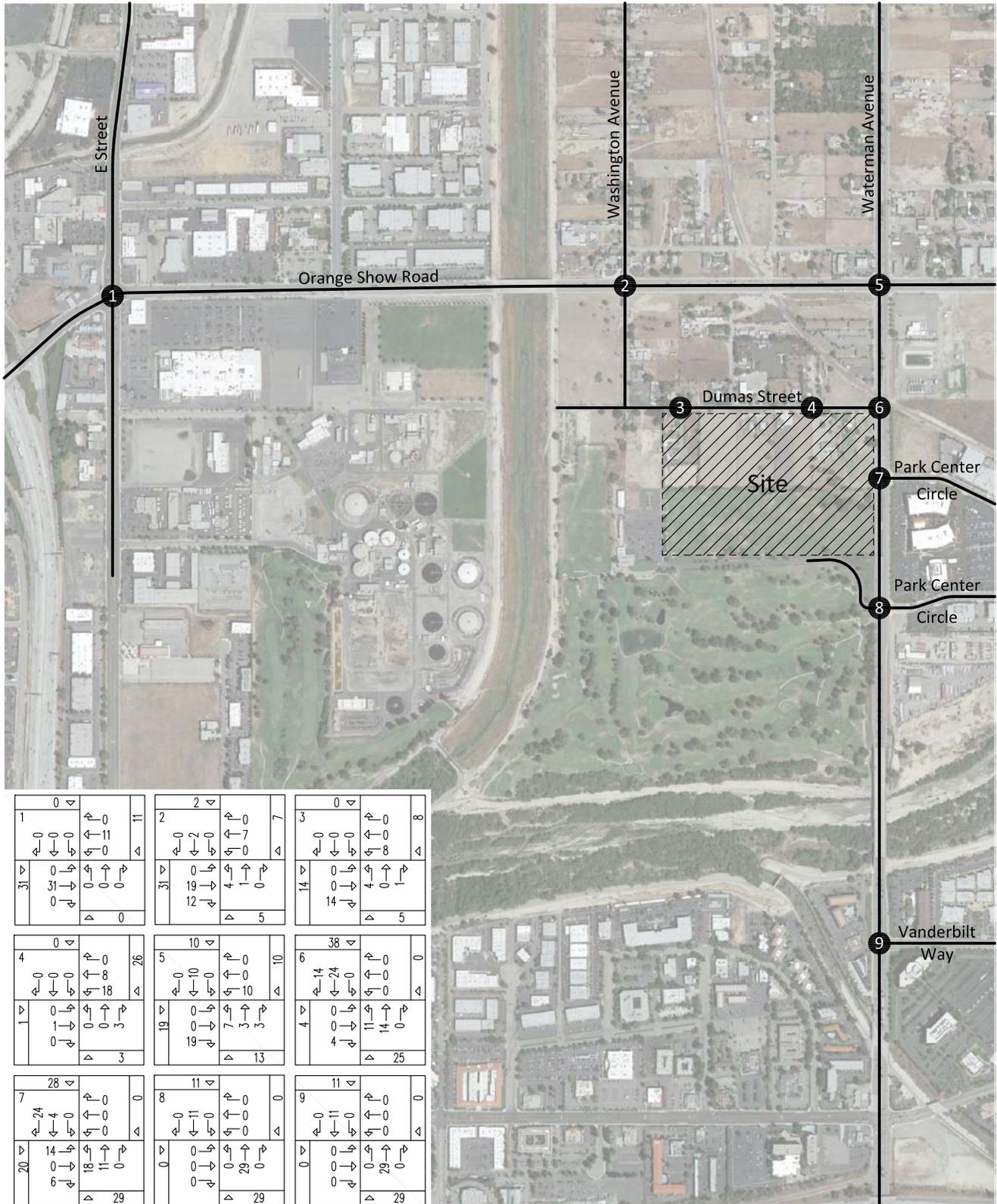


**Legend**

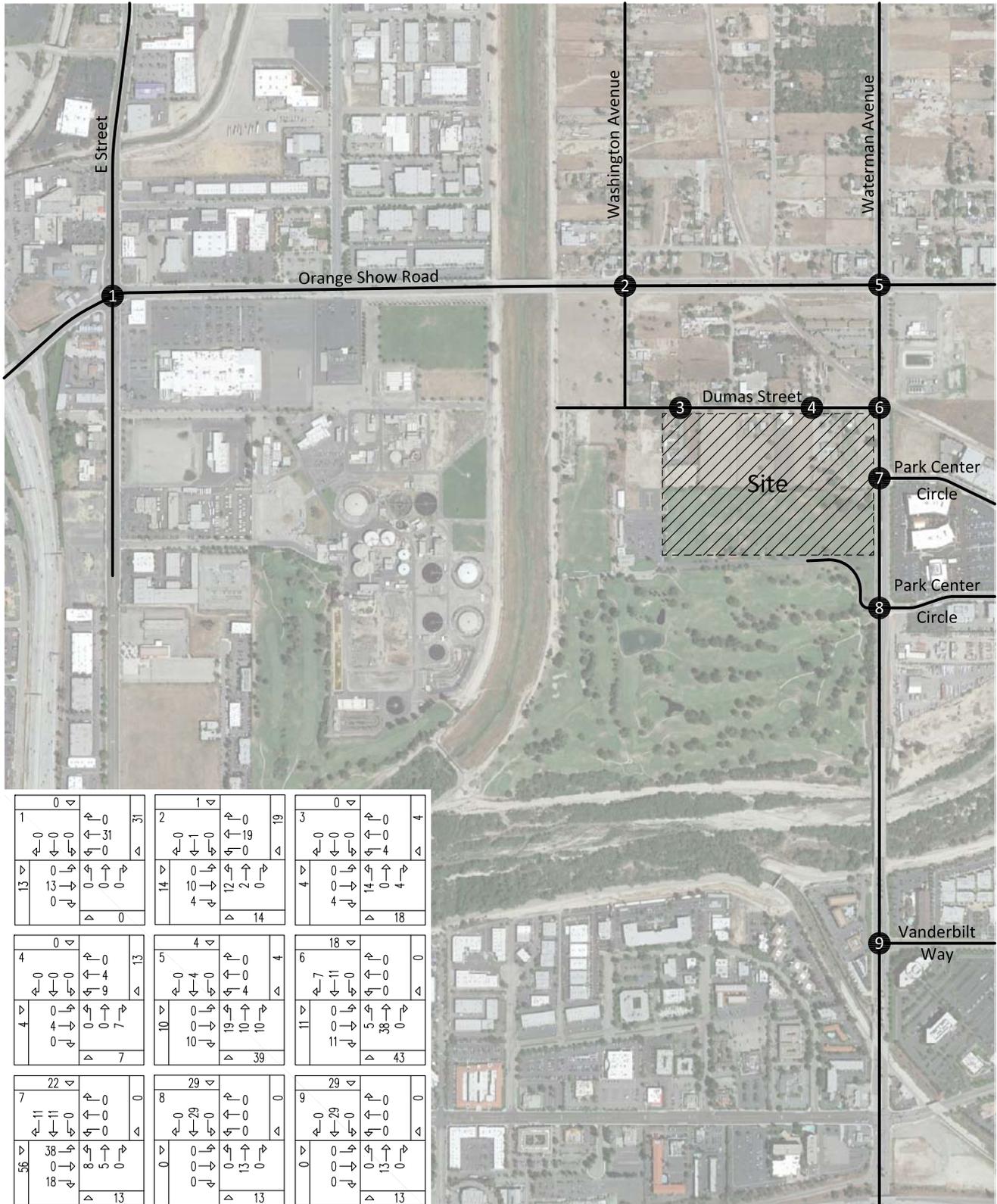
0.4 = Vehicles Per Day (1,000's)  
 NOM = Nominal, Less Than 50  
 Vehicles Per Day



# Figure 15 Project Morning Peak Hour Intersection Turning Movement Volumes



# Figure 16 Project Evening Peak Hour Intersection Turning Movement Volumes

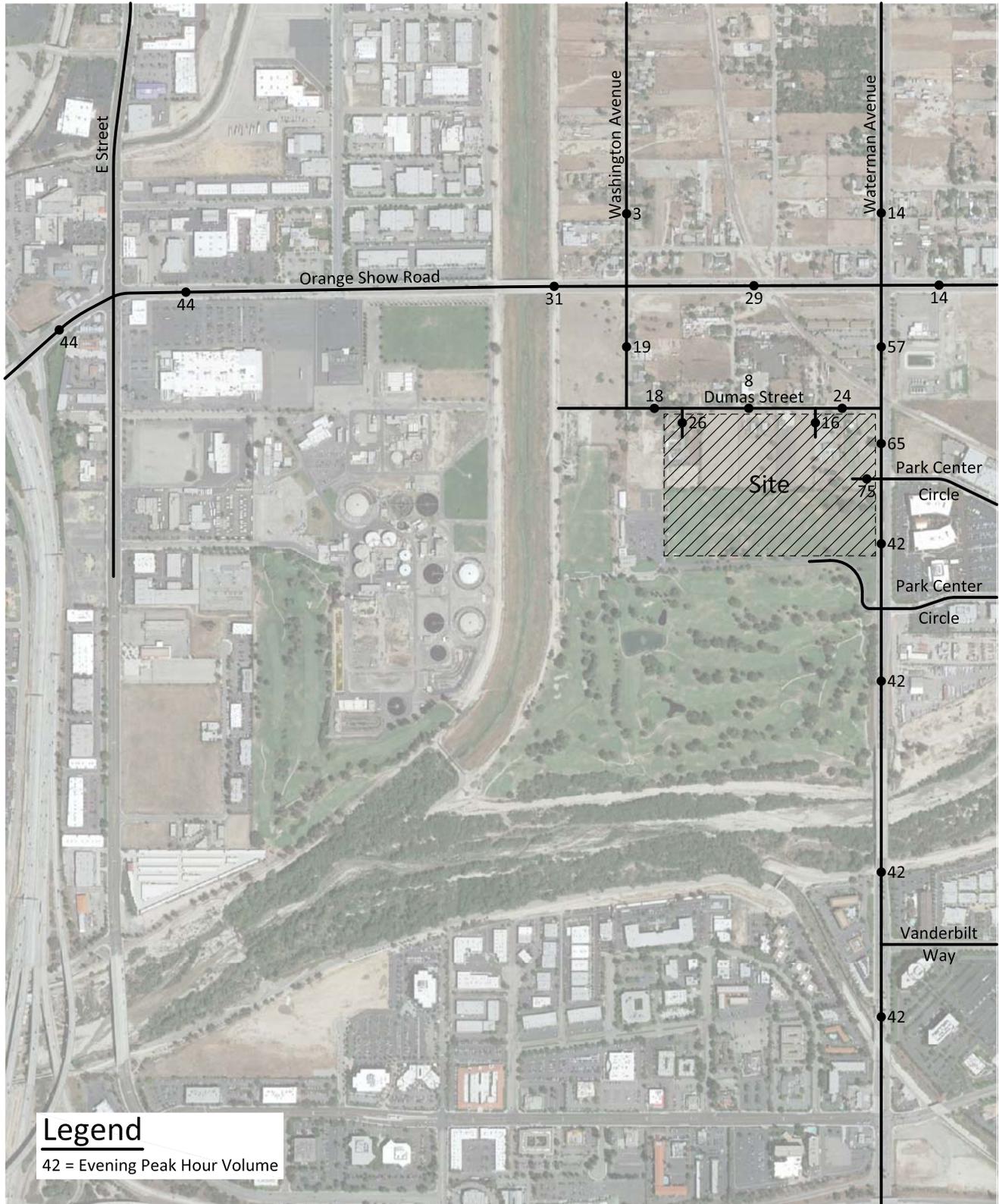


KUNZMAN ASSOCIATES, INC. Intersection reference numbers are in upper left corner of turning movement boxes.

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Figure 17  
Project Trip Contribution Test Volumes



## IV. FUTURE CONDITIONS

---

To assess future traffic conditions, existing traffic is combined with ambient growth, other development, and project traffic. The opening year for analysis purposes in this report is 2017. The horizon year is 2035.

### A. Method of Projection

#### 1. Ambient Growth Opening Year

To account for ambient growth on roadways, Opening Year (2017) traffic volumes have been interpolated from the Year 2035 traffic volumes based upon a proportion of the future growth increment from the San Bernardino Transportation Analysis Model (SBTAM) traffic model Year 2008 and Year 2035 average daily traffic volume forecasts (see Appendix D). The SBTAM traffic model plots are included in Appendix E.

#### 2. Other Development

Potential developments within 1.5 mile radius of the study area are included in the analysis if they are not currently built, they are approved, their approval has not expired, and they would contribute trips to the study area intersections.

Table 4 lists the proposed land uses for the other developments (see Figure 18), and shows the daily and peak hour vehicle trips generated by the other development in the study area.

Based on the identified trip generation and distributions, other development average daily traffic volumes have been calculated and shown on Figure 19. Figures 20 and 21 shows the other development morning and evening peak hour intersection turning movement volumes, respectively.

#### 3. Opening Year Traffic Conditions

To assess Opening Year traffic conditions, existing traffic is combined with ambient growth, and other development traffic. The opening year for analysis purposes in this report is 2017.

#### 4. Horizon Year Traffic Conditions

The average daily traffic volume forecasts have been determined using the growth increment approach on the San Bernardino Transportation Analysis Model (SBTAM) traffic model Year 2008 and Year 2035 average daily traffic volume forecasts (see Appendix D). This difference defines the growth in traffic over the 27 year period. The incremental growth in average daily traffic volume has been factored to reflect the forecast growth between Year 2015 and Year 2035. For this purpose, linear growth between the Year 2008 base condition and the forecast Year 2035 condition was

assumed. Since the increment between Year 2015 and Year 2035 is 20 years of the 27 year time frame, a factor of 0.74 (i.e., 20/27) was used.

The Year 2035 Without Project daily and peak hour directional roadway segment volume forecasts have been determined using the growth increment approach on the SBTAM traffic model Year 2008 and Year 2035 peak hour volumes. The SBTAM traffic model plots are included in Appendix E. Current peak hour intersection approach/departure data is a necessary input to this approach. The existing traffic count data serves as both the starting point for the refinement process, and also provides important insight into current travel patterns and the relationship between peak hour and daily traffic conditions. The initial turning movement proportions are estimated based upon the relationship of each approach leg's forecast traffic volume to the other legs forecast volumes at the intersection. The initial estimate of turning movement proportions is then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program Report 255. A linear programming algorithm is used to calculate individual turning movements that match the known directional roadway segment volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Project traffic volumes were then added to the Year 2035 SBTAM traffic model volumes. Quality control checks and forecast adjustments were performed as necessary to ensure that all future traffic volume forecasts reflect a minimum of 10% growth over existing traffic volumes. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

## **B. Average Daily Traffic Volumes**

### **1. Existing Plus Project**

The average daily traffic volumes for Existing Plus Project traffic conditions have been determined. Existing Plus Project average daily traffic volumes are shown on Figure 22.

### **2. Existing Plus Ambient Growth**

The average daily traffic volumes for Existing Plus Ambient Growth traffic conditions have been determined as described above using the growth interpolation process (see Section IV.A). Existing Plus Ambient Growth average daily traffic volumes are shown on Figure 23.

### **3. Opening Year (2017) Without Project**

The average daily traffic volumes for Opening Year (2017) Without Project traffic conditions have been determined as described above using the growth interpolation process (see Section IV.A). Opening Year (2017) Without Project average daily traffic volumes are shown on Figure 24.

4. Opening Year (2017) With Project

The average daily traffic volumes for Opening Year (2017) With Project traffic conditions have been determined as described above using the volume addition process (see Section IV.A). Opening Year (2017) With Project average daily traffic volumes are shown on Figure 25.

5. Year 2035 Without Project

The average daily traffic volumes for Year 2035 Without Project traffic conditions have been determined as described above using the growth increment process (see Section IV.A). Year 2035 Without Project average daily traffic volumes are shown on Figure 26.

6. Year 2035 With Project

The average daily traffic volumes for Year 2035 With Project traffic conditions have been determined as described above using the volume addition process (see Section IV.A). Year 2035 With Project average daily traffic volumes are shown on Figure 27.

**C. Intersection Level of Service**

Level of Service calculation worksheets are provided in Appendix F for all traffic condition scenarios.

1. Existing Plus Project

The Existing Plus Project delay and Level of Service for the study area roadway network are shown in Table 5. Table 5 shows delay values based on the geometrics at the study area intersections, without and with improvements. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figures 28 and 29, respectively.

As shown in Table 5, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, with improvements.

Table 6 depicts the Existing Plus Project trip contribution at the study area intersections. As shown in Table 6 for Existing Plus Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

2. Existing Plus Ambient Growth

The Existing Plus Ambient Growth (2017) delay and Level of Service for the study area roadway network without other development or the proposed project are shown in Table 7. Table 7 shows delay values based on the existing geometrics at the study area intersections. Existing Plus Ambient Growth morning and evening peak hour intersection turning movement volumes are shown on Figures 30 and 31, respectively.

As shown in Table 7, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Ambient Growth traffic conditions.

3. Opening Year (2017) Without Project

The Opening Year (2017) delay and Level of Service for the study area roadway network without the proposed project are shown in Table 8. Table 8 shows delay values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2017) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 32 and 33, respectively.

As shown in Table 8, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) Without Project traffic conditions without and with improvements.

4. Opening Year (2017) With Project

The Opening Year (2017) delay and Level of Service for the study area roadway network with the proposed project are shown in Table 9. Table 9 shows delay values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2017) With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 34 and 35, respectively.

As shown in Table 9, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, with improvements

Table 10 depicts the Opening Year (2017) With Project trip contribution at the study area intersections. As shown in Table 10 for Opening Year (2017) With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

5. Year 2035 Without Project

The Year 2035 delay and Level of Service for the study area roadway network without the proposed project are shown in Table 11. Table 11 shows delay values based on the geometrics at the study area intersections, without and with improvements. Year 2035 Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 36 and 37, respectively.

As shown in Table 11, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 Without Project traffic conditions without and with improvements.

6. Year 2035 With Project

The Year 2035 delay and Level of Service for the study area roadway network with the proposed project are shown in Table 12. Table 12 shows delay values based on the geometrics at the study area intersections, without and with improvements. Year 2035 With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 38 and 39, respectively.

As shown in Table 12, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, except for the intersection, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, with improvements.

Table 13 depicts the Year 2035 With Project trip contribution at the study area intersections. As shown in Table 13 for Year 2035 With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

**D. Future Traffic Signal Warrant Analysis**

For Existing Plus Ambient Growth traffic conditions, a traffic signal is projected to be warranted at the following study area intersection (see Appendix G):

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The unsignalized intersection has been evaluated for a traffic signal using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the California Manual of Uniform Traffic Control Devices (2014 Edition).

**E. Freeway Evaluation**

The project does not contribute trips greater than the freeway mainline threshold of 100 two-way trips.

As shown on Figure 17, the project site does not contribute (50) or more project related trips to the study area freeway ramp terminus of I-215 Freeway Ramps at Orange Show Avenue or Waterman Avenue and I-10 Freeway Ramps.

Table 4

Other Development Trip Generation<sup>1</sup>

| Project                      | Land Use                                | Quantity                                | Units <sup>2</sup> | PCE Factor <sup>3</sup> | Vehicle Percent <sup>4</sup> | Peak Hour |          |       |         |          |       | Daily |       |
|------------------------------|---|---|--------------------|-------------------------|------------------------------|-----------|----------|-------|---------|----------|-------|-------|-------|
|                              |   |   |                    |                         |                              | Morning   |          |       | Evening |          |       |       |       |
|                              |   |   |                    |                         |                              | Inbound   | Outbound | Total | Inbound | Outbound | Total |       |       |
| 1                            | Restaurant                              | 2,999                                   | TSF                | -                       | -                            | 17        | 15       | 32    | 18      | 12       | 30    | 381   |       |
|                              | Pass-by <sup>5</sup> (43% PM)           |   |                    |                         |                              |           |          |       | -8      | -5       | -13   |       |       |
|                              | Restaurant Total                        |   |                    |                         |                              | 17        | 15       | 32    | 10      | 7        | 17    | 381   |       |
| 2                            | General Light Industrial Trucks 2 Axle  |   |                    | 2.0                     | 8.00%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | General Light Industrial Trucks 3 Axle  |   |                    | 2.5                     | 3.90%                        | 1         | 0        | 1     | 0       | 1        | 1     | 5     |       |
|                              | General Light Industrial Trucks 4+ Axle |   |                    | 3.0                     | 9.50%                        | 2         | 0        | 2     | 0       | 2        | 2     | 15    |       |
|                              | General Light Industrial Truck Subtotal |   | PCE                |                         | 21.4%                        | 4         | 0        | 4     | 0       | 4        | 4     | 28    |       |
|                              | General Light Industrial Car Subtotal   |   | PCE                | 1.0                     | 78.6%                        | 5         | 1        | 6     | 1       | 5        | 6     | 41    |       |
|                              | General Light Industrial Total          | 7,500                                   | TSF                | -                       | -                            | 9         | 1        | 10    | 1       | 9        | 10    | 69    |       |
|                              | Warehouse Trucks 2 Axle                 |   |                    | 2.0                     | 5.20%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 3 Axle                 |   |                    | 2.5                     | 4.50%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 4+ Axle                |   |                    | 3.0                     | 10.00%                       | 1         | 0        | 1     | 0       | 1        | 1     | 22    |       |
|                              | Warehouse Truck Subtotal                |   | PCE                |                         | 19.7%                        | 3         | 0        | 3     | 0       | 3        | 3     | 38    |       |
|                              | Warehouse Car Subtotal                  |   | PCE                | 1.0                     | 80.3%                        | 4         | 1        | 5     | 1       | 4        | 5     | 59    |       |
|                              | Warehouse Total                         | 20,600                                  | TSF                | -                       | -                            | 7         | 1        | 8     | 1       | 7        | 8     | 97    |       |
|                              | Industrial/Warehouse Total              | 28,100                                  | TSF                | -                       | -                            | 16        | 2        | 18    | 2       | 16       | 18    | 166   |       |
| 3                            | DP-D15-03                               | Recreational Facility                   | 33,600             | TSF                     | -                            | -         | 45       | 24    | 69      | 45       | 47    | 92    | 1,136 |
| 4                            | TPM 19573                               | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 18        | 8        | 26    | 9       | 20       | 29    | 401   |       |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     |                              | 26        | 12       | 38    | 13      | 28       | 41    | 575   |       |
|                              |   | High-Cube Warehouse Total <sup>5</sup>  | 430,000            | TSF                     | -                            | -         | 44       | 20    | 64      | 22       | 48    | 70    | 976   |
| 5                            | DP-D13-08                               | General Light Industrial Trucks 2 Axle  |                    |                         | 2.0                          | 8.00%     | 1        | 0     | 1       | 0        | 1     | 1     | 8     |
|                              |   | General Light Industrial Trucks 3 Axle  |                    |                         | 2.5                          | 3.90%     | 1        | 0     | 1       | 0        | 1     | 1     | 5     |
|                              |   | General Light Industrial Trucks 4+ Axle |                    |                         | 3.0                          | 9.50%     | 2        | 0     | 2       | 0        | 2     | 2     | 15    |
|                              |   | General Light Industrial Truck Subtotal |                    | PCE                     |                              | 21.4%     | 4        | 0     | 4       | 0        | 4     | 4     | 28    |
|                              |   | General Light Industrial Car Subtotal   |                    | PCE                     | 1.0                          | 78.6%     | 5        | 1     | 6       | 1        | 5     | 6     | 41    |
|                              |   | General Light Industrial Total          | 9,490              | TSF                     | -                            | -         | 9        | 1     | 10      | 1        | 9     | 10    | 69    |
|                              |   | Automobile Care Center                  | 9,000              | TSF                     | -                            | -         | 13       | 7     | 20      | 13       | 15    | 28    | 213   |
| Total                        | 18,490                                  | TSF                                     | -                  | -                       | 22                           | 8         | 30       | 14    | 24      | 38       | 282   |       |       |
| 6                            | TPM 19487                               | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 51        | 23       | 73    | 25      | 55       | 80    | 1118  |       |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     |                              | 72        | 33       | 105   | 36      | 79       | 115   | 1603  |       |
|                              |   | High-Cube Warehouse Total <sup>6</sup>  | 1,199,360          | TSF                     | -                            | -         | 123      | 55    | 178     | 60       | 134   | 194   | 2,722 |
| 7                            | DP-D14-17                               | Restaurant                              | 11,300             | TSF                     | -                            | -         | 67       | 55    | 122     | 67       | 45    | 111   | 1,437 |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -29      | -19   | -48   |       |
|                              |   | Restaurant Total                        |                    |                         |                              |           | 67       | 55    | 122     | 38       | 26    | 63    | 1,437 |
| 8                            | CUP-15-06                               | Restaurant                              | 3,999              | TSF                     | -                            | -         | 24       | 19    | 43      | 23       | 16    | 39    | 508   |
|                              |   | Pass-by <sup>7</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -10      | -7    | -17   |       |
|                              |   | Restaurant Total                        |                    |                         |                              |           | 24       | 19    | 43      | 13       | 9     | 22    | 508   |
| 9                            | ADP15-02                                | Supermarket Market                      | 29,000             | TSF                     | -                            | -         | 62       | 37    | 99      | 140      | 135   | 275   | 2,965 |
|                              |   | Pass-by <sup>7</sup> (36% PM)           |                    |                         |                              |           |          |       |         | -50      | -49   | -99   |       |
|                              |   | Supermarket Market Total                |                    |                         |                              |           | 62       | 37    | 99      | 90       | 86    | 176   | 2,965 |
| 10                           | CUP-13-26                               | Convenience Market with Gas Pumps       | 3,050              | TSF                     | -                            | -         | 63       | 62    | 125     | 77       | 78    | 155   | 2,579 |
|                              |   | Pass-by <sup>7</sup> (63% am & 66% PM)  |                    |                         |                              |           |          |       |         | -40      | -39   | -79   |       |
|                              |   | Conv Market w Gas Pumps Total           |                    |                         |                              |           | 23       | 23    | 46      | 26       | 27    | 53    | 2,579 |
|                              |   | Restaurant                              | 2,000              | TSF                     | -                            | -         | 12       | 10    | 22      | 12       | 8     | 20    | 254   |
|                              |   | Pass-by <sup>7</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -5       | -3    | -9    |       |
| Restaurant Total             |   |   |                    |                         | 12                           | 10        | 22       | 7     | 5       | 11       | 254   |       |       |
| Conv Market/Restaurant Total |   |   |                    |                         | 35                           | 33        | 68       | 33    | 32      | 64       | 2,833 |       |       |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 110, 150, 152, 495, 850, 853, 932 and 942.

<sup>2</sup> TSF = Thousand Square Feet; PCE = Passenger Car Equivalent.

<sup>3</sup> Source: City of San Bernardino Development Services Department, Traffic Impact Study Guidelines, June 2015.

<sup>4</sup> Source: City of Fontana Truck Trip Generation Study, August 2003.

<sup>5</sup> Source: Waterman Avenue High Cube Warehouse Traffic Impact Analysis, by Urban Crossroads, dated September 5, 2014..

<sup>6</sup> Source: Alliance California Gateway South Building 3 Traffic Impact Analysis, by Urban Crossroads, dated November 21, 2013.

<sup>7</sup> Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Passby percentages for 850, 853 and 932.

Table 5

Existing Plus Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 22.6               | C                | 0.408            | 26.2               | C                | 0.714            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 19.4               | B                | 0.322            | 17.4               | B                | 0.415            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.8                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 21.1               | C                | 0.548            | 27.1               | C                | 0.733            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <b>1</b> | 0         | 0   | 0  | 20.9               | C                | N/A              | 24.6               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 67.3               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b> <sup>6</sup>       | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 6.4                | A                | 0.392            | 5.8                | A                | 0.408            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 3.7                | A                | 0.604            | 9.0                | A                | 0.496            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | <1>        | 0        | 1.5       | 0.5 | 1  | 16.6               | B                | 0.631            | 21.5               | C                | 0.792            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

<sup>6</sup> **Bold** = Improvements to be constructed by the project.

**Table 6**

**Existing Plus Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Existing Plus Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|----------|------------------|------------------|-----------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                 | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 22.4     | C                | 0.398            | 22.6                  | C                | 0.408            | +0.010         | No                                 |
|  |              |                              | Evening   | 26.1     | C                | 0.710            | 26.2                  | C                | 0.714            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 19.1     | B                | 0.307            | 19.4                  | B                | 0.322            | +0.015         | No                                 |
|  |              |                              | Evening   | 17.1     | B                | 0.386            | 17.4                  | B                | 0.415            | +0.029         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS 6                        | Morning   | 0.0      | 0.0              | N/A              | 8.8                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.8                   | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS 6                        | Morning   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 20.6     | C                | 0.525            | 21.1                  | C                | 0.548            | +0.023         | No                                 |
|  |              |                              | Evening   | 26.1     | C                | 0.717            | 27.1                  | C                | 0.733            | +0.016         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 19.8     | C                | N/A              | 20.9                  | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 20.8     | C                | N/A              | 24.6                  | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 20.8     | C                | N/A              | 67.3                  | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 19.0     | C                | N/A              | 99.9                  | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 3.6      | A                | 0.412            | 3.7                   | A                | 0.604            | +0.192         | No                                 |
|  |              |                              | Evening   | 8.9      | A                | 0.487            | 9.0                   | A                | 0.496            | +0.009         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 16.4     | B                | 0.632            | 16.6                  | B                | 0.631            | -0.001         | No                                 |
|  |              |                              | Evening   | 21.0     | C                | 0.786            | 21.5                  | C                | 0.792            | +0.006         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

**Table 7**

**Existing Plus Ambient Growth Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 22.6               | C                | 0.409            | 26.4               | C                | 0.723            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 19.5               | B                | 0.313            | 17.4               | B                | 0.407            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 20.8               | C                | 0.532            | 26.9               | C                | 0.732            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 20.5               | C                | N/A              | 24.5               | C                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   |                              |  |     |     |            |     |     |           |     |     |           |     |    |                    |                  |                  |                    |                  |                  |
| Without Improvements                                     |              | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 21.2               | C                | N/A              | 19.7               | C                | N/A              |
| With Improvements  |              | <b>TS</b> <sup>5</sup>       | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 4.1                | A                | 0.321            | 4.0                | A                | 0.437            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 3.8                | A                | 0.606            | 9.4                | A                | 0.502            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 16.7               | B                | 0.643            | 22.4               | C                | 0.825            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 [Highway Capacity Manual](#), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> Traffic signal is projected to be warranted.

Table 8

Opening Year 2017 Without Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 22.6               | C                | 0.434            | 27.5               | C                | 0.731            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 20.0               | B                | 0.331            | 17.7               | B                | 0.415            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 21.3               | C                | 0.554            | 29.5               | C                | 0.768            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 21.4               | C                | N/A              | 22.9               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 22.7               | C                | N/A              | 20.6               | C                | N/A              |
| With Improvements  |              | <b>TS</b>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 4.1                | A                | 0.343            | 4.0                | A                | 0.459            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 3.8                | A                | 0.626            | 9.4                | A                | 0.522            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | <1> | 0   | 1.5       | 0.5 | 1  | 17.9               | B                | 0.667            | 22.4               | C                | 0.834            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

Table 9

Opening Year 2017 With Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 22.9               | C                | 0.444            | 27.8               | C                | 0.736            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 20.3               | C                | 0.345            | 18.1               | B                | 0.449            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.8                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 21.9               | C                | 0.578            | 30.7               | C                | 0.786            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <b>1</b> | 0         | 0   | 0  | 22.6               | C                | N/A              | 23.8               | C                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   | CSS                          | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 87.0               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| Without Improvements                                     |              |                              | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 87.0               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b> <sup>6</sup>       | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 5.6                | A                | 0.476            | 7.5                | A                | 0.581            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 3.8                | A                | 0.642            | 9.6                | A                | 0.533            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | <1>        | 0        | 1.5       | 0.5 | 1  | 18.1               | B                | 0.666            | 22.9               | C                | 0.840            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

<sup>6</sup> **Bold** = Improvements to be constructed by the project.

**Table 10**

**Opening Year 2017 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Opening Year 2017 |                  |                  | Opening Year 2017 With Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|-------------------|------------------|------------------|--------------------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay             | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                          | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 22.6              | C                | 0.434            | 22.9                           | C                | 0.444            | +0.010         | No                                 |
|  |              |                              | Evening   | 27.5              | C                | 0.731            | 27.8                           | C                | 0.736            | +0.005         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 20.0              | B                | 0.331            | 20.3                           | C                | 0.345            | +0.014         | No                                 |
|  |              |                              | Evening   | 17.7              | B                | 0.415            | 18.1                           | B                | 0.449            | +0.034         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS 6                        | Morning   | 0.0               | 0.0              | N/A              | 8.8                            | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0               | 0.0              | N/A              | 8.8                            | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS 6                        | Morning   | 0.0               | 0.0              | N/A              | 8.4                            | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0               | 0.0              | N/A              | 8.4                            | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 21.3              | C                | 0.554            | 21.9                           | C                | 0.578            | +0.024         | No                                 |
|  |              |                              | Evening   | 29.5              | C                | 0.768            | 30.7                           | C                | 0.786            | +0.018         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 21.4              | C                | N/A              | 22.6                           | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 22.9              | C                | N/A              | 23.8                           | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 22.7              | C                | N/A              | 87.0                           | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 20.6              | C                | N/A              | 99.9                           | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 3.8               | A                | 0.626            | 3.8                            | A                | 0.642            | +0.016         | No                                 |
|  |              |                              | Evening   | 9.4               | A                | 0.522            | 9.6                            | A                | 0.533            | +0.011         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 17.9              | B                | 0.667            | 18.1                           | B                | 0.666            | -0.001         | No                                 |
|  |              |                              | Evening   | 22.4              | C                | 0.834            | 22.9                           | C                | 0.840            | +0.006         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 11

Year 2035 Without Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 23.3               | C                | 0.500            | 31.8               | C                | 0.807            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 19.5               | B                | 0.346            | 17.4               | B                | 0.547            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 22.1               | C                | 0.614            | 36.2               | D                | 0.824            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 23.1               | C                | N/A              | 28.0               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 22.8               | C                | N/A              | 24.7               | C                | N/A              |
| With Improvements  |              | <b>TS</b>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 3.8                | A                | 0.336            | 4.3                | A                | 0.512            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 5.7                | A                | 0.713            | 11.7               | B                | 0.596            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | <1> | 0   | 1.5       | 0.5 | 1  | 20.0               | C                | 0.720            | 34.2               | C                | 0.977            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

Table 12

Year 2035 With Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 23.1               | C                | 0.511            | 32.2               | C                | 0.811            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 19.9               | B                | 0.359            | 17.1               | B                | 0.643            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b> <sup>6</sup>      | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 22.9               | C                | 0.643            | 38.0               | D                | 0.832            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <b>1</b> | 0         | 0   | 0  | 24.3               | C                | N/A              | 29.1               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 99.9 <sup>5</sup>  | F                | N/A              | 99.9               | F                | N/A              |
| With Improvements  |              | <b>TS</b> <sup>6</sup>       | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 5.4                | A                | 0.432            | 8.1                | A                | 0.953            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 5.8                | A                | 0.715            | 11.8               | B                | 0.605            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | <1>        | 0        | 1.5       | 0.5 | 1  | 20.1               | C                | 0.720            | 34.3               | C                | 0.981            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. For a de facto right turn lane ( d ) to function as a right turn lane, there must be sufficient width for right turning vehicles to pass on the right of the through travel lanes. L = Left; T = Through; R = Right; d = De Facto Right Turn Lane, <1> = Shared Left, Through & Right Lane, **Bold** = Improvement.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay and level of service has been calculated using the following analysis software: Vistro, Version 4.00-00. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

<sup>6</sup> **Bold** = Improvements to be constructed by the project.

**Table 13**

**Year 2035 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Year 2035 |                  |                  | Year 2035 With Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|-----------|------------------|------------------|------------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay     | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                  | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 23.3      | C                | 0.500            | 23.1                   | C                | 0.511            | +0.011         | No                                 |
|  |              |                              | Evening   | 31.8      | C                | 0.807            | 32.2                   | C                | 0.811            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 19.5      | B                | 0.346            | 19.9                   | B                | 0.359            | +0.013         | No                                 |
|  |              |                              | Evening   | 17.4      | B                | 0.547            | 17.1                   | B                | 0.643            | +0.096         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS 6                        | Morning   | 0.0       | 0.0              | N/A              | 8.8                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.9                    | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS 6                        | Morning   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 22.1      | C                | 0.614            | 22.9                   | C                | 0.643            | +0.029         | No                                 |
|  |              |                              | Evening   | 36.2      | D                | 0.824            | 38.0                   | D                | 0.832            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 23.1      | C                | N/A              | 24.3                   | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 28.0      | D                | N/A              | 29.1                   | D                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 22.8      | C                | N/A              | 99.9                   | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 24.7      | C                | N/A              | 99.9                   | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 5.7       | A                | 0.713            | 5.8                    | A                | 0.715            | +0.002         | No                                 |
|  |              |                              | Evening   | 11.7      | B                | 0.596            | 11.8                   | B                | 0.605            | +0.009         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 20.0      | C                | 0.720            | 20.1                   | C                | 0.720            | +0.000         | No                                 |
|  |              |                              | Evening   | 34.2      | C                | 0.977            | 34.3                   | C                | 0.981            | +0.004         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

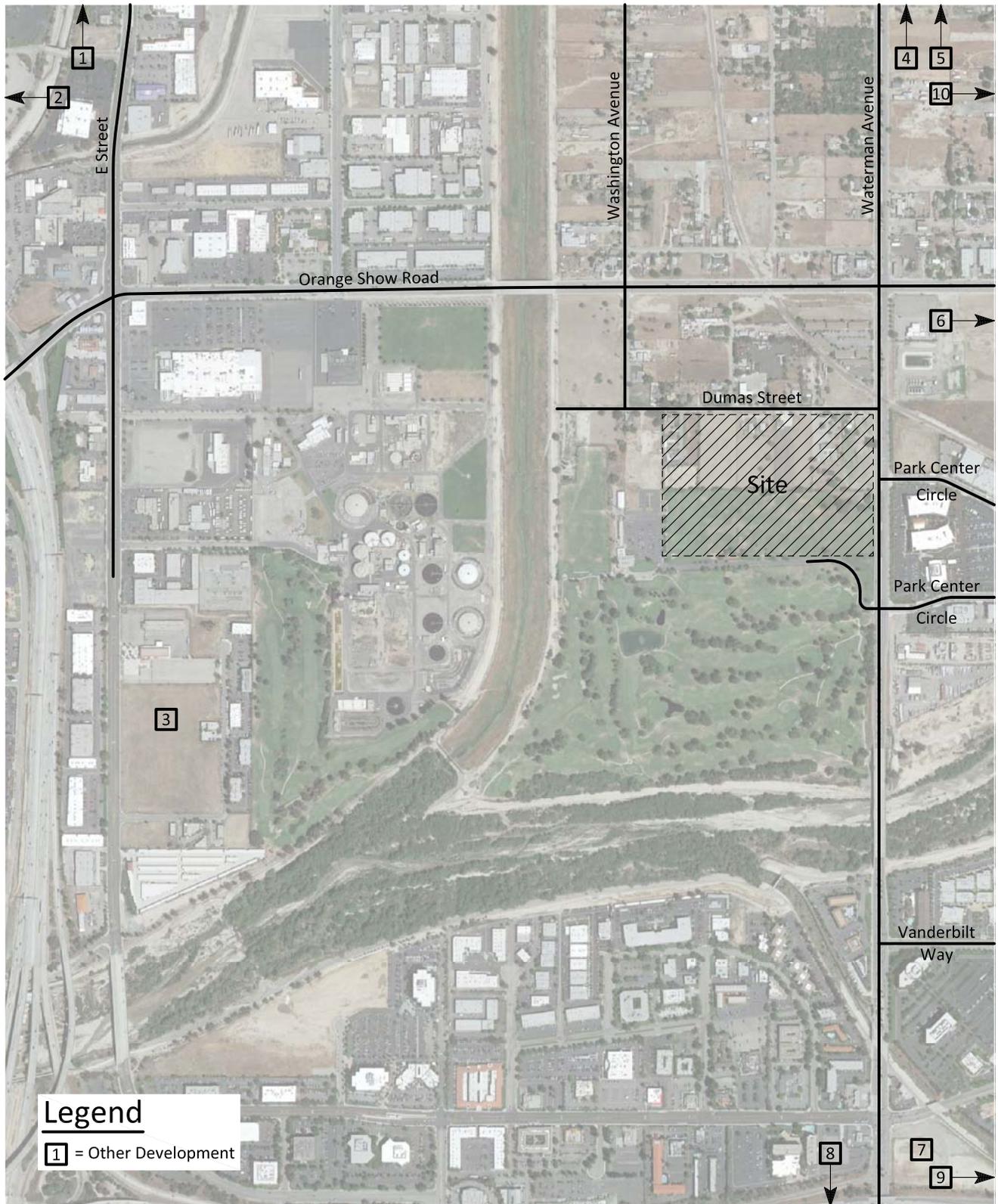
<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Figure 18  
Other Development Location Map

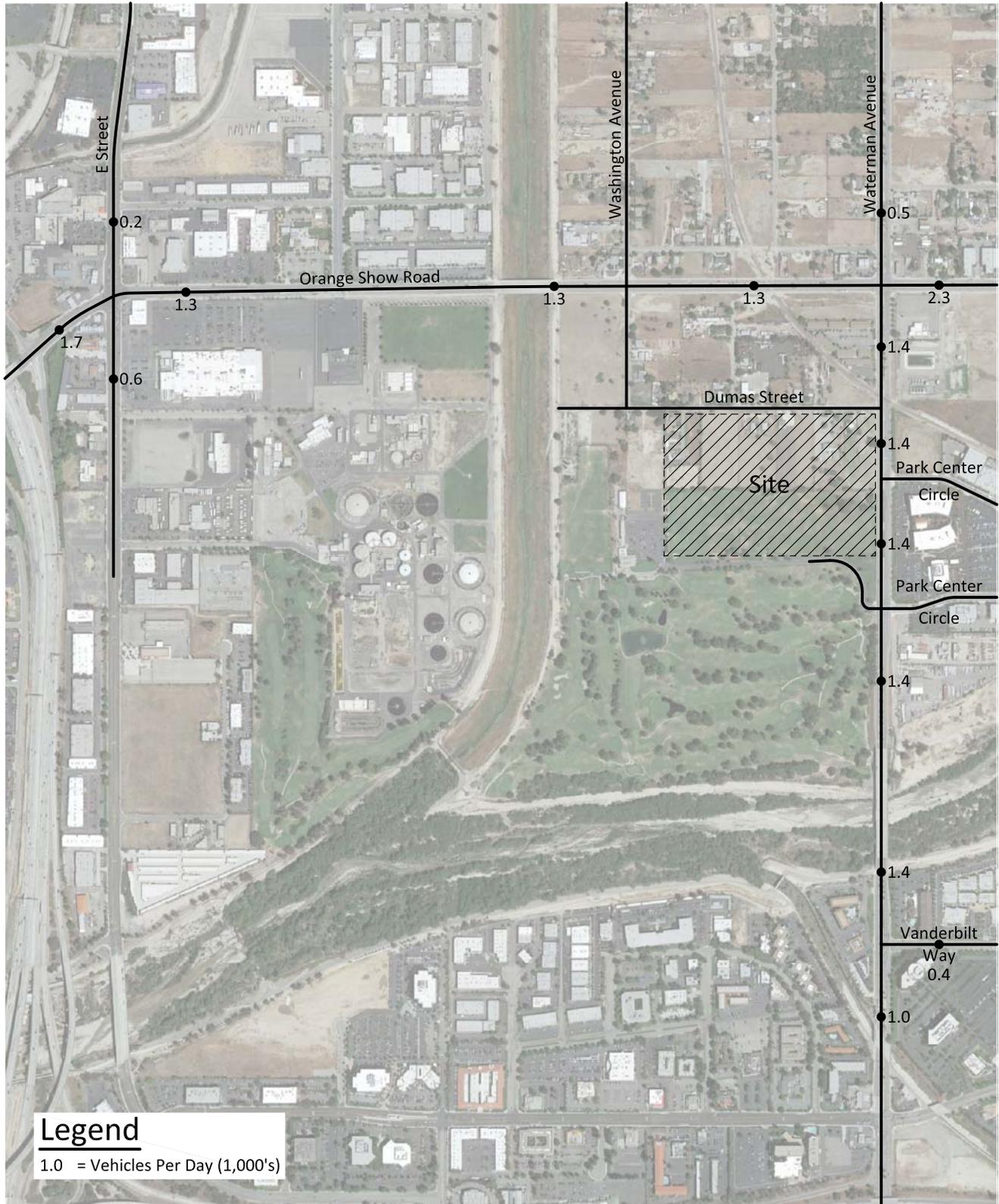


**Legend**

1 = Other Development



Figure 19  
Other Development Average Daily Traffic Volumes



**Legend**

1.0 = Vehicles Per Day (1,000's)



Figure 20  
Other Development  
Morning Peak Hour Intersection Turning Movement Volumes

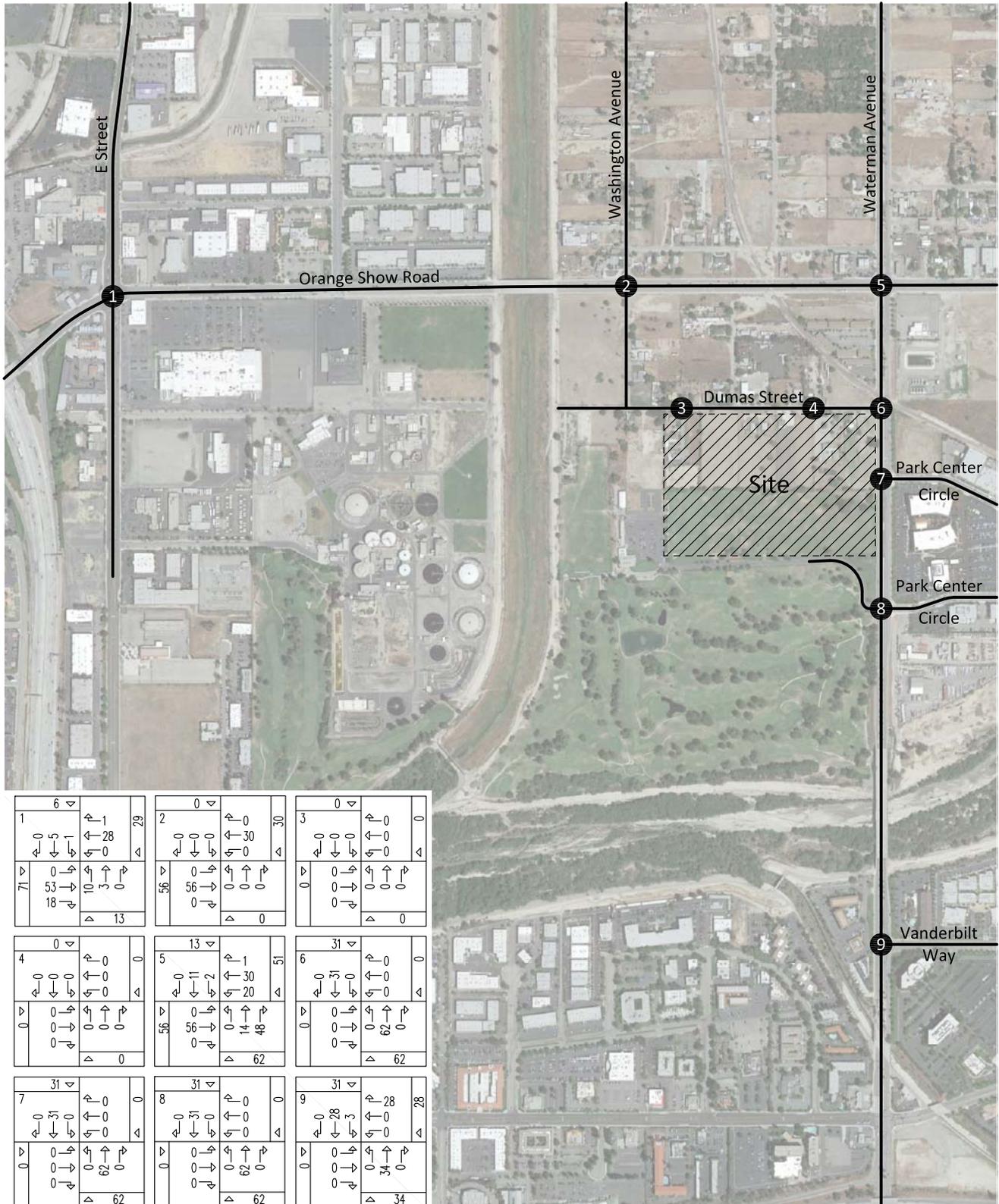


Figure 21  
Other Development  
Evening Peak Hour Intersection Turning Movement Volumes

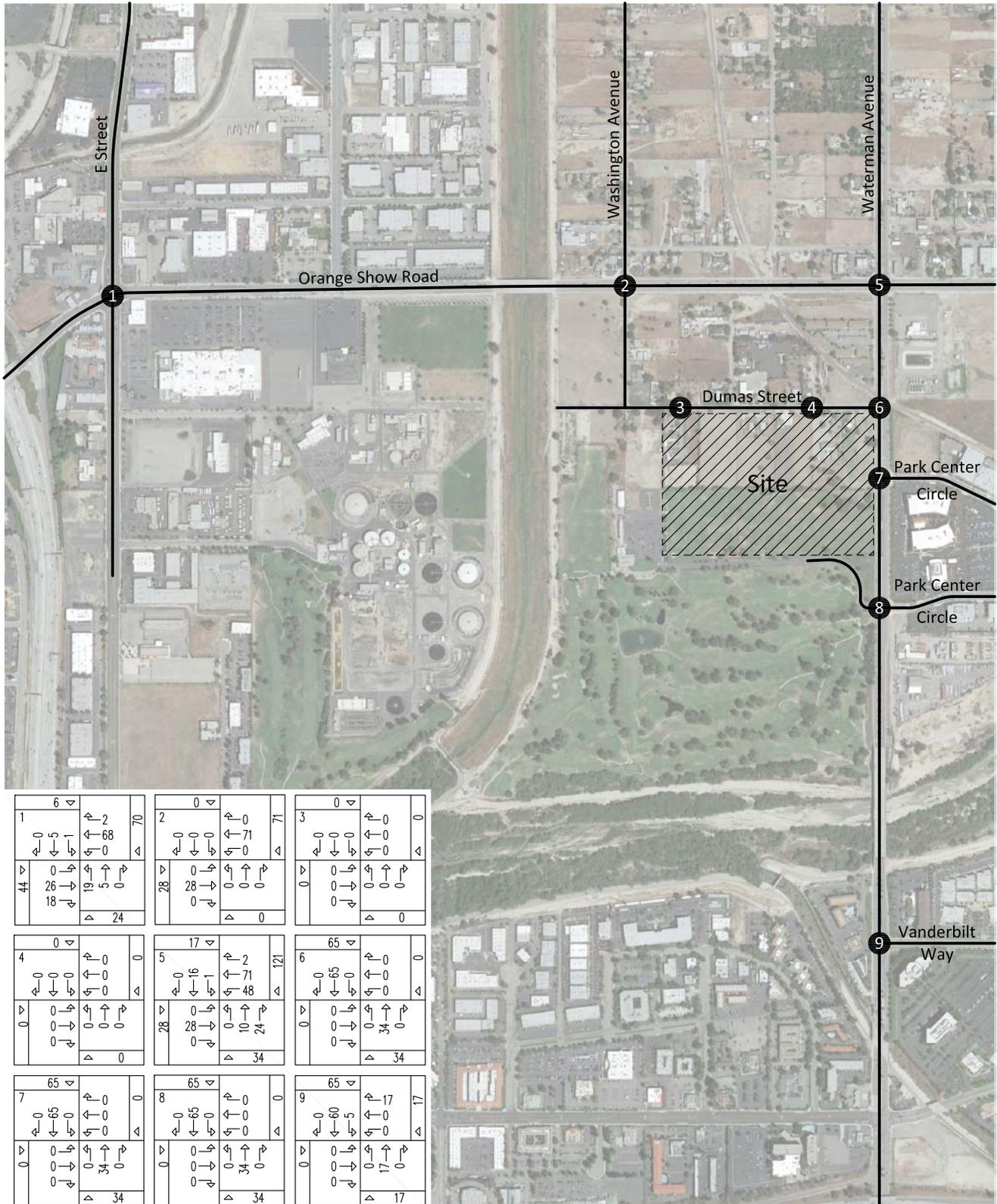
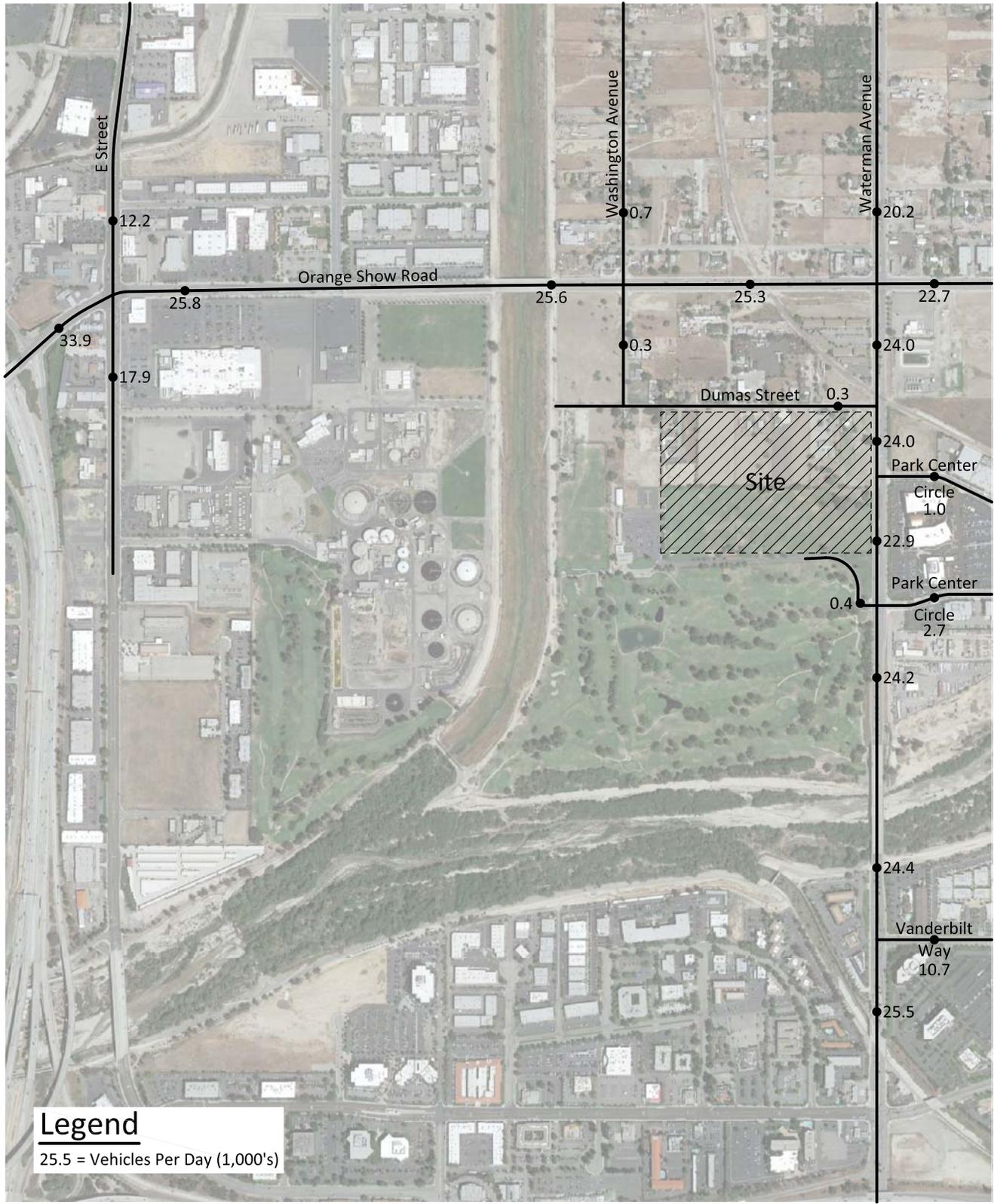


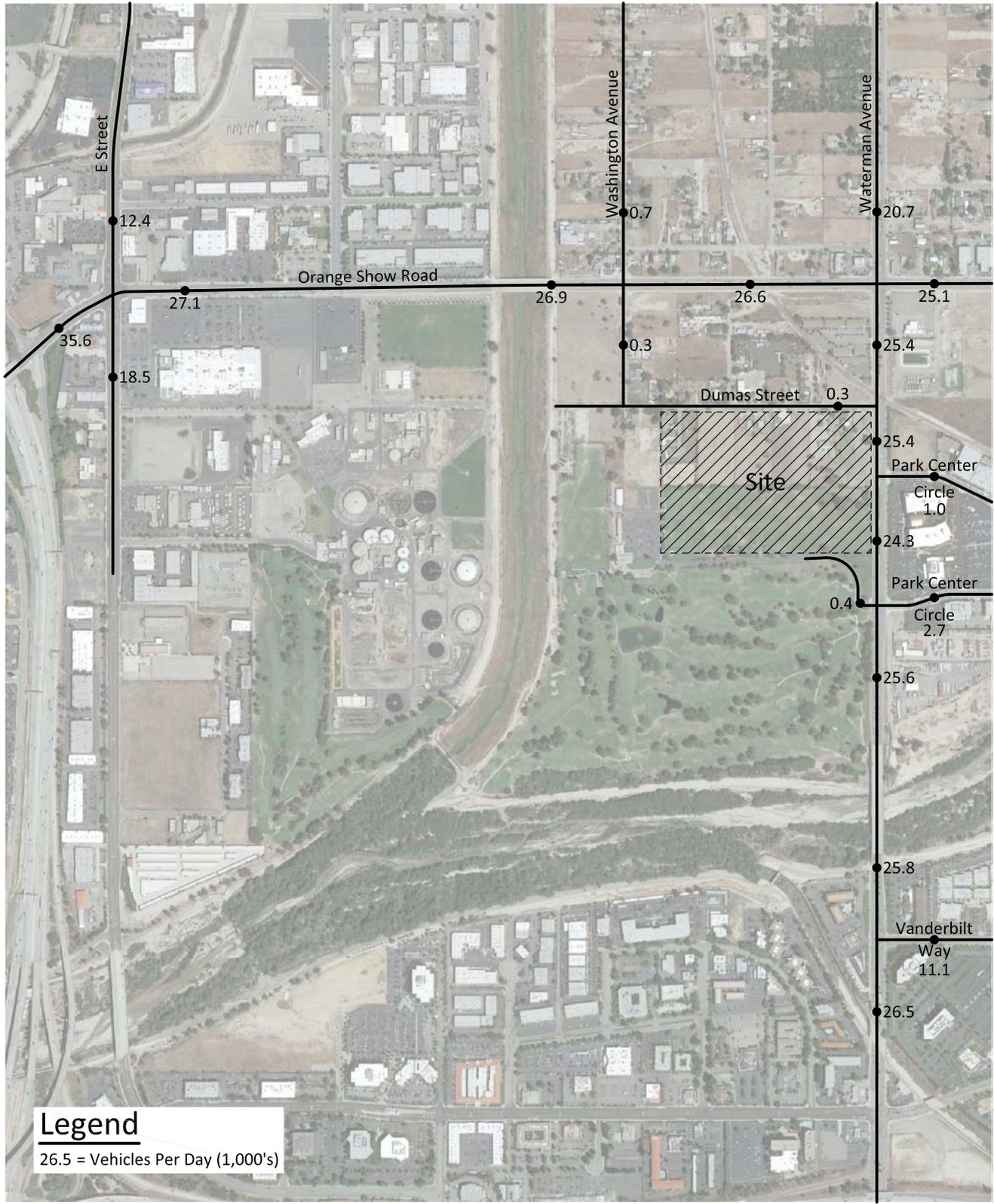


Figure 23  
Existing Plus Ambient Growth Average Daily Traffic Volumes



**Legend**  
25.5 = Vehicles Per Day (1,000's)

Figure 24  
 Opening Year (2017) Without Project Average Daily Traffic Volumes



**Legend**  
 26.5 = Vehicles Per Day (1,000's)



Figure 26  
 Year 2035 Without Project Average Daily Traffic Volumes

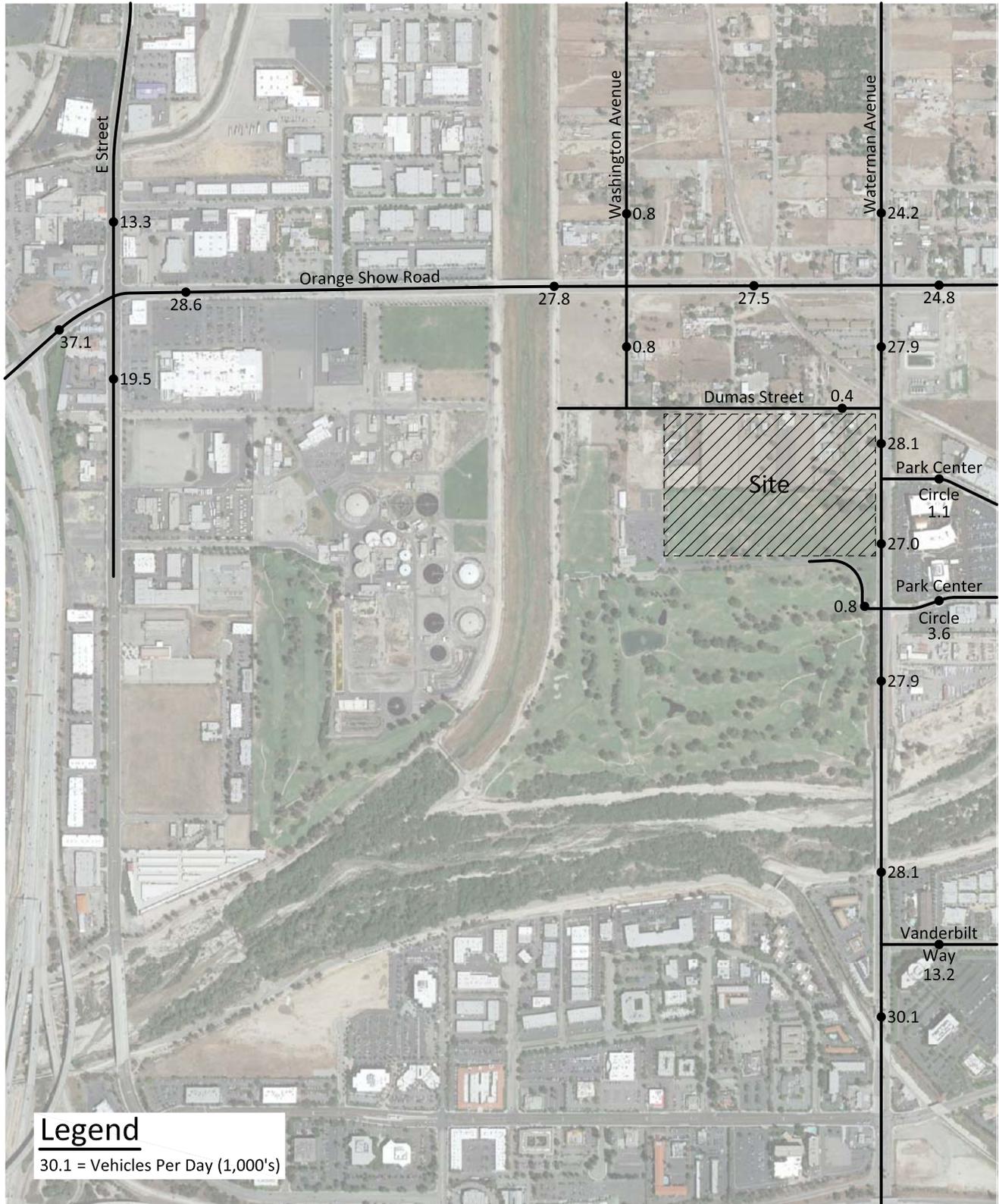
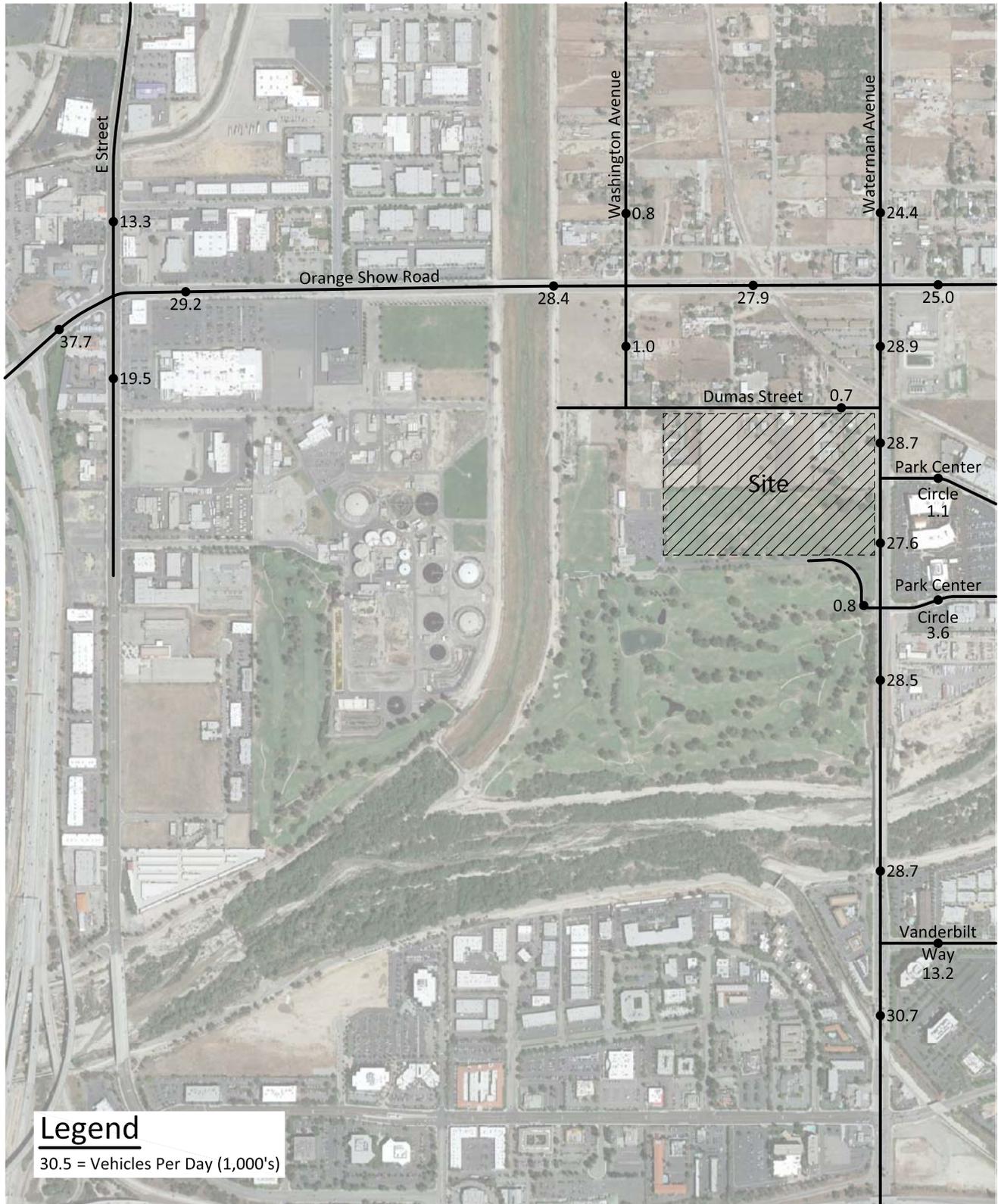


Figure 27  
 Year 2035 With Project Average Daily Traffic Volumes



**Legend**  
 30.5 = Vehicles Per Day (1,000's)

**Figure 28**  
**Existing Plus Project**  
**Morning Peak Hour Intersection Turning Movement Volumes**

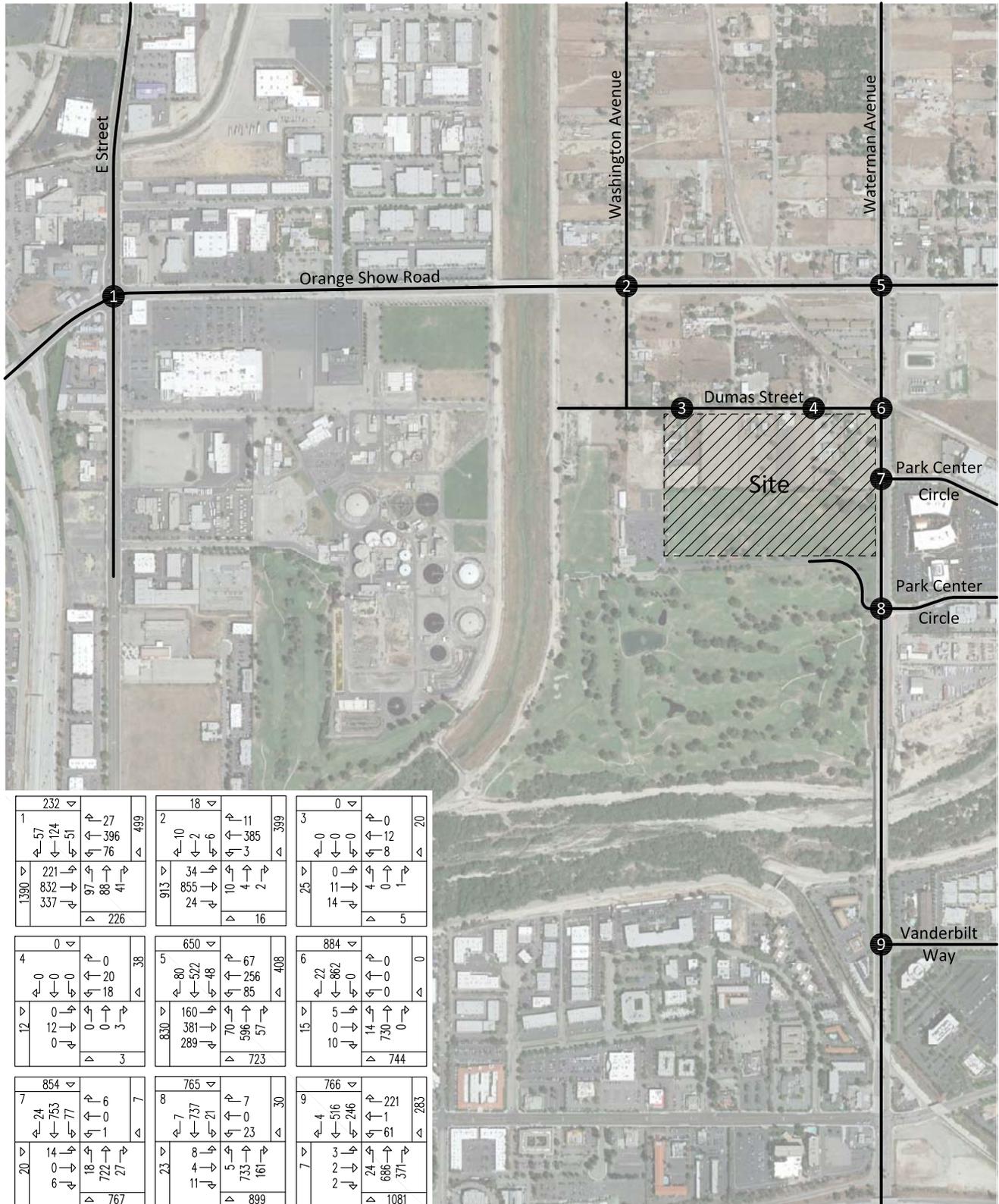
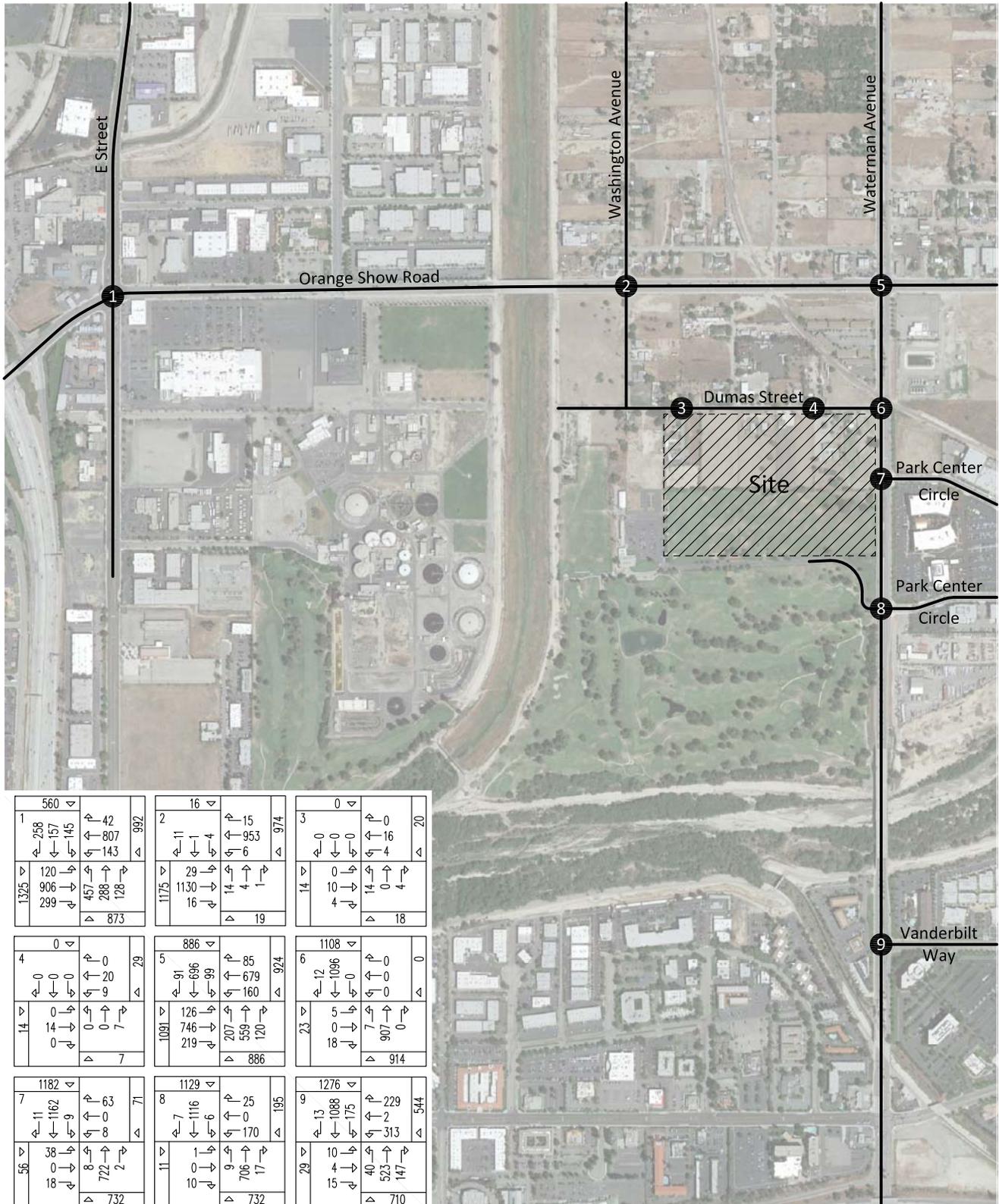


Figure 29  
Existing Plus Project  
Evening Peak Hour Intersection Turning Movement Volumes

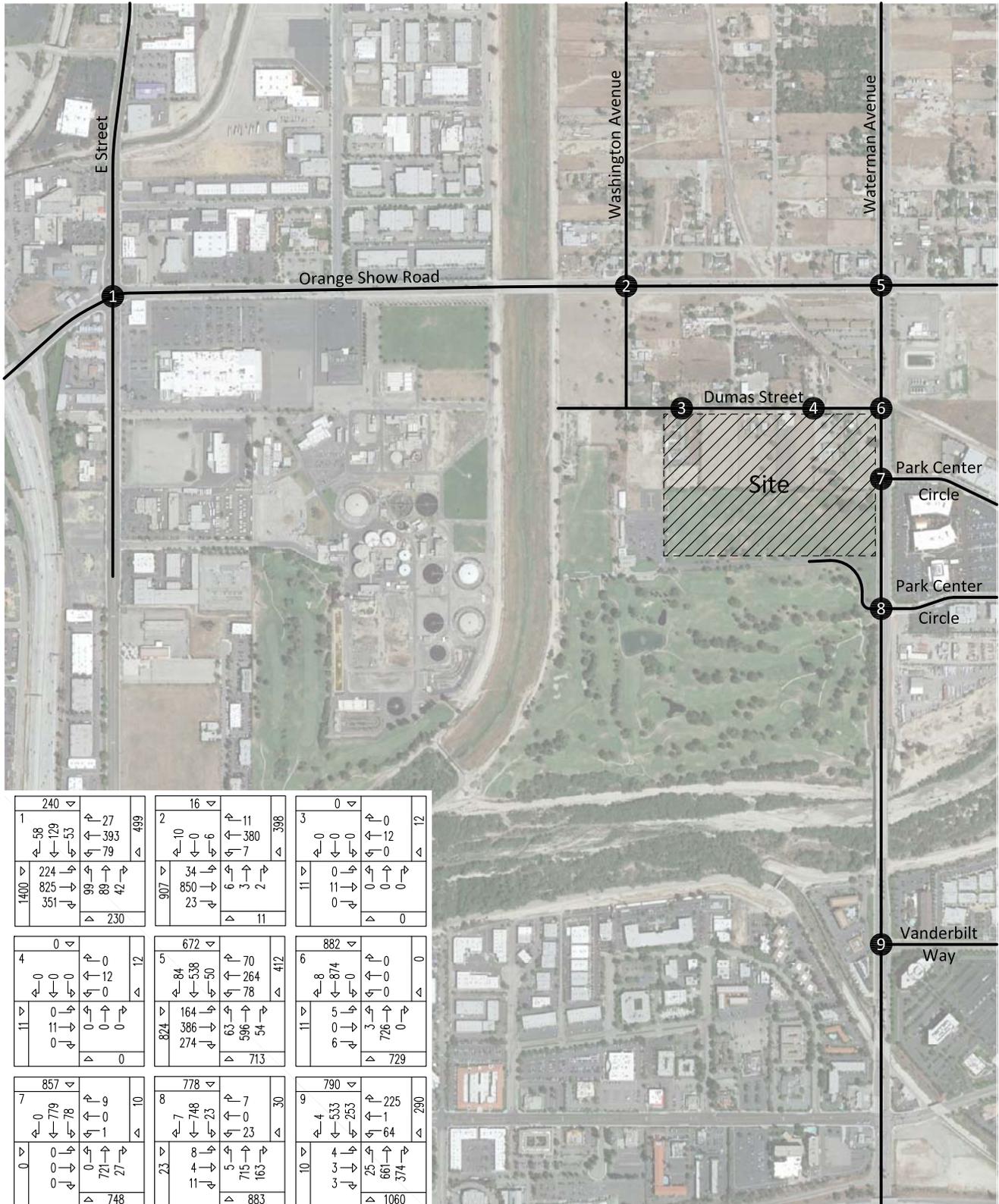


KUNZMAN ASSOCIATES, INC. Intersection reference numbers are in upper left corner of turning movement boxes.

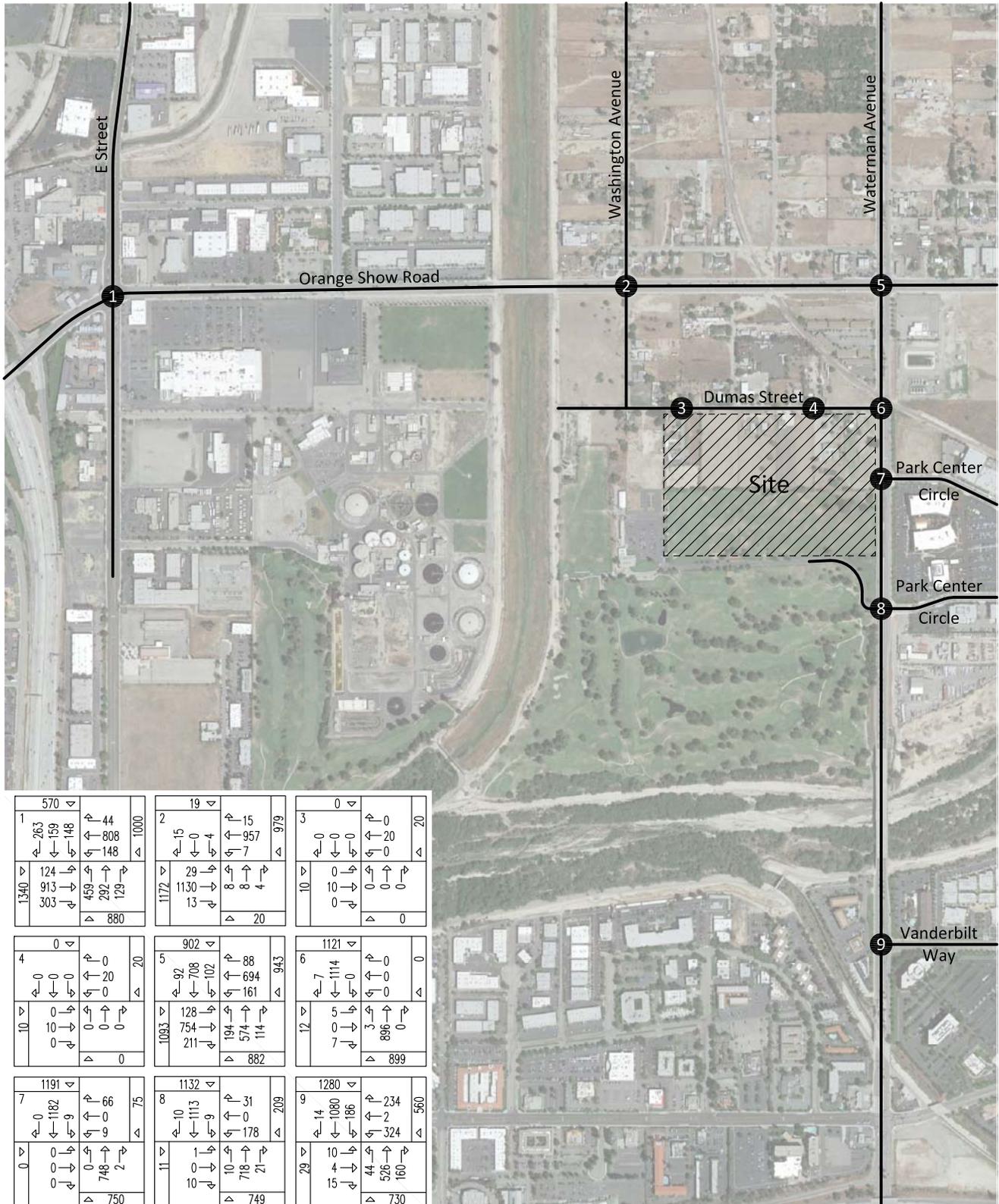
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5629g

Figure 30  
Existing Plus Ambient Growth  
Morning Peak Hour Intersection Turning Movement Volumes



**Figure 31**  
**Existing Plus Ambient Growth**  
**Evening Peak Hour Intersection Turning Movement Volumes**



**Figure 32**  
**Opening Year (2017) Without Project**  
**Morning Peak Hour Intersection Turning Movement Volumes**

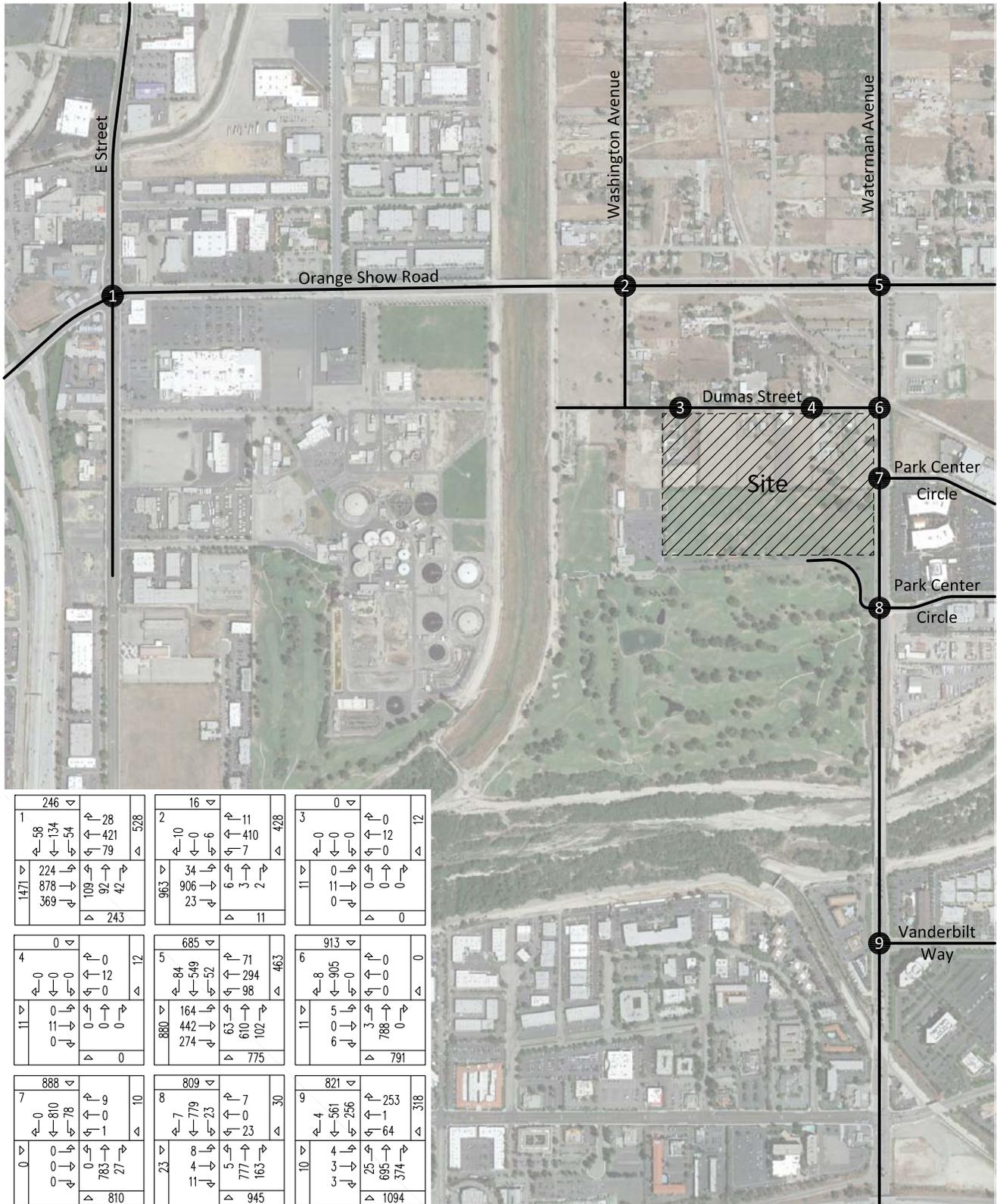
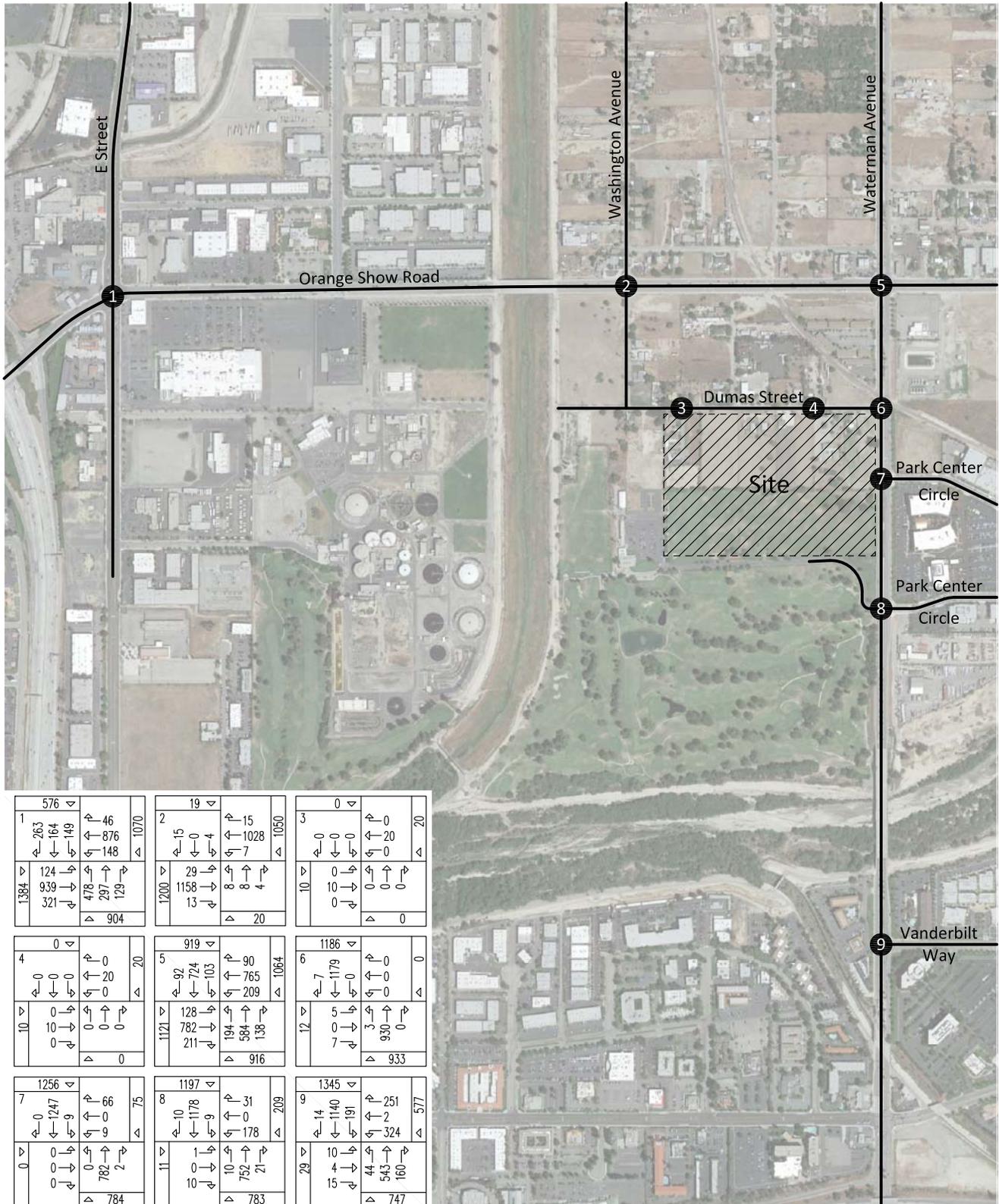


Figure 33  
 Opening Year (2017) Without Project  
 Evening Peak Hour Intersection Turning Movement Volumes



|   |   |   |  |   |   |  |  |
|---|---|---|--|---|---|--|--|
| 1 | 576<br>↖ 263<br>← 164<br>↘ 149<br>↑ 46<br>↖ 876<br>← 148<br>↘ 904 | 2 | 19<br>↖ 15<br>← 0<br>↘ 4<br>↑ 15<br>↖ 1028<br>← 7<br>↘ 20        | 3 | 0<br>↖ 0<br>← 0<br>↘ 0<br>↑ 0<br>↖ 20<br>← 0<br>↘ 0                 |  |  |
| 4 | 0<br>↖ 0<br>← 0<br>↘ 0<br>↑ 0<br>↖ 20<br>← 0<br>↘ 0               | 5 | 919<br>↖ 92<br>← 724<br>↘ 103<br>↑ 90<br>↖ 765<br>← 209<br>↘ 916 | 6 | 1186<br>↖ 7<br>← 1179<br>↘ 0<br>↑ 0<br>↖ 0<br>← 0<br>↘ 933          |  |  |
| 7 | 1256<br>↖ 1247<br>← 9<br>↘ 9<br>↑ 66<br>↖ 782<br>← 2<br>↘ 784     | 8 | 1197<br>↖ 10<br>← 1178<br>↘ 9<br>↑ 31<br>↖ 178<br>← 21<br>↘ 783  | 9 | 1345<br>↖ 14<br>← 1140<br>↘ 191<br>↑ 251<br>↖ 324<br>← 160<br>↘ 747 |  |  |



Figure 34  
 Opening Year (2017) With Project  
 Morning Peak Hour Intersection Turning Movement Volumes

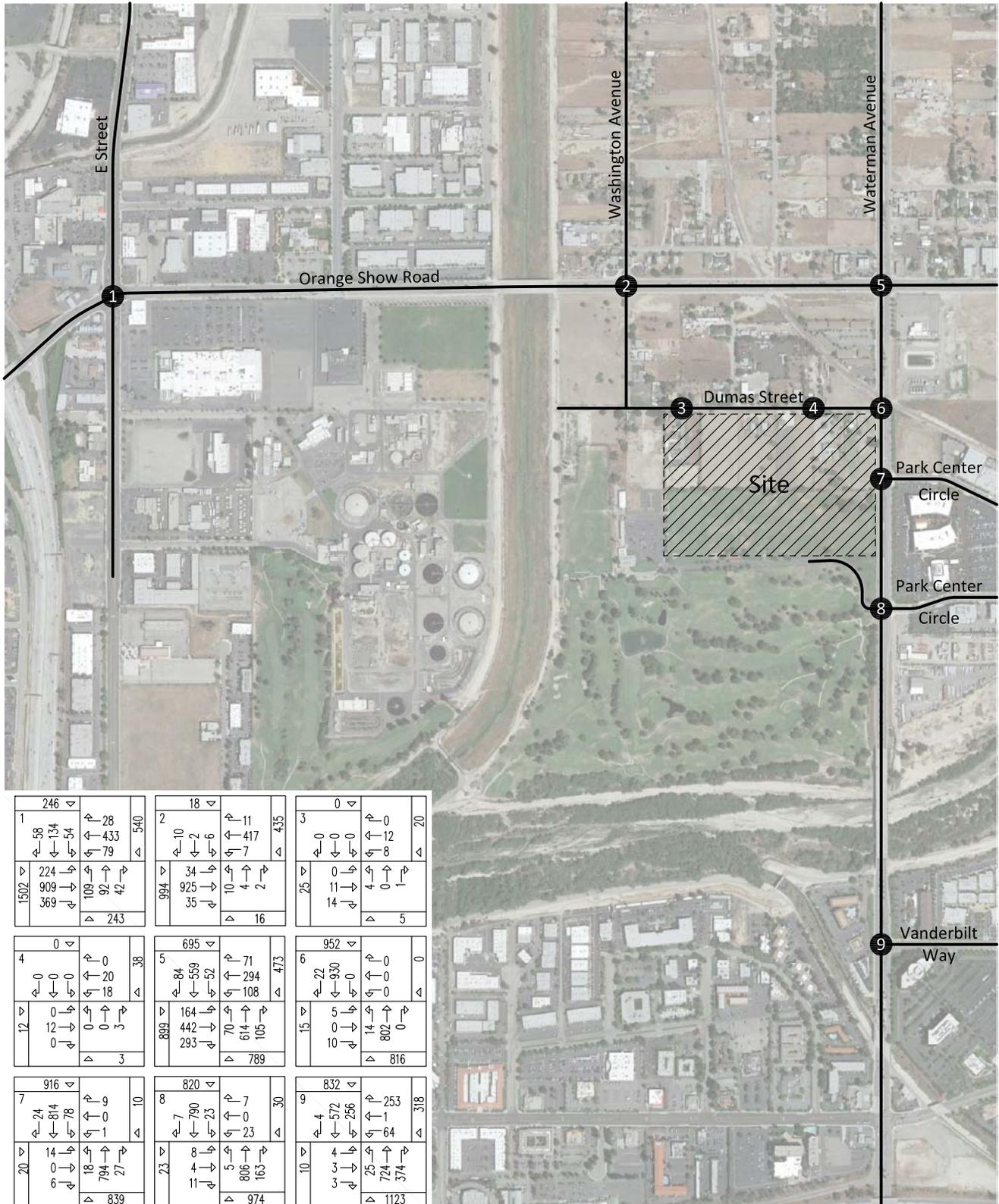


Figure 35  
 Opening Year (2017) With Project  
 Evening Peak Hour Intersection Turning Movement Volumes

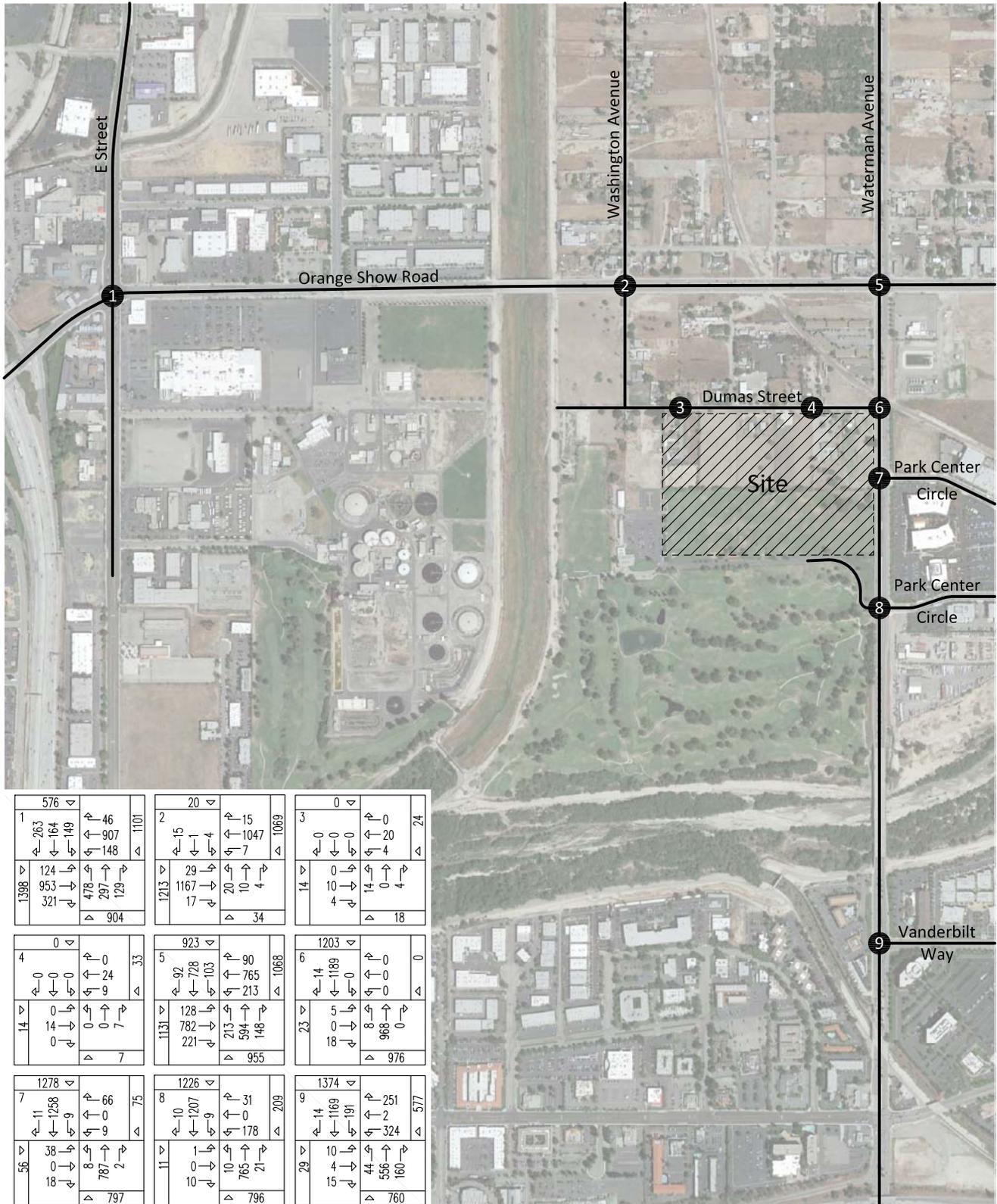


Figure 36  
 Year 2035 Without Project  
 Morning Peak Hour Intersection Turning Movement Volumes

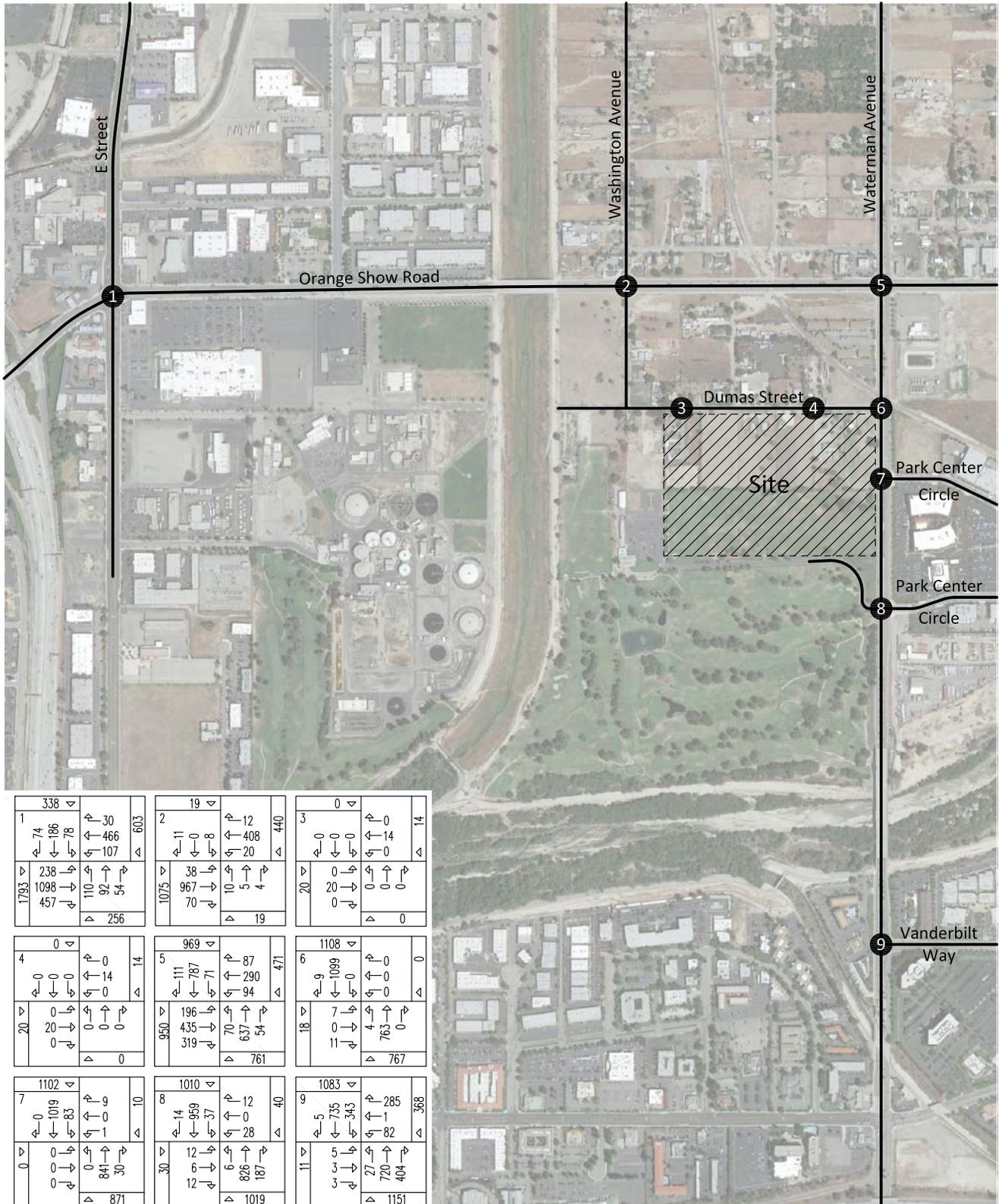
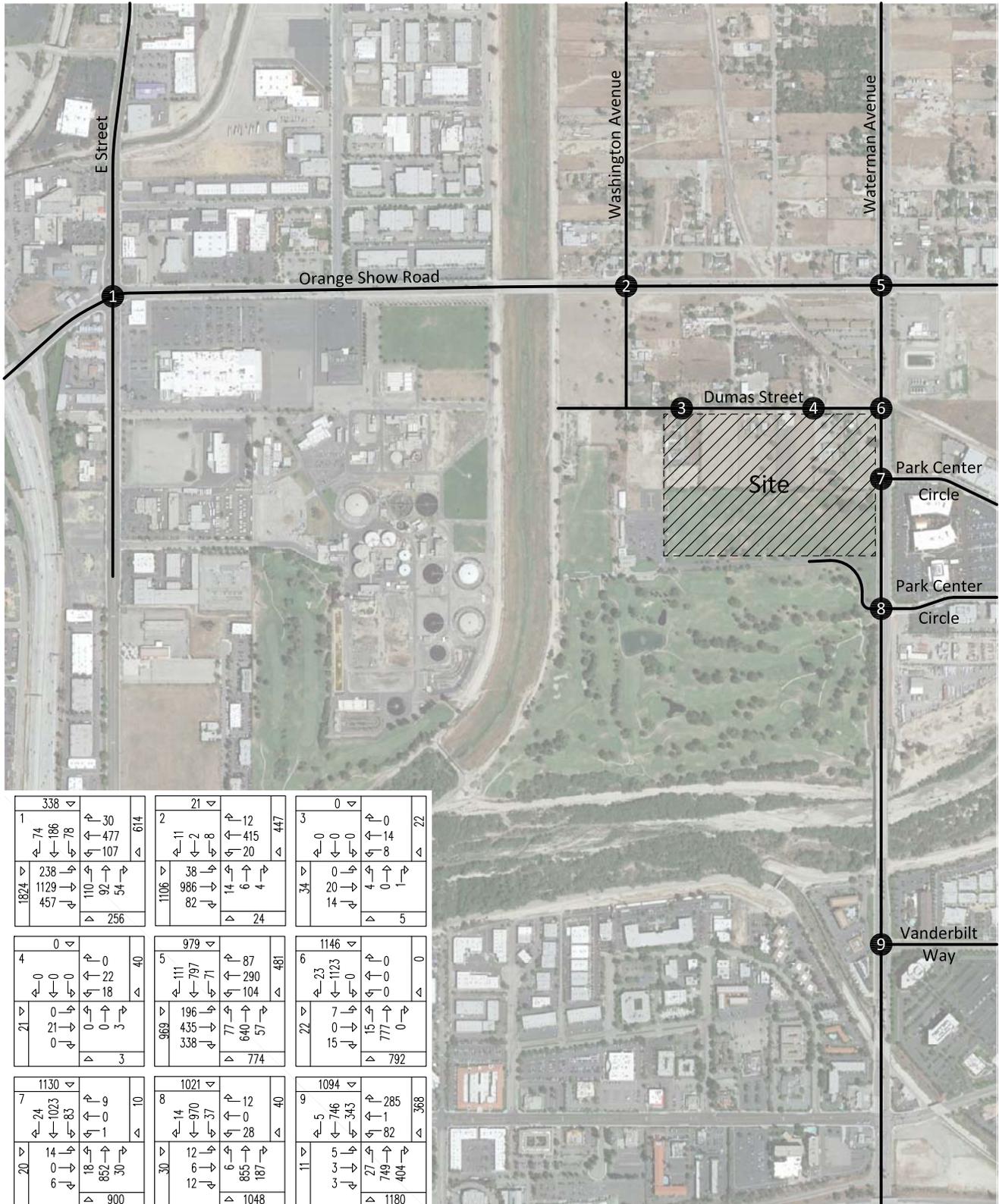




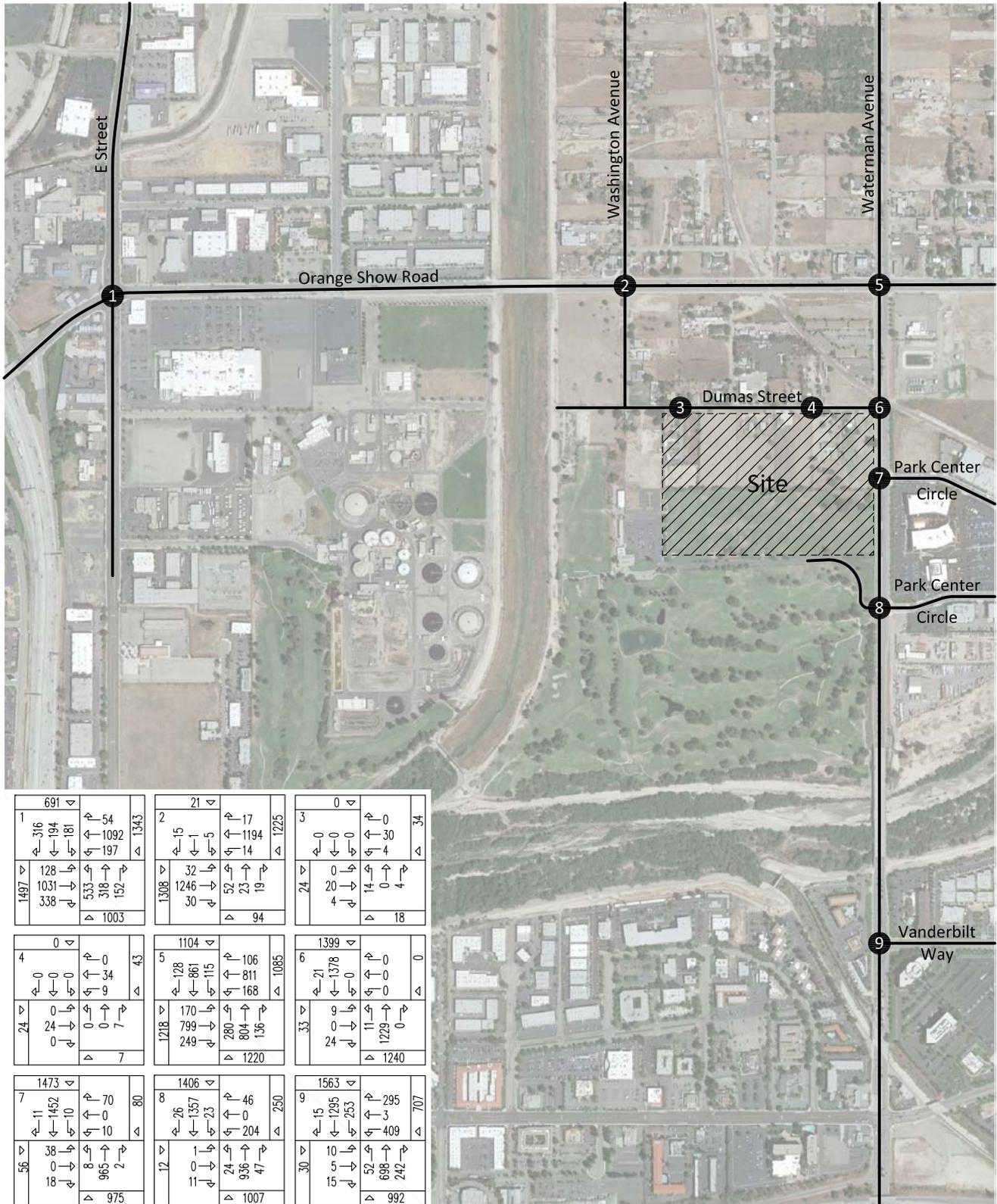
Figure 38  
 Year 2035 With Project  
 Morning Peak Hour Intersection Turning Movement Volumes



|   |   |   |  |   |  |
|---|---|---|--|---|--|
| 1 | 338<br>74<br>186<br>78<br>30<br>477<br>107<br>614           | 2 | 21<br>11<br>2<br>8<br>12<br>415<br>20<br>447                         | 3 | 0<br>0<br>0<br>0<br>14<br>14<br>5<br>22                          |
| 4 | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>40                       | 5 | 979<br>111<br>797<br>71<br>87<br>290<br>104<br>481                   | 6 | 1146<br>23<br>1123<br>0<br>0<br>0<br>0<br>0                      |
| 7 | 1130<br>24<br>1023<br>83<br>14<br>10<br>1<br>9<br>30<br>900 | 8 | 1021<br>14<br>970<br>37<br>12<br>28<br>6<br>12<br>855<br>187<br>1048 | 9 | 1094<br>5<br>746<br>343<br>27<br>82<br>285<br>749<br>404<br>1180 |



Figure 39  
 Year 2035 With Project  
 Evening Peak Hour Intersection Turning Movement Volumes



## **V. CONCLUSIONS AND RECOMMENDATIONS**

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The recommendations in this section address on-site improvements, off-site improvements and the phasing (as needed) of all necessary study area transportation improvements.

Improvements to the Waterman Road and Park Center Circle North intersection adjacent to the project are project related and the applicant will be responsible for construction these improvements.

### **A. On-Site Improvements**

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 40).

Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including northbound left turn lane and southbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including eastbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

### **B. Off-Site Improvements**

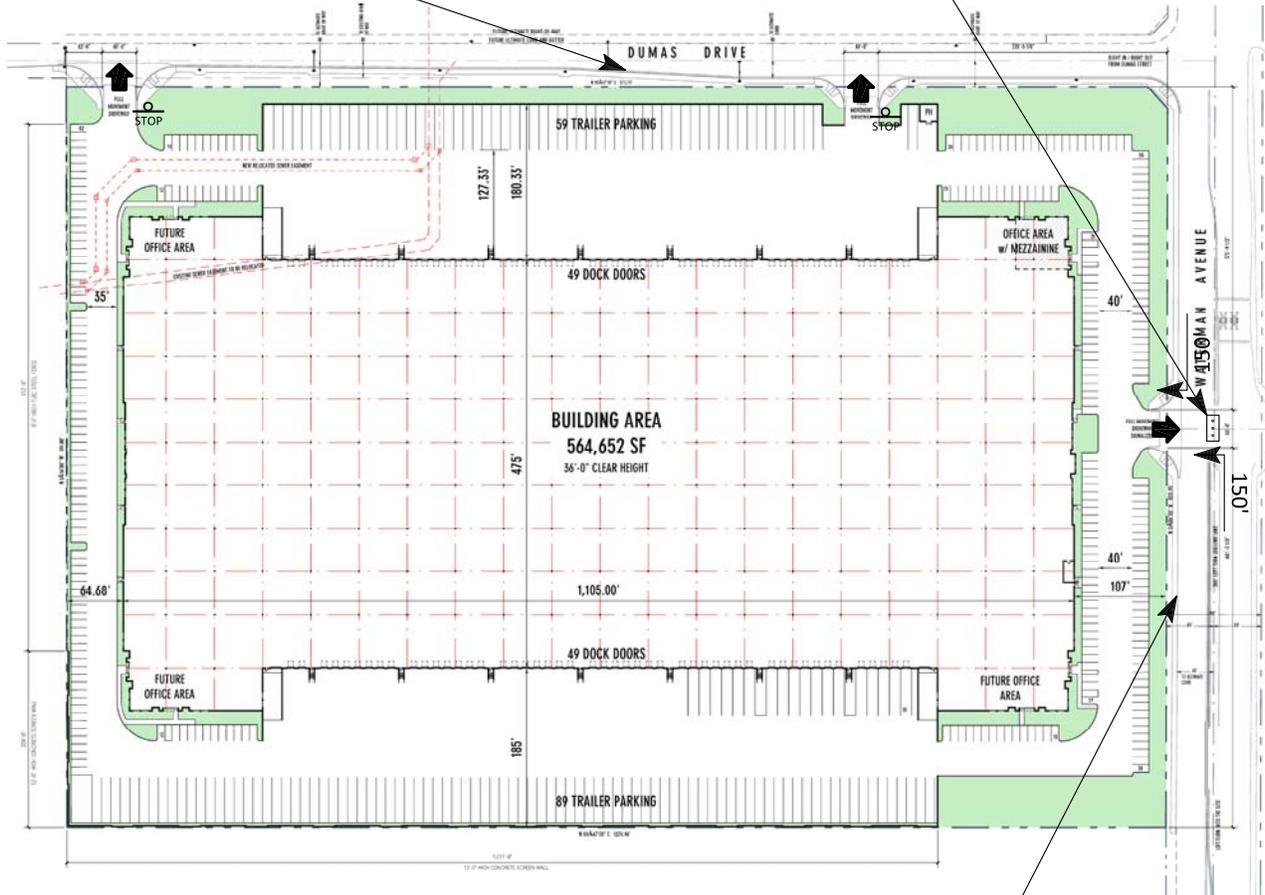
As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

# Figure 40 Circulation Recommendations

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including eastbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.



Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including northbound left turn lane and southbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

### Legend

- = Traffic Signal
- = Stop Sign
- = Full Access Driveway
- = 150' = Left Turn Pocket Length
- = 150' = Right Turn Pocket Length

## **APPENDICES**

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**Appendix A – Glossary of Transportation Terms**

**Appendix B – Scoping Agreement**

**Appendix C – Traffic Count Worksheets**

**Appendix D – Future Growth Increment Calculation Worksheets**

**Appendix E – Traffic Model Plots**

**Appendix F – Explanation and Calculation of Intersection Delay**

**Appendix G - Traffic Signal Warrant Worksheets**

**Appendix H - Preliminary Construction Cost Estimates for Congestion Management Program**

**APPENDIX A**

**Glossary of Transportation Terms**

## GLOSSARY OF TRANSPORTATION TERMS

### COMMON ABBREVIATIONS

|           |   |
|-----------|---|
| AC:       | Acres                                   |
| ADT:      | Average Daily Traffic                   |
| Caltrans: | California Department of Transportation |
| DU:       | Dwelling Unit                           |
| ICU:      | Intersection Capacity Utilization       |
| LOS:      | Level of Service                        |
| TSF:      | Thousand Square Feet                    |
| V/C:      | Volume/Capacity                         |
| VMT:      | Vehicle Miles Traveled                  |

### TERMS

**AVERAGE DAILY TRAFFIC:** The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

**BANDWIDTH:** The number of seconds of green time available for through traffic in a signal progression.

**BOTTLENECK:** A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

**CAPACITY:** The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

**CHANNELIZATION:** The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

**CLEARANCE INTERVAL:** Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

**CORDON:** An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

**CYCLE LENGTH:** The time period in seconds required for one complete signal cycle.

**CUL-DE-SAC STREET:** A local street open at one end only, and with special provisions for turning around.

**DAILY CAPACITY:** The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

**DELAY:** The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

**DEMAND RESPONSIVE SIGNAL:** Same as traffic-actuated signal.

**DENSITY:** The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

**DETECTOR:** A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

**DESIGN SPEED:** A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

**DIRECTIONAL SPLIT:** The percent of traffic in the peak direction at any point in time.

**DIVERSION:** The rerouting of peak hour traffic to avoid congestion.

**FORCED FLOW:** Opposite of free flow.

**FREE FLOW:** Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

**GAP:** Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

**HEADWAY:** Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

**INTERCONNECTED SIGNAL SYSTEM:** A number of intersections that are connected to achieve signal progression.

**LEVEL OF SERVICE:** A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

**LOOP DETECTOR:** A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

**MINIMUM ACCEPTABLE GAP:** Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

**MULTI-MODAL:** More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

**OFFSET:** The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

**PLATOON:** A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

**ORIGIN-DESTINATION SURVEY:** A survey to determine the point of origin and the point of destination for a given vehicle trip.

**PASSENGER CAR EQUIVALENTS (PCE):** One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

**PEAK HOUR:** The 60 consecutive minutes with the highest number of vehicles.

**PRETIMED SIGNAL:** A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

**PROGRESSION:** A term used to describe the progressive movement of traffic through several signalized intersections.

**SCREEN-LINE:** An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

**SIGNAL CYCLE:** The time period in seconds required for one complete sequence of signal indications.

**SIGNAL PHASE:** The part of the signal cycle allocated to one or more traffic movements.

**STARTING DELAY:** The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

**TRAFFIC-ACTUATED SIGNAL:** A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

**TRIP:** The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

**TRIP-END:** One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

**TRIP GENERATION RATE:** The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

**TRUCK:** A vehicle having dual tires on one or more axles, or having more than two axles.

**UNBALANCED FLOW:** Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

**VEHICLE MILES OF TRAVEL:** A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

**APPENDIX B**

**Scoping Agreement**

# Scope of Study Form

**To be completed by applicant and approved by Development Services prior to start of study**

Project Name: Waterman Industrial Center  
 Project Address: Southwest corner of Waterman Avenue and Dumas Drive  
 Project Description: 564,652 square feet of high-cube warehouse distribution center land use  
 Developer's Name: NEWCASTLE PARTNERS, INC.  
 Address: 4740 Green River Road, Suite 118 Corona, CA 92880  
 Telephone No. 951-582-9800 x23 Fax Number: 951-278-4740  
 Email Address: jackson@newcastlepartners.com

Trip Generation Rates From: ITE 9th Ed. Other: City of Fontana, Truck Trip Generation Study, August 2003

**Trip Generation For:**

|   |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
|---|------------------------------|------------------------------|-------------------|------------|-------------|--------------|--------------------|--|---------|-----------|----------|-----------|-------|-----------|--------------------|--|---------|-----------|----------|-----------|-------|-----------|--|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|
| <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (1)</td> <td style="width: 30%;"><u>High-Cube Warehousing</u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u>152</u></td> </tr> <tr> <td>Daily Trips</td> <td><u>1,282</u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u>63</u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u>24</u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u>87</u></td> </tr> <tr> <td>PM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u>32</u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u>63</u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u>95</u></td> </tr> </table> | Land Use (1)                 | <u>High-Cube Warehousing</u> | ITE Land Use Code | <u>152</u> | Daily Trips | <u>1,282</u> | AM Peak Hour Trips |  | Inbound | <u>63</u> | Outbound | <u>24</u> | Total | <u>87</u> | PM Peak Hour Trips |  | Inbound | <u>32</u> | Outbound | <u>63</u> | Total | <u>95</u> | <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (2)</td> <td style="width: 30%;"><u></u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u></u></td> </tr> <tr> <td>Daily Trips</td> <td><u></u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> <tr> <td>PM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> </table> | Land Use (2) | <u></u> | ITE Land Use Code | <u></u> | Daily Trips | <u></u> | AM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> | PM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> |
| Land Use (1)  | <u>High-Cube Warehousing</u> |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u>152</u>                   |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Daily Trips   | <u>1,282</u>                 |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u>63</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u>24</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u>87</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| PM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u>32</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u>63</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u>95</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Land Use (2)  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| PM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |

*(Use Additional Sheet(s), if necessary)*

**Pass-by Trips (%)**, if applicable:          %

|   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
|---|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|---------------------|--|---------|---------|----------|---------|-------|---------|---|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|---------------------|--|---------|---------|----------|---------|-------|---------|
| <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (1)</td> <td style="width: 30%;"><u></u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u></u></td> </tr> <tr> <td>Daily Trips</td> <td><u></u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> <tr> <td>PM Peak Hour Trips:</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> </table> | Land Use (1) | <u></u> | ITE Land Use Code | <u></u> | Daily Trips | <u></u> | AM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> | PM Peak Hour Trips: |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> | <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (2)</td> <td style="width: 30%;"><u></u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u></u></td> </tr> <tr> <td>Daily Trips</td> <td><u></u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> <tr> <td>PM Peak Hour Trips:</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> </table> | Land Use (2) | <u></u> | ITE Land Use Code | <u></u> | Daily Trips | <u></u> | AM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> | PM Peak Hour Trips: |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> |
| Land Use (1)  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| PM Peak Hour Trips:   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Land Use (2)  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| PM Peak Hour Trips:   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |

**Project Opening Year:** 2017

**Build-out Year:** 2035

- Study Intersections:**
- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li><u>1 E Street (NS)/ Orange Show Rd (EW)</u></li> <li><u>2 Washington Ave (NS)/ Orange Show Rd (EW)</u></li> <li><u>3 Project West Dwy (NS)/ Dumas St (EW)</u></li> <li><u>4 Project East Dwy (NS)/ Dumas St (EW)</u></li> <li><u>5 Waterman Ave (NS)/ Orange Show Rd (EW)</u></li> </ol> | <ol style="list-style-type: none"> <li><u>6 Waterman Ave (NS)/ Dumas St (EW)</u></li> <li><u>7 Waterman Ave (NS)/ Project-Park Center Cir N(EW)</u></li> <li><u>8 Waterman Ave (NS)/ Park Center Cir S (EW)</u></li> <li><u>9 Waterman Ave (NS)/ Vanderbilt Way (EW)</u></li> <li><u>10 _____</u></li> </ol> |
|---|--|

*(Use Additional Sheet(s) and Map, if necessary)*

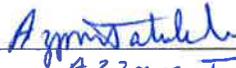
**Ambient Growth Rate:** SBTAM % See Figures 3-4

**Trip Distribution:** East 15/10 % West 35/40 % North 20/10 % South 30/40 %

**Preparer's Name:** Kunzman Associates, Inc.  
 Address: 1111 Town & Country Road, Suite 34, Orange, CA 92868  
 Telephone No. 714-973-8383 (207) Fax Number: 714-973-8821  
 Email Address: perrie@traffic-engineer.com

Signature:  Date: 08/25/2015 09/1/2015

**Approved By (Development Services Department):**

Signature:  Date: 9-2-2015  
 Name: Azza m Jabshch Title: Traffic engineer

**Table 1**

**Project Trip Generation<sup>1</sup>**

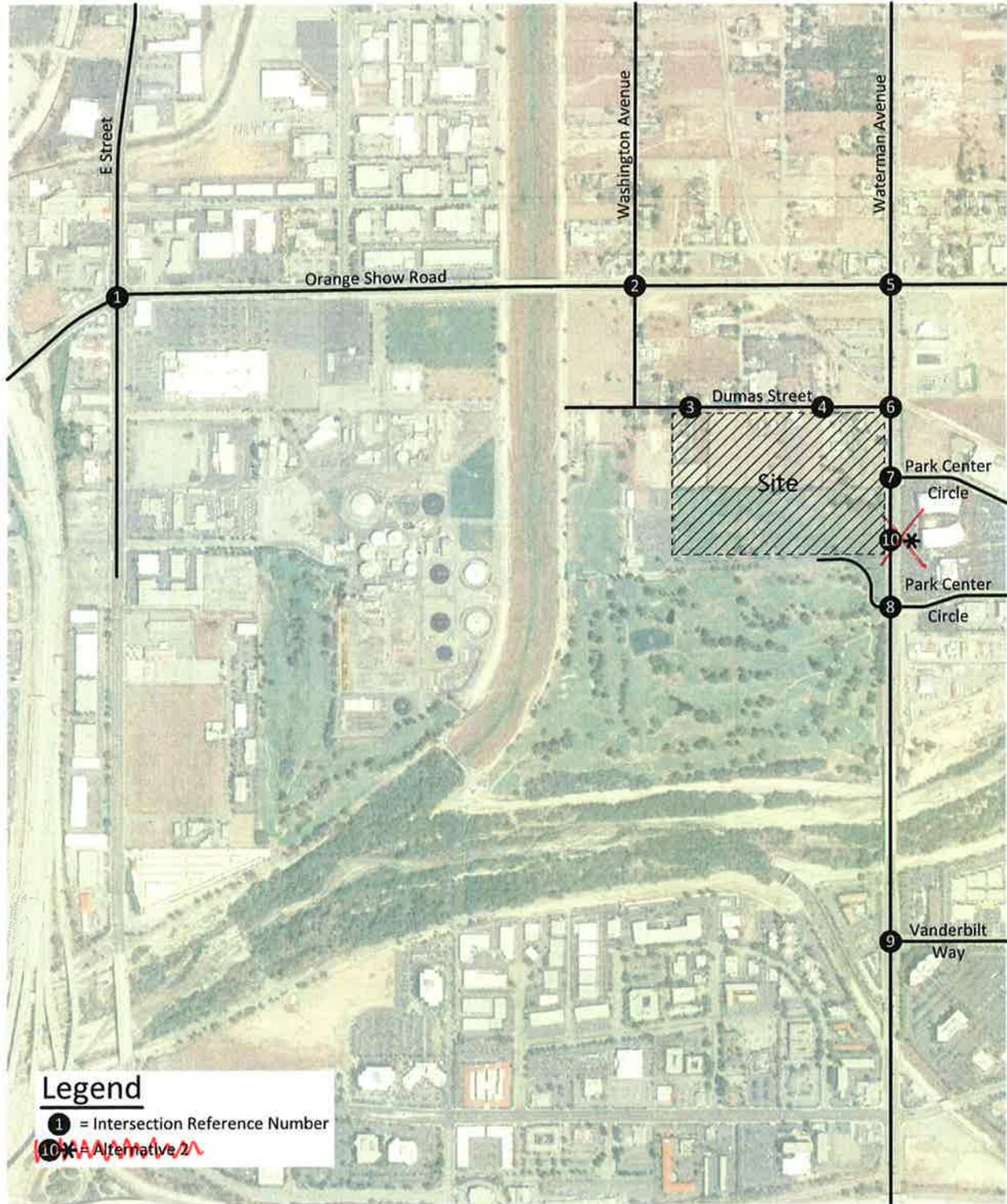
| Descriptor   | Quantity | Units <sup>2</sup> | Type of Vehicle |              |              |               |              | Total |
|--|----------|--------------------|-----------------|--------------|--------------|---------------|--------------|-------|
|  |          |                    | Passenger Car   | 2 Axle Truck | 3 Axle Truck | 4+ Axle Truck | Total Trucks |       |
| Land Use: High-cube Warehouse                          | 564.652  | TSF                | 79.57%          | 3.46%        | 4.64%        | 12.33%        | 20.43%       | 100%  |
| Traffic Generation Rates in trips per TSF              |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 1.337           | 0.058        | 0.078        | 0.207         | 0.343        | 1.68  |
| Morning Peak Hour                                      |          |                    | 0.088           | 0.004        | 0.005        | 0.014         | 0.023        | 0.11  |
| Evening Peak Hour                                      |          |                    | 0.096           | 0.004        | 0.006        | 0.015         | 0.025        | 0.12  |
| Traffic Generation in Vehicles                         |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 33           | 44           | 117           | 194          | 949   |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Outbound   |          |                    | 13              | 1            | 1            | 2             | 4            | 17    |
| Total  |          |                    | 49              | 3            | 3            | 8             | 14           | 63    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 1            | 1            | 3             | 5            | 23    |
| Outbound   |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Total  |          |                    | 54              | 3            | 3            | 9             | 15           | 69    |
| Passenger Car Equivalent's (PCE'S) Factor <sup>3</sup> |          |                    |                 |              |              |               |              |       |
|  |          |                    | 1.00            | 2.00         | 2.50         | 3.00          |              |       |
| Traffic Generation in PCE's                            |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 66           | 110          | 351           | 527          | 1,282 |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Outbound   |          |                    | 13              | 2            | 3            | 6             | 11           | 24    |
| Total  |          |                    | 49              | 6            | 8            | 24            | 38           | 87    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 2            | 3            | 9             | 14           | 32    |
| Outbound   |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Total  |          |                    | 54              | 6            | 8            | 27            | 41           | 95    |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Category 152 and City of Fontana, Truck Trip Generation Study, August 2003.

<sup>2</sup> TSF = Thousand Square Feet

<sup>3</sup> Source: City of San Bernardino Development Services Department, Traffic Impact Study Guidelines, September 2004.

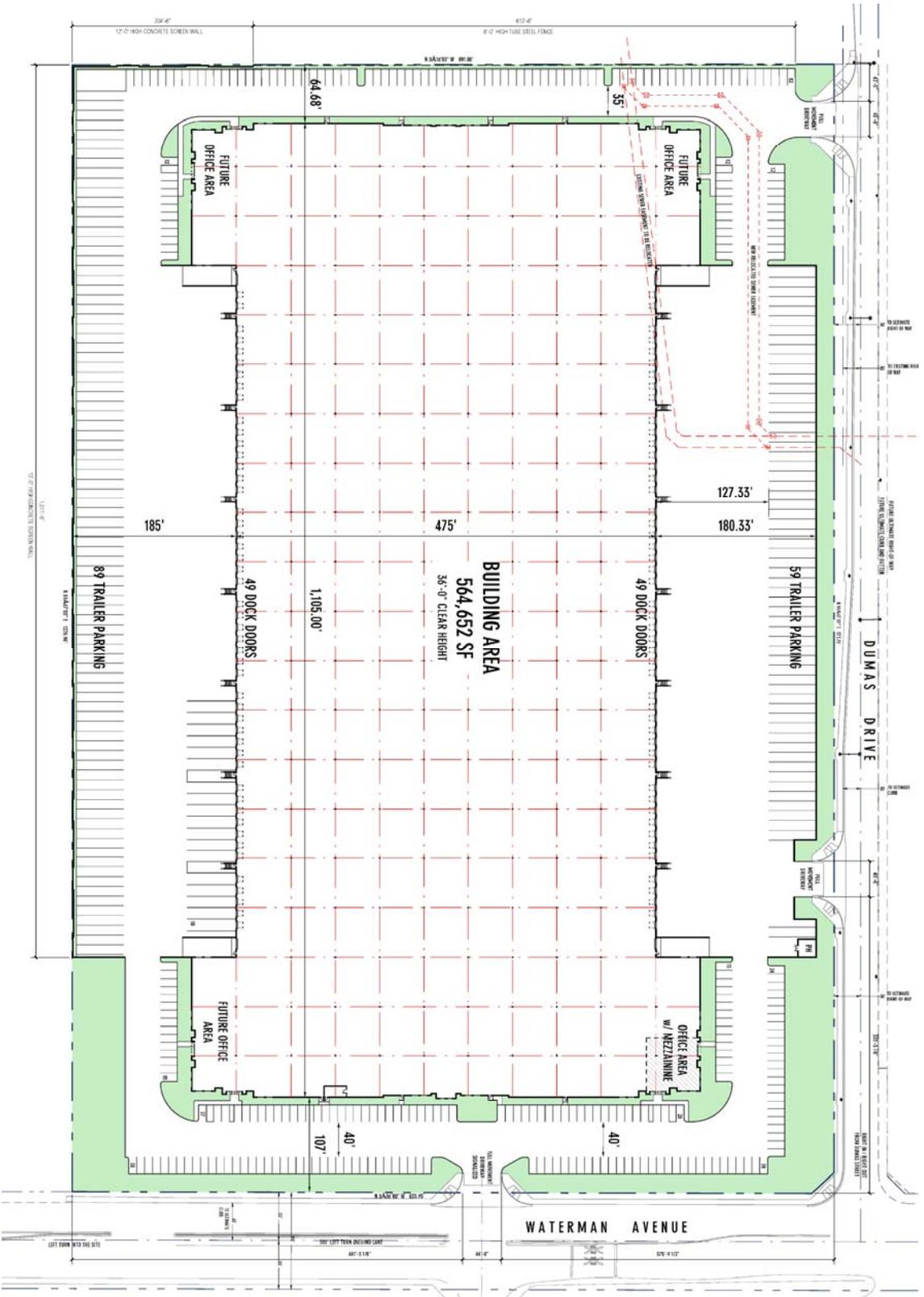
Figure 1  
Project Location Map



**Legend**

- ① = Intersection Reference Number
- ~~⑩ = Alternative 2~~

Figure 2  
Site Plan (Alternative 1)



5629/2



KUNZMAN ASSOCIATES, INC.

OVER 35 YEARS OF EXCELLENT SERVICE

**Figure 3**  
**Project Trip Distribution - Cars (Alternative 1)**

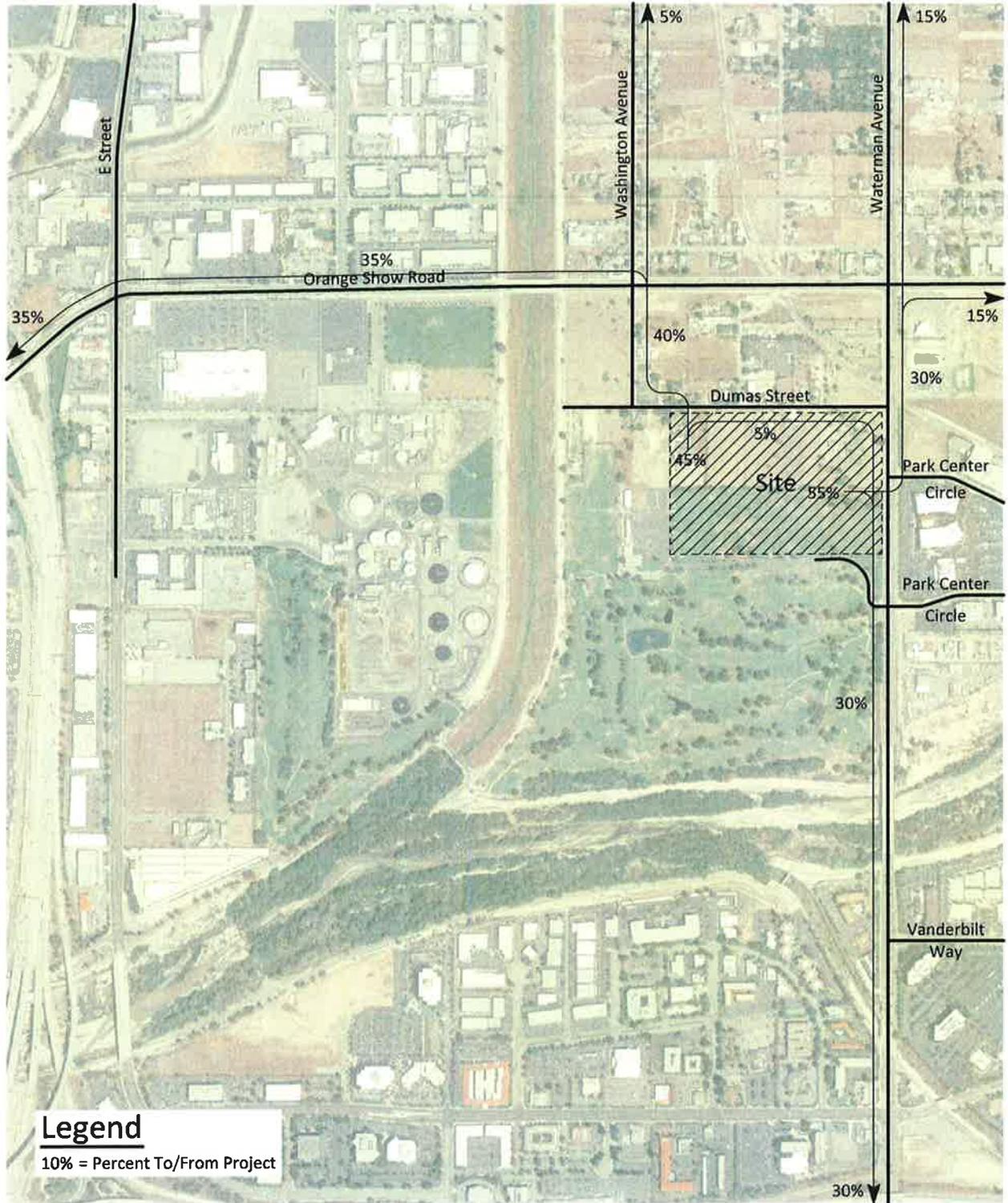
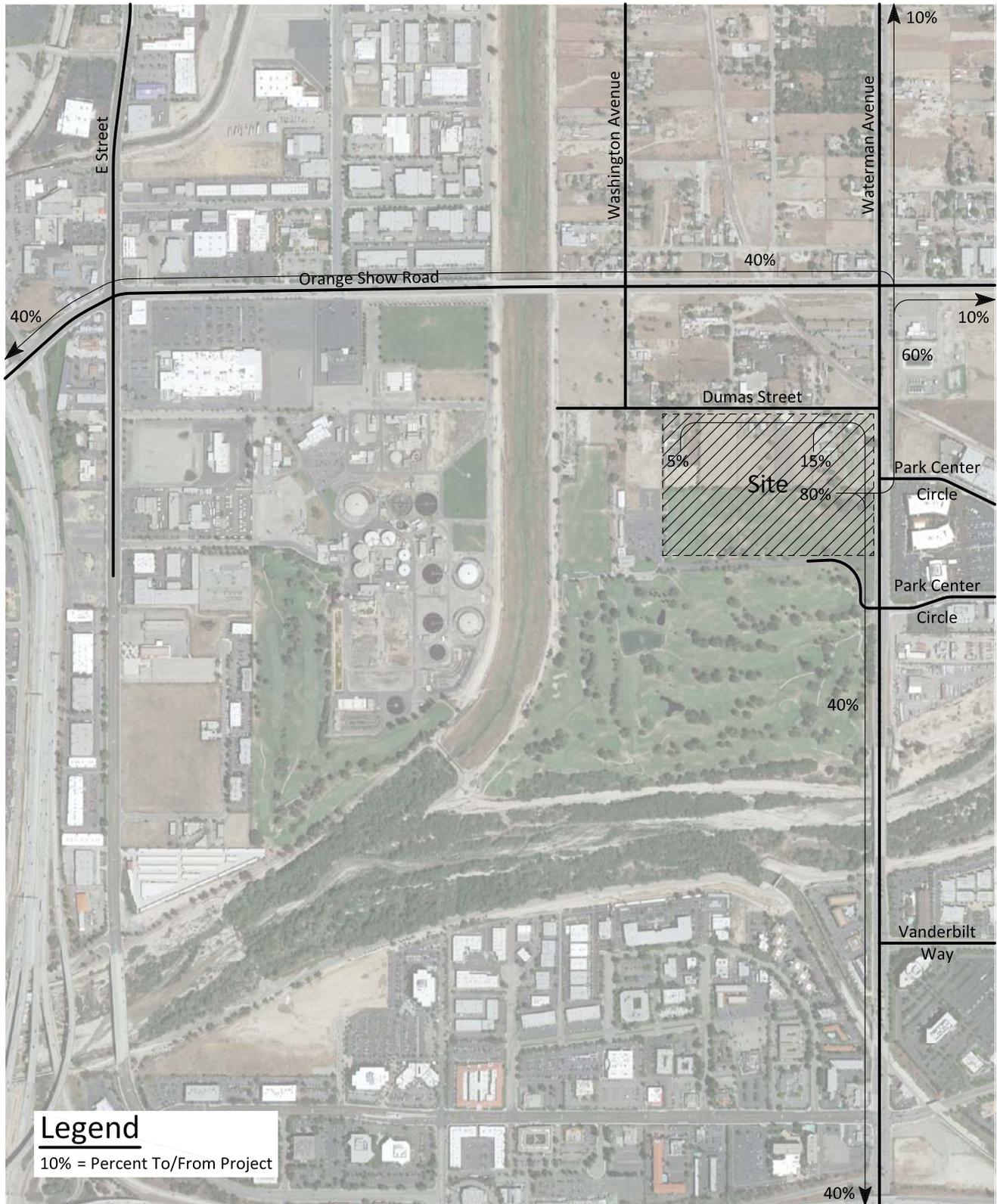


Figure 4  
Project Trip Distribution - Trucks (Alternative 1)



**APPENDIX C**

**Traffic Count Worksheets**

# Counts Unlimited, Inc

PO Box 1178  
 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

SBDWASPC  
 Site Code: 075-15438

## Northbound

| Start Time  | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|-------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 08/18/15    | 0     | 56              | 14          | 1     | 1             | 4             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 82    |
| 01:00       | 2     | 40              | 7           | 0     | 0             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 51    |
| 02:00       | 0     | 34              | 5           | 0     | 0             | 0             | 0             | 0             | 2             | 0             | 0            | 0            | 0            | 41    |
| 03:00       | 2     | 61              | 15          | 0     | 1             | 3             | 0             | 0             | 2             | 0             | 0            | 0            | 0            | 84    |
| 04:00       | 1     | 129             | 35          | 0     | 8             | 3             | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 188   |
| 05:00       | 5     | 155             | 38          | 1     | 16            | 4             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 226   |
| 06:00       | 4     | 278             | 71          | 1     | 18            | 5             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 388   |
| 07:00       | 1     | 453             | 95          | 5     | 20            | 5             | 0             | 8             | 14            | 0             | 0            | 0            | 0            | 601   |
| 08:00       | 4     | 446             | 96          | 8     | 29            | 8             | 0             | 8             | 25            | 0             | 0            | 0            | 0            | 624   |
| 09:00       | 3     | 430             | 111         | 6     | 26            | 8             | 0             | 6             | 19            | 0             | 0            | 0            | 0            | 609   |
| 10:00       | 2     | 450             | 109         | 12    | 30            | 8             | 0             | 10            | 20            | 0             | 0            | 0            | 0            | 641   |
| 11:00       | 5     | 484             | 100         | 6     | 25            | 4             | 0             | 5             | 11            | 0             | 0            | 0            | 0            | 640   |
| 12 PM       | 2     | 607             | 134         | 8     | 28            | 8             | 0             | 9             | 19            | 0             | 0            | 0            | 0            | 815   |
| 13:00       | 4     | 613             | 128         | 9     | 25            | 4             | 0             | 7             | 18            | 0             | 0            | 0            | 0            | 808   |
| 14:00       | 9     | 507             | 119         | 7     | 25            | 6             | 0             | 5             | 12            | 0             | 0            | 0            | 0            | 690   |
| 15:00       | 2     | 510             | 111         | 5     | 26            | 8             | 0             | 6             | 8             | 0             | 1            | 0            | 0            | 677   |
| 16:00       | 6     | 519             | 120         | 5     | 24            | 8             | 0             | 0             | 8             | 0             | 0            | 0            | 0            | 690   |
| 17:00       | 4     | 608             | 100         | 4     | 11            | 5             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 738   |
| 18:00       | 12    | 403             | 65          | 5     | 14            | 9             | 0             | 2             | 16            | 0             | 0            | 0            | 0            | 526   |
| 19:00       | 2     | 269             | 50          | 2     | 15            | 5             | 0             | 0             | 18            | 0             | 0            | 0            | 0            | 361   |
| 20:00       | 1     | 200             | 34          | 2     | 12            | 1             | 0             | 3             | 6             | 0             | 0            | 0            | 0            | 259   |
| 21:00       | 5     | 165             | 26          | 2     | 6             | 6             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 219   |
| 22:00       | 1     | 133             | 20          | 2     | 5             | 0             | 0             | 0             | 9             | 0             | 0            | 0            | 0            | 170   |
| 23:00       | 3     | 78              | 10          | 0     | 1             | 3             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 101   |
| Total       | 80    | 7628            | 1613        | 91    | 366           | 116           | 0             | 74            | 260           | 0             | 1            | 0            | 0            | 10229 |
| Percent     | 0.8%  | 74.6%           | 15.8%       | 0.9%  | 3.6%          | 1.1%          | 0.0%          | 0.7%          | 2.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |
| AM Peak     | 05:00 | 11:00           | 09:00       | 10:00 | 10:00         | 08:00         |               | 10:00         | 08:00         |               |              |              |              | 10:00 |
| Vol.        | 5     | 484             | 111         | 12    | 30            | 8             |               | 10            | 25            |               |              |              |              | 641   |
| PM Peak     | 18:00 | 13:00           | 12:00       | 13:00 | 12:00         | 18:00         |               | 12:00         | 12:00         |               | 15:00        |              |              | 12:00 |
| Vol.        | 12    | 613             | 134         | 9     | 28            | 9             |               | 9             | 19            |               | 1            |              |              | 815   |
| Grand Total | 80    | 7628            | 1613        | 91    | 366           | 116           | 0             | 74            | 260           | 0             | 1            | 0            | 0            | 10229 |
| Percent     | 0.8%  | 74.6%           | 15.8%       | 0.9%  | 3.6%          | 1.1%          | 0.0%          | 0.7%          | 2.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |

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 Phone: 951-268-6268  
 email: counts@countsunlimited.com

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

SBDWASPC  
 Site Code: 075-15438

## Southbound

| Start Time  | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|-------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 08/18/15    | 0     | 28              | 4           | 1     | 2             | 0             | 0             | 1             | 4             | 0             | 0            | 0            | 0            | 40    |
| 01:00       | 0     | 39              | 9           | 1     | 1             | 0             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 55    |
| 02:00       | 1     | 32              | 6           | 1     | 0             | 2             | 0             | 2             | 8             | 0             | 0            | 0            | 0            | 52    |
| 03:00       | 1     | 25              | 5           | 0     | 2             | 1             | 0             | 2             | 4             | 0             | 0            | 0            | 0            | 40    |
| 04:00       | 3     | 83              | 29          | 0     | 6             | 4             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 134   |
| 05:00       | 1     | 67              | 23          | 3     | 12            | 2             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 114   |
| 06:00       | 3     | 94              | 33          | 2     | 20            | 3             | 0             | 2             | 4             | 0             | 0            | 0            | 0            | 161   |
| 07:00       | 3     | 198             | 72          | 5     | 26            | 3             | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 319   |
| 08:00       | 2     | 268             | 74          | 8     | 22            | 3             | 0             | 4             | 9             | 0             | 0            | 0            | 0            | 390   |
| 09:00       | 0     | 231             | 77          | 2     | 28            | 4             | 0             | 2             | 13            | 0             | 0            | 0            | 0            | 357   |
| 10:00       | 3     | 247             | 87          | 6     | 25            | 4             | 0             | 2             | 12            | 0             | 0            | 0            | 0            | 386   |
| 11:00       | 5     | 275             | 100         | 5     | 33            | 4             | 0             | 4             | 17            | 0             | 0            | 0            | 0            | 443   |
| 12 PM       | 4     | 292             | 99          | 7     | 27            | 4             | 0             | 4             | 11            | 0             | 0            | 0            | 0            | 448   |
| 13:00       | 6     | 281             | 98          | 6     | 31            | 7             | 0             | 3             | 18            | 0             | 0            | 0            | 0            | 450   |
| 14:00       | 3     | 269             | 80          | 3     | 27            | 3             | 0             | 1             | 14            | 0             | 0            | 0            | 0            | 400   |
| 15:00       | 7     | 296             | 99          | 3     | 39            | 2             | 0             | 3             | 14            | 0             | 0            | 0            | 0            | 463   |
| 16:00       | 2     | 445             | 109         | 3     | 39            | 5             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 622   |
| 17:00       | 7     | 537             | 132         | 9     | 32            | 12            | 0             | 8             | 19            | 0             | 0            | 0            | 0            | 756   |
| 18:00       | 3     | 383             | 104         | 6     | 30            | 4             | 0             | 2             | 20            | 0             | 0            | 0            | 0            | 552   |
| 19:00       | 3     | 205             | 56          | 2     | 20            | 2             | 0             | 1             | 11            | 0             | 0            | 0            | 0            | 300   |
| 20:00       | 3     | 135             | 42          | 2     | 9             | 1             | 0             | 2             | 9             | 0             | 0            | 0            | 0            | 203   |
| 21:00       | 3     | 125             | 24          | 2     | 6             | 2             | 0             | 1             | 4             | 0             | 0            | 0            | 0            | 167   |
| 22:00       | 3     | 94              | 29          | 0     | 9             | 2             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 144   |
| 23:00       | 1     | 55              | 14          | 0     | 2             | 3             | 0             | 3             | 5             | 0             | 0            | 0            | 0            | 83    |
| Total       | 67    | 4704            | 1405        | 77    | 448           | 77            | 0             | 57            | 244           | 0             | 0            | 0            | 0            | 7079  |
| Percent     | 0.9%  | 66.5%           | 19.8%       | 1.1%  | 6.3%          | 1.1%          | 0.0%          | 0.8%          | 3.4%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |
| AM Peak     | 11:00 | 11:00           | 11:00       | 08:00 | 11:00         | 04:00         |               | 08:00         | 11:00         |               |              |              |              | 11:00 |
| Vol.        | 5     | 275             | 100         | 8     | 33            | 4             |               | 4             | 17            |               |              |              |              | 443   |
| PM Peak     | 15:00 | 17:00           | 17:00       | 17:00 | 15:00         | 17:00         |               | 17:00         | 18:00         |               |              |              |              | 17:00 |
| Vol.        | 7     | 537             | 132         | 9     | 39            | 12            |               | 8             | 20            |               |              |              |              | 756   |
| Grand Total | 67    | 4704            | 1405        | 77    | 448           | 77            | 0             | 57            | 244           | 0             | 0            | 0            | 0            | 7079  |
| Percent     | 0.9%  | 66.5%           | 19.8%       | 1.1%  | 6.3%          | 1.1%          | 0.0%          | 0.8%          | 3.4%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |

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 N/ Park Center Circle North  
 24 Hour Directional Classification Count

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 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDWASPC  
 Site Code: 075-15438

## Northbound, Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 0         | 84              | 18          | 2         | 3             | 4             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 122         |
| 01:00       | 2         | 79              | 16          | 1         | 1             | 1             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 106         |
| 02:00       | 1         | 66              | 11          | 1         | 0             | 2             | 0             | 2             | 10            | 0             | 0            | 0            | 0            | 93          |
| 03:00       | 3         | 86              | 20          | 0         | 3             | 4             | 0             | 2             | 6             | 0             | 0            | 0            | 0            | 124         |
| 04:00       | 4         | 212             | 64          | 0         | 14            | 7             | 0             | 4             | 17            | 0             | 0            | 0            | 0            | 322         |
| 05:00       | 6         | 222             | 61          | 4         | 28            | 6             | 0             | 0             | 13            | 0             | 0            | 0            | 0            | 340         |
| 06:00       | 7         | 372             | 104         | 3         | 38            | 8             | 0             | 3             | 14            | 0             | 0            | 0            | 0            | 549         |
| 07:00       | 4         | 651             | 167         | 10        | 46            | 8             | 0             | 11            | 23            | 0             | 0            | 0            | 0            | 920         |
| 08:00       | 6         | 714             | 170         | 16        | 51            | 11            | 0             | <b>12</b>     | <b>34</b>     | 0             | 0            | 0            | 0            | 1014        |
| 09:00       | 3         | 661             | 188         | 8         | 54            | <b>12</b>     | 0             | 8             | 32            | 0             | 0            | 0            | 0            | 966         |
| 10:00       | 5         | 697             | 196         | <b>18</b> | 55            | 12            | 0             | 12            | 32            | 0             | 0            | 0            | 0            | 1027        |
| 11:00       | <b>10</b> | <b>759</b>      | <b>200</b>  | 11        | <b>58</b>     | 8             | 0             | 9             | 28            | 0             | 0            | 0            | 0            | <b>1083</b> |
| 12 PM       | 6         | 899             | <b>233</b>  | <b>15</b> | 55            | 12            | 0             | <b>13</b>     | 30            | 0             | 0            | 0            | 0            | 1263        |
| 13:00       | 10        | 894             | 226         | 15        | 56            | 11            | 0             | 10            | <b>36</b>     | 0             | 0            | 0            | 0            | 1258        |
| 14:00       | 12        | 776             | 199         | 10        | 52            | 9             | 0             | 6             | 26            | 0             | 0            | 0            | 0            | 1090        |
| 15:00       | 9         | 806             | 210         | 8         | <b>65</b>     | 10            | 0             | 9             | 22            | 0             | <b>1</b>     | 0            | 0            | 1140        |
| 16:00       | 8         | 964             | 229         | 8         | 63            | 13            | 0             | 4             | 23            | 0             | 0            | 0            | 0            | 1312        |
| 17:00       | 11        | <b>1145</b>     | 232         | 13        | 43            | <b>17</b>     | 0             | 8             | 25            | 0             | 0            | 0            | 0            | <b>1494</b> |
| 18:00       | <b>15</b> | 786             | 169         | 11        | 44            | 13            | 0             | 4             | 36            | 0             | 0            | 0            | 0            | 1078        |
| 19:00       | 5         | 474             | 106         | 4         | 35            | 7             | 0             | 1             | 29            | 0             | 0            | 0            | 0            | 661         |
| 20:00       | 4         | 335             | 76          | 4         | 21            | 2             | 0             | 5             | 15            | 0             | 0            | 0            | 0            | 462         |
| 21:00       | 8         | 290             | 50          | 4         | 12            | 8             | 0             | 2             | 12            | 0             | 0            | 0            | 0            | 386         |
| 22:00       | 4         | 227             | 49          | 2         | 14            | 2             | 0             | 2             | 14            | 0             | 0            | 0            | 0            | 314         |
| 23:00       | 4         | 133             | 24          | 0         | 3             | 6             | 0             | 3             | 11            | 0             | 0            | 0            | 0            | 184         |
| Total       | 147       | 12332           | 3018        | 168       | 814           | 193           | 0             | 131           | 504           | 0             | 1            | 0            | 0            | 17308       |
| Percent     | 0.8%      | 71.3%           | 17.4%       | 1.0%      | 4.7%          | 1.1%          | 0.0%          | 0.8%          | 2.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 11:00     | 11:00           | 11:00       | 10:00     | 11:00         | 09:00         |               | 08:00         | 08:00         |               |              |              |              | 11:00       |
| Vol.        | 10        | 759             | 200         | 18        | 58            | 12            |               | 12            | 34            |               |              |              |              | 1083        |
| PM Peak     | 18:00     | 17:00           | 12:00       | 12:00     | 15:00         | 17:00         |               | 12:00         | 13:00         |               | 15:00        |              |              | 17:00       |
| Vol.        | 15        | 1145            | 233         | 15        | 65            | 17            |               | 13            | 36            |               | 1            |              |              | 1494        |
| Grand Total | 147       | 12332           | 3018        | 168       | 814           | 193           | 0             | 131           | 504           | 0             | 1            | 0            | 0            | 17308       |
| Percent     | 0.8%      | 71.3%           | 17.4%       | 1.0%      | 4.7%          | 1.1%          | 0.0%          | 0.8%          | 2.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |

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## Northbound

| Start Time         | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total      |
|--------------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| 08/18/15           | 6         | 46              | 20          | 2         | 3             | 6             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 88         |
| 01:00              | 5         | 40              | 6           | 0         | 3             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 56         |
| 02:00              | 1         | 35              | 8           | 0         | 0             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 46         |
| 03:00              | 3         | 55              | 24          | 0         | 8             | 4             | 0             | 2             | 2             | 0             | 0            | 0            | 0            | 98         |
| 04:00              | <b>8</b>  | 119             | 46          | 1         | 19            | <b>9</b>      | 0             | 1             | 5             | 0             | 0            | 0            | 0            | 208        |
| 05:00              | 8         | 137             | 54          | 2         | 27            | 7             | 0             | 1             | 6             | 0             | 0            | 0            | 0            | 242        |
| 06:00              | 6         | 261             | 90          | 8         | 49            | 4             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 425        |
| 07:00              | 5         | <b>456</b>      | 127         | 6         | 37            | 5             | 0             | 4             | 8             | 0             | 0            | 0            | 0            | 648        |
| 08:00              | 7         | 374             | 163         | 7         | 46            | 7             | 0             | 4             | 13            | 0             | 0            | 0            | 0            | 621        |
| 09:00              | 7         | 389             | 139         | 8         | <b>59</b>     | 8             | 0             | 8             | 11            | 0             | 0            | 0            | 0            | 629        |
| 10:00              | 1         | 398             | 134         | <b>15</b> | 47            | 6             | 0             | <b>12</b>     | <b>20</b>     | 0             | 0            | 0            | 0            | 633        |
| 11:00              | 7         | 446             | <b>164</b>  | 6         | 50            | 6             | 0             | 9             | 11            | 0             | 0            | 0            | 0            | <b>699</b> |
| 12 PM              | 4         | 540             | <b>217</b>  | 8         | 45            | 10            | 0             | 7             | 14            | 0             | 0            | 0            | 0            | 845        |
| 13:00              | 6         | 541             | 196         | <b>10</b> | 44            | <b>11</b>     | 0             | <b>10</b>     | 13            | 0             | 0            | 0            | 0            | 831        |
| 14:00              | 9         | 448             | 179         | 7         | 52            | 5             | 0             | 7             | 13            | 0             | 0            | 0            | 0            | 720        |
| 15:00              | 3         | 423             | 175         | 8         | <b>60</b>     | 8             | 0             | 8             | 7             | 0             | <b>1</b>     | 0            | 0            | 693        |
| 16:00              | 6         | 458             | 184         | 5         | 51            | 5             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 716        |
| 17:00              | 7         | <b>627</b>      | 196         | 3         | 39            | 7             | 0             | 2             | 3             | 0             | 0            | 0            | 0            | <b>884</b> |
| 18:00              | <b>12</b> | 361             | 122         | 5         | 24            | 8             | 0             | 6             | 13            | 0             | 0            | 0            | 0            | 551        |
| 19:00              | 7         | 235             | 111         | 5         | 28            | 7             | 0             | 1             | <b>17</b>     | 0             | 0            | 0            | 0            | 411        |
| 20:00              | 5         | 174             | 62          | 4         | 14            | 5             | 0             | 3             | 4             | 0             | 0            | 0            | 0            | 271        |
| 21:00              | 4         | 153             | 41          | 1         | 11            | 5             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 222        |
| 22:00              | 4         | 115             | 42          | 2         | 4             | 1             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 174        |
| 23:00              | 6         | 67              | 26          | 0         | 1             | 3             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 110        |
| <b>Total</b>       | 137       | 6898            | 2526        | 113       | 721           | 139           | 0             | 87            | 199           | 0             | 1            | 0            | 0            | 10821      |
| <b>Percent</b>     | 1.3%      | 63.7%           | 23.3%       | 1.0%      | 6.7%          | 1.3%          | 0.0%          | 0.8%          | 1.8%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |
| AM Peak            | 04:00     | 07:00           | 11:00       | 10:00     | 09:00         | 04:00         |               | 10:00         | 10:00         |               |              |              |              | 11:00      |
| Vol.               | 8         | 456             | 164         | 15        | 59            | 9             |               | 12            | 20            |               |              |              |              | 699        |
| PM Peak            | 18:00     | 17:00           | 12:00       | 13:00     | 15:00         | 13:00         |               | 13:00         | 19:00         |               | 15:00        |              |              | 17:00      |
| Vol.               | 12        | 627             | 217         | 10        | 60            | 11            |               | 10            | 17            |               | 1            |              |              | 884        |
| <b>Grand Total</b> | 137       | 6898            | 2526        | 113       | 721           | 139           | 0             | 87            | 199           | 0             | 1            | 0            | 0            | 10821      |
| <b>Percent</b>     | 1.3%      | 63.7%           | 23.3%       | 1.0%      | 6.7%          | 1.3%          | 0.0%          | 0.8%          | 1.8%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |

# Counts Unlimited, Inc

PO Box 1178  
 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

SBDWANPC  
 Site Code: 075-15438

## Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses    | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 2         | 52              | 11          | 4        | 0             | 2             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 78          |
| 01:00       | 1         | 63              | 12          | 1        | 1             | 1             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 84          |
| 02:00       | 2         | 45              | 2           | 1        | 3             | 2             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 66          |
| 03:00       | 4         | 43              | 11          | 0        | 4             | 4             | 0             | 3             | 4             | 0             | 0            | 0            | 0            | 73          |
| 04:00       | <b>9</b>  | 123             | 38          | 0        | 7             | 6             | 0             | 3             | 8             | 0             | 0            | 0            | 0            | 194         |
| 05:00       | 2         | 115             | 44          | 3        | 11            | 2             | 0             | 1             | 7             | 0             | 0            | 0            | 0            | 185         |
| 06:00       | 5         | 161             | 54          | 2        | 29            | 7             | 0             | 4             | 6             | 0             | 0            | 0            | 0            | 268         |
| 07:00       | 5         | 484             | 144         | <b>7</b> | 39            | 4             | 0             | 4             | 9             | 0             | 0            | 0            | 0            | 696         |
| 08:00       | 6         | <b>528</b>      | 139         | 7        | 40            | 4             | 0             | 4             | 10            | 0             | 0            | 0            | 0            | 738         |
| 09:00       | 4         | 447             | 118         | 6        | <b>50</b>     | 6             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 650         |
| 10:00       | 7         | 455             | 150         | 6        | 38            | <b>9</b>      | 0             | <b>10</b>     | 8             | 0             | 0            | 0            | 0            | 683         |
| 11:00       | 7         | 528             | <b>165</b>  | 7        | 46            | 5             | 0             | 8             | <b>18</b>     | 0             | 0            | 0            | 0            | <b>784</b>  |
| 12 PM       | 7         | 601             | 184         | <b>8</b> | 43            | 11            | 0             | 5             | 12            | 0             | 0            | 0            | 0            | 871         |
| 13:00       | 12        | 571             | 169         | 8        | 46            | 8             | 0             | <b>8</b>      | <b>19</b>     | 0             | 0            | 0            | 0            | 841         |
| 14:00       | 8         | 510             | 139         | 6        | 43            | 6             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 731         |
| 15:00       | <b>14</b> | 548             | 182         | 6        | <b>57</b>     | 4             | 0             | 6             | 15            | 0             | 0            | 0            | 0            | 832         |
| 16:00       | 6         | 670             | <b>190</b>  | 6        | 43            | <b>13</b>     | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 940         |
| 17:00       | 10        | <b>780</b>      | 172         | 6        | 38            | 8             | 0             | 6             | 12            | 0             | 0            | 0            | 0            | <b>1032</b> |
| 18:00       | 8         | 514             | 133         | 5        | 32            | 10            | 0             | 1             | 13            | 0             | 0            | 0            | 0            | 716         |
| 19:00       | 7         | 304             | 71          | 1        | 19            | 5             | 0             | 2             | 7             | 0             | 0            | 0            | 0            | 416         |
| 20:00       | 2         | 196             | 61          | 3        | 10            | 2             | 0             | 3             | 10            | 0             | 0            | 0            | 0            | 287         |
| 21:00       | 2         | 174             | 38          | 5        | 5             | 1             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 234         |
| 22:00       | 5         | 145             | 36          | 2        | 6             | 4             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 207         |
| 23:00       | 7         | 85              | 20          | 0        | 2             | 9             | 0             | 3             | 2             | 0             | 0            | 0            | 0            | 128         |
| Total       | 142       | 8142            | 2283        | 100      | 612           | 133           | 0             | 87            | 235           | 0             | 0            | 0            | 0            | 11734       |
| Percent     | 1.2%      | 69.4%           | 19.5%       | 0.9%     | 5.2%          | 1.1%          | 0.0%          | 0.7%          | 2.0%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 04:00     | 08:00           | 11:00       | 07:00    | 09:00         | 10:00         |               | 10:00         | 11:00         |               |              |              |              | 11:00       |
| Vol.        | 9         | 528             | 165         | 7        | 50            | 9             |               | 10            | 18            |               |              |              |              | 784         |
| PM Peak     | 15:00     | 17:00           | 16:00       | 12:00    | 15:00         | 16:00         |               | 13:00         | 13:00         |               |              |              |              | 17:00       |
| Vol.        | 14        | 780             | 190         | 8        | 57            | 13            |               | 8             | 19            |               |              |              |              | 1032        |
| Grand Total | 142       | 8142            | 2283        | 100      | 612           | 133           | 0             | 87            | 235           | 0             | 0            | 0            | 0            | 11734       |
| Percent     | 1.2%      | 69.4%           | 19.5%       | 0.9%     | 5.2%          | 1.1%          | 0.0%          | 0.7%          | 2.0%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |

# Counts Unlimited, Inc

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

PO Box 1178  
 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDWANPC  
 Site Code: 075-15438

## Northbound, Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 8         | 98              | 31          | 6         | 3             | 8             | 0             | 2             | 10            | 0             | 0            | 0            | 0            | 166         |
| 01:00       | 6         | 103             | 18          | 1         | 4             | 2             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 140         |
| 02:00       | 3         | 80              | 10          | 1         | 3             | 3             | 0             | 1             | 11            | 0             | 0            | 0            | 0            | 112         |
| 03:00       | 7         | 98              | 35          | 0         | 12            | 8             | 0             | 5             | 6             | 0             | 0            | 0            | 0            | 171         |
| 04:00       | <b>17</b> | 242             | 84          | 1         | 26            | <b>15</b>     | 0             | 4             | 13            | 0             | 0            | 0            | 0            | 402         |
| 05:00       | 10        | 252             | 98          | 5         | 38            | 9             | 0             | 2             | 13            | 0             | 0            | 0            | 0            | 427         |
| 06:00       | 11        | 422             | 144         | 10        | 78            | 11            | 0             | 6             | 11            | 0             | 0            | 0            | 0            | 693         |
| 07:00       | 10        | 940             | 271         | 13        | 76            | 9             | 0             | 8             | 17            | 0             | 0            | 0            | 0            | 1344        |
| 08:00       | 13        | 902             | 302         | 14        | 86            | 11            | 0             | 8             | 23            | 0             | 0            | 0            | 0            | 1359        |
| 09:00       | 11        | 836             | 257         | 14        | <b>109</b>    | 14            | 0             | 12            | 26            | 0             | 0            | 0            | 0            | 1279        |
| 10:00       | 8         | 853             | 284         | <b>21</b> | 85            | 15            | 0             | <b>22</b>     | 28            | 0             | 0            | 0            | 0            | 1316        |
| 11:00       | 14        | <b>974</b>      | <b>329</b>  | 13        | 96            | 11            | 0             | 17            | <b>29</b>     | 0             | 0            | 0            | 0            | <b>1483</b> |
| 12 PM       | 11        | 1141            | <b>401</b>  | 16        | 88            | <b>21</b>     | 0             | 12            | 26            | 0             | 0            | 0            | 0            | 1716        |
| 13:00       | 18        | 1112            | 365         | <b>18</b> | 90            | 19            | 0             | <b>18</b>     | <b>32</b>     | 0             | 0            | 0            | 0            | 1672        |
| 14:00       | 17        | 958             | 318         | 13        | 95            | 11            | 0             | 11            | 28            | 0             | 0            | 0            | 0            | 1451        |
| 15:00       | 17        | 971             | 357         | 14        | <b>117</b>    | 12            | 0             | 14            | 22            | 0             | <b>1</b>     | 0            | 0            | 1525        |
| 16:00       | 12        | 1128            | 374         | 11        | 94            | 18            | 0             | 3             | 16            | 0             | 0            | 0            | 0            | 1656        |
| 17:00       | 17        | <b>1407</b>     | 368         | 9         | 77            | 15            | 0             | 8             | 15            | 0             | 0            | 0            | 0            | <b>1916</b> |
| 18:00       | <b>20</b> | 875             | 255         | 10        | 56            | 18            | 0             | 7             | 26            | 0             | 0            | 0            | 0            | 1267        |
| 19:00       | 14        | 539             | 182         | 6         | 47            | 12            | 0             | 3             | 24            | 0             | 0            | 0            | 0            | 827         |
| 20:00       | 7         | 370             | 123         | 7         | 24            | 7             | 0             | 6             | 14            | 0             | 0            | 0            | 0            | 558         |
| 21:00       | 6         | 327             | 79          | 6         | 16            | 6             | 0             | 1             | 15            | 0             | 0            | 0            | 0            | 456         |
| 22:00       | 9         | 260             | 78          | 4         | 10            | 5             | 0             | 1             | 14            | 0             | 0            | 0            | 0            | 381         |
| 23:00       | 13        | 152             | 46          | 0         | 3             | 12            | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 238         |
| Total       | 279       | 15040           | 4809        | 213       | 1333          | 272           | 0             | 174           | 434           | 0             | 1            | 0            | 0            | 22555       |
| Percent     | 1.2%      | 66.7%           | 21.3%       | 0.9%      | 5.9%          | 1.2%          | 0.0%          | 0.8%          | 1.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 04:00     | 11:00           | 11:00       | 10:00     | 09:00         | 04:00         |               | 10:00         | 11:00         |               |              |              |              | 11:00       |
| Vol.        | 17        | 974             | 329         | 21        | 109           | 15            |               | 22            | 29            |               |              |              |              | 1483        |
| PM Peak     | 18:00     | 17:00           | 12:00       | 13:00     | 15:00         | 12:00         |               | 13:00         | 13:00         |               | 15:00        |              |              | 17:00       |
| Vol.        | 20        | 1407            | 401         | 18        | 117           | 21            |               | 18            | 32            |               | 1            |              |              | 1916        |
| Grand Total | 279       | 15040           | 4809        | 213       | 1333          | 272           | 0             | 174           | 434           | 0             | 1            | 0            | 0            | 22555       |
| Percent     | 1.2%      | 66.7%           | 21.3%       | 0.9%      | 5.9%          | 1.2%          | 0.0%          | 0.8%          | 1.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |



# Counts Unlimited, Inc

City of San Bernardino  
 Park Center Circle North  
 E/ Waterman Avenue  
 24 Hour Directional Classification Count

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 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDPCEWA  
 Site Code: 075-15438

## Westbound

| Start Time         | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|--------------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 08/18/15           | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 01:00              | 0     | 2               | 0           | 0     | 0             | 0             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 3     |
| 02:00              | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 03:00              | 0     | 0               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0     |
| 04:00              | 0     | 0               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0     |
| 05:00              | 0     | 1               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 06:00              | 0     | 0               | 0           | 1     | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 07:00              | 0     | 6               | 0           | 0     | 0             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 8     |
| 08:00              | 0     | 10              | 4           | 0     | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 16    |
| 09:00              | 2     | 11              | 4           | 0     | 1             | 5             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 23    |
| 10:00              | 2     | 7               | 1           | 0     | 4             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 15    |
| 11:00              | 2     | 26              | 6           | 0     | 4             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 39    |
| 12 PM              | 4     | 22              | 6           | 1     | 2             | 0             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 36    |
| 13:00              | 2     | 21              | 2           | 0     | 3             | 3             | 0             | 1             | 0             | 0             | 0            | 0            | 0            | 32    |
| 14:00              | 1     | 16              | 1           | 0     | 2             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 20    |
| 15:00              | 2     | 17              | 5           | 0     | 4             | 5             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 33    |
| 16:00              | 4     | 26              | 3           | 0     | 3             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 36    |
| 17:00              | 4     | 70              | 12          | 0     | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 88    |
| 18:00              | 1     | 7               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 9     |
| 19:00              | 0     | 4               | 2           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 6     |
| 20:00              | 1     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 21:00              | 0     | 2               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 22:00              | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 23:00              | 0     | 0               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| <b>Total</b>       | 25    | 252             | 49          | 2     | 26            | 19            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 376   |
| <b>Percent</b>     | 6.6%  | 67.0%           | 13.0%       | 0.5%  | 6.9%          | 5.1%          | 0.0%          | 0.3%          | 0.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |
| <b>AM Peak</b>     | 09:00 | 11:00           | 11:00       | 06:00 | 10:00         | 09:00         |               |               | 01:00         |               |              |              |              | 11:00 |
| <b>Vol.</b>        | 2     | 26              | 6           | 1     | 4             | 5             |               |               | 1             |               |              |              |              | 39    |
| <b>PM Peak</b>     | 12:00 | 17:00           | 17:00       | 12:00 | 15:00         | 15:00         |               | 13:00         | 12:00         |               |              |              |              | 17:00 |
| <b>Vol.</b>        | 4     | 70              | 12          | 1     | 4             | 5             |               | 1             | 1             |               |              |              |              | 88    |
| <b>Grand Total</b> | 25    | 252             | 49          | 2     | 26            | 19            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 376   |
| <b>Percent</b>     | 6.6%  | 67.0%           | 13.0%       | 0.5%  | 6.9%          | 5.1%          | 0.0%          | 0.3%          | 0.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |

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 24 Hour Directional Classification Count

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 email: counts@countsunlimited.com

SBDPCEWA  
 Site Code: 075-15438

## Eastbound, Westbound

| Start Time  | Bikes    | Cars & Trailers | 2 Axle Long | Buses    | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total      |
|-------------|----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| 08/18/15    | 0        | 3               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 3          |
| 01:00       | 0        | 2               | 0           | 0        | 0             | 0             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 3          |
| 02:00       | 0        | 1               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1          |
| 03:00       | 0        | 0               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0          |
| 04:00       | 0        | 0               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0          |
| 05:00       | 0        | 5               | 3           | 0        | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 9          |
| 06:00       | 0        | 11              | 3           | 1        | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 16         |
| 07:00       | 2        | <b>85</b>       | 11          | 0        | 2             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | <b>102</b> |
| 08:00       | 1        | 70              | 12          | 0        | 3             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 87         |
| 09:00       | 4        | 38              | <b>13</b>   | 0        | 3             | <b>5</b>      | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 63         |
| 10:00       | 2        | 19              | 3           | 0        | 5             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 31         |
| 11:00       | 3        | 45              | 7           | 0        | <b>7</b>      | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 63         |
| 12 PM       | <b>6</b> | 42              | 9           | <b>2</b> | 4             | 0             | 0             | 0             | <b>1</b>      | 0             | 0            | 0            | 0            | 64         |
| 13:00       | 3        | 43              | 5           | 0        | 5             | 3             | 0             | <b>1</b>      | 0             | 0             | 0            | 0            | 0            | 60         |
| 14:00       | 1        | 27              | 4           | 0        | 3             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 36         |
| 15:00       | 5        | 32              | 8           | 0        | <b>8</b>      | <b>5</b>      | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 58         |
| 16:00       | 4        | 35              | 4           | 0        | 6             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 49         |
| 17:00       | 4        | <b>78</b>       | <b>12</b>   | 0        | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | <b>96</b>  |
| 18:00       | 1        | 9               | 2           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 12         |
| 19:00       | 0        | 7               | 4           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 11         |
| 20:00       | 2        | 3               | 1           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 6          |
| 21:00       | 0        | 3               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 3          |
| 22:00       | 0        | 2               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2          |
| 23:00       | 0        | 0               | 2           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2          |
| Total       | 38       | 560             | 103         | 3        | 49            | 21            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 777        |
| Percent     | 4.9%     | 72.1%           | 13.3%       | 0.4%     | 6.3%          | 2.7%          | 0.0%          | 0.1%          | 0.3%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |
| AM Peak     | 09:00    | 07:00           | 09:00       | 06:00    | 11:00         | 09:00         |               |               | 01:00         |               |              |              |              | 07:00      |
| Vol.        | 4        | 85              | 13          | 1        | 7             | 5             |               |               | 1             |               |              |              |              | 102        |
| PM Peak     | 12:00    | 17:00           | 17:00       | 12:00    | 15:00         | 15:00         |               | 13:00         | 12:00         |               |              |              |              | 17:00      |
| Vol.        | 6        | 78              | 12          | 2        | 8             | 5             |               | 1             | 1             |               |              |              |              | 96         |
| Grand Total | 38       | 560             | 103         | 3        | 49            | 21            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 777        |
| Percent     | 4.9%     | 72.1%           | 13.3%       | 0.4%     | 6.3%          | 2.7%          | 0.0%          | 0.1%          | 0.3%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |

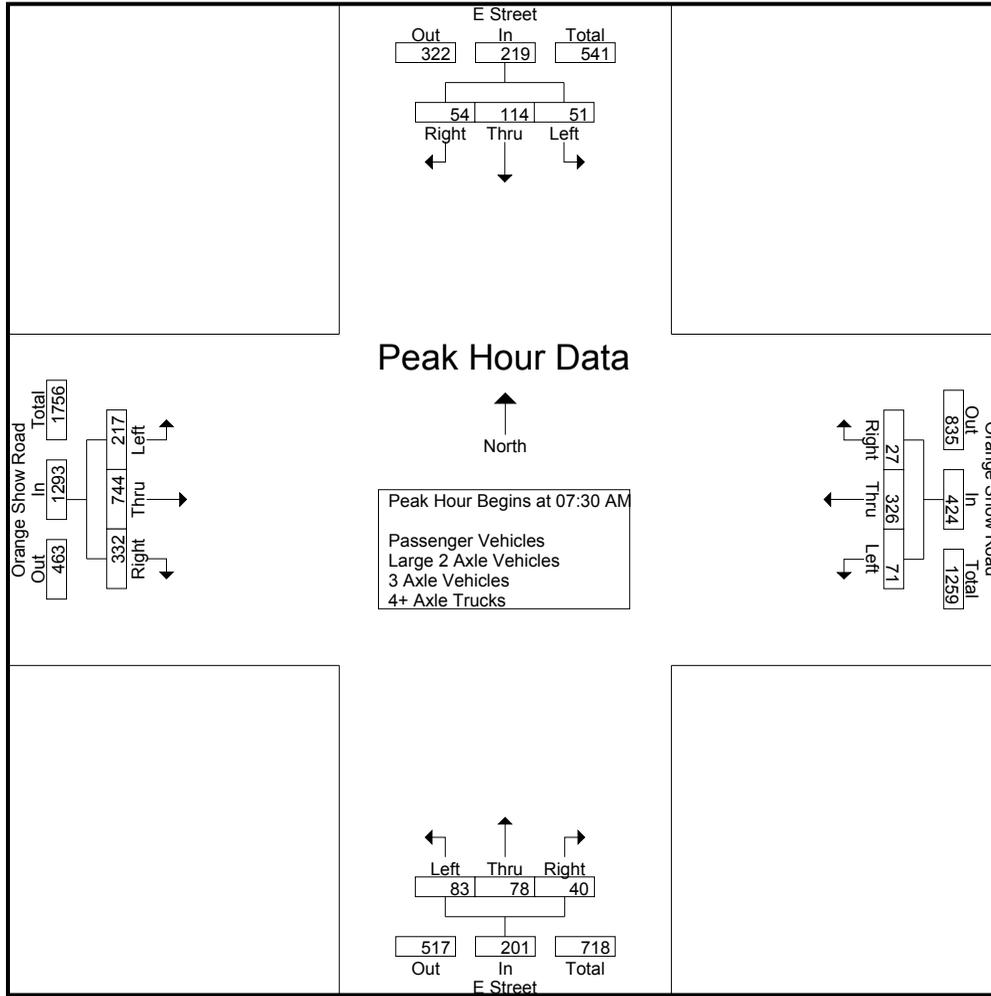
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM                | 7                   | 5    | 5     | 17         | 9                          | 54   | 6     | 69         | 16                  | 18   | 9     | 43         | 36                         | 184  | 44    | 264        | 393        |
| 07:15 AM                | 5                   | 15   | 7     | 27         | 6                          | 65   | 5     | 76         | 15                  | 13   | 16    | 44         | 28                         | 195  | 66    | 289        | 436        |
| 07:30 AM                | 8                   | 19   | 11    | 38         | 17                         | 69   | 7     | 93         | 19                  | 16   | 9     | 44         | 64                         | 198  | 74    | 336        | 511        |
| 07:45 AM                | 17                  | 34   | 12    | 63         | 17                         | 67   | 8     | 92         | 28                  | 21   | 12    | 61         | 52                         | 216  | 96    | 364        | 580        |
| Total                   | 37                  | 73   | 35    | 145        | 49                         | 255  | 26    | 330        | 78                  | 68   | 46    | 192        | 180                        | 793  | 280   | 1253       | 1920       |
| 08:00 AM                | 13                  | 31   | 12    | 56         | 16                         | 76   | 6     | 98         | 20                  | 21   | 13    | 54         | 62                         | 225  | 108   | 395        | 603        |
| 08:15 AM                | 13                  | 30   | 19    | 62         | 21                         | 114  | 6     | 141        | 16                  | 20   | 6     | 42         | 39                         | 105  | 54    | 198        | 443        |
| 08:30 AM                | 5                   | 18   | 24    | 47         | 14                         | 92   | 11    | 117        | 26                  | 27   | 12    | 65         | 47                         | 110  | 58    | 215        | 444        |
| 08:45 AM                | 20                  | 29   | 18    | 67         | 50                         | 64   | 19    | 133        | 25                  | 24   | 3     | 52         | 54                         | 120  | 108   | 282        | 534        |
| Total                   | 51                  | 108  | 73    | 232        | 101                        | 346  | 42    | 489        | 87                  | 92   | 34    | 213        | 202                        | 560  | 328   | 1090       | 2024       |
| Grand Total             | 88                  | 181  | 108   | 377        | 150                        | 601  | 68    | 819        | 165                 | 160  | 80    | 405        | 382                        | 1353 | 608   | 2343       | 3944       |
| Apprch %                | 23.3                | 48   | 28.6  |            | 18.3                       | 73.4 | 8.3   |            | 40.7                | 39.5 | 19.8  |            | 16.3                       | 57.7 | 25.9  |            |            |
| Total %                 | 2.2                 | 4.6  | 2.7   | 9.6        | 3.8                        | 15.2 | 1.7   | 20.8       | 4.2                 | 4.1  | 2     | 10.3       | 9.7                        | 34.3 | 15.4  | 59.4       |            |
| Passenger Vehicles      | 86                  | 145  | 103   | 334        | 112                        | 508  | 67    | 687        | 132                 | 134  | 74    | 340        | 372                        | 1263 | 536   | 2171       | 3532       |
| % Passenger Vehicles    | 97.7                | 80.1 | 95.4  | 88.6       | 74.7                       | 84.5 | 98.5  | 83.9       | 80                  | 83.8 | 92.5  | 84         | 97.4                       | 93.3 | 88.2  | 92.7       | 89.6       |
| Large 2 Axle Vehicles   | 0                   | 24   | 4     | 28         | 36                         | 45   | 1     | 82         | 26                  | 14   | 5     | 45         | 7                          | 28   | 69    | 104        | 259        |
| % Large 2 Axle Vehicles | 0                   | 13.3 | 3.7   | 7.4        | 24                         | 7.5  | 1.5   | 10         | 15.8                | 8.8  | 6.2   | 11.1       | 1.8                        | 2.1  | 11.3  | 4.4        | 6.6        |
| 3 Axle Vehicles         | 2                   | 12   | 0     | 14         | 2                          | 14   | 0     | 16         | 1                   | 12   | 1     | 14         | 1                          | 14   | 3     | 18         | 62         |
| % 3 Axle Vehicles       | 2.3                 | 6.6  | 0     | 3.7        | 1.3                        | 2.3  | 0     | 2          | 0.6                 | 7.5  | 1.2   | 3.5        | 0.3                        | 1    | 0.5   | 0.8        | 1.6        |
| 4+ Axle Trucks          | 0                   | 0    | 1     | 1          | 0                          | 34   | 0     | 34         | 6                   | 0    | 0     | 6          | 2                          | 48   | 0     | 50         | 91         |
| % 4+ Axle Trucks        | 0                   | 0    | 0.9   | 0.3        | 0                          | 5.7  | 0     | 4.2        | 3.6                 | 0    | 0     | 1.5        | 0.5                        | 3.5  | 0     | 2.1        | 2.3        |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 8                   | 19   | 11    | 38         | 17                         | 69   | 7     | 93         | 19                  | 16   | 9     | 44         | 64                         | 198  | 74    | 336        | 511        |
| 07:45 AM   | 17                  | 34   | 12    | 63         | 17                         | 67   | 8     | 92         | 28                  | 21   | 12    | 61         | 52                         | 216  | 96    | 364        | 580        |
| 08:00 AM   | 13                  | 31   | 12    | 56         | 16                         | 76   | 6     | 98         | 20                  | 21   | 13    | 54         | 62                         | 225  | 108   | 395        | 603        |
| 08:15 AM   | 13                  | 30   | 19    | 62         | 21                         | 114  | 6     | 141        | 16                  | 20   | 6     | 42         | 39                         | 105  | 54    | 198        | 443        |
| Total Volume   | 51                  | 114  | 54    | 219        | 71                         | 326  | 27    | 424        | 83                  | 78   | 40    | 201        | 217                        | 744  | 332   | 1293       | 2137       |
| % App. Total   | 23.3                | 52.1 | 24.7  |            | 16.7                       | 76.9 | 6.4   |            | 41.3                | 38.8 | 19.9  |            | 16.8                       | 57.5 | 25.7  |            |            |
| PHF  | .750                | .838 | .711  | .869       | .845                       | .715 | .844  | .752       | .741                | .929 | .769  | .824       | .848                       | .827 | .769  | .818       | .886       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 08:00 AM  |           |           |           | 08:00 AM  |            |           |            | 07:45 AM  |           |           |           | 07:15 AM  |            |            |            |
|--------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| +0 mins.     | 13        | <b>31</b> | 12        | 56        | 16        | 76         | 6         | 98         | <b>28</b> | 21        | 12        | 61        | 28        | 195        | 66         | 289        |
| +15 mins.    | 13        | 30        | 19        | 62        | 21        | <b>114</b> | 6         | <b>141</b> | 20        | 21        | <b>13</b> | 54        | <b>64</b> | 198        | 74         | 336        |
| +30 mins.    | 5         | 18        | <b>24</b> | 47        | 14        | 92         | 11        | 117        | 16        | 20        | 6         | 42        | 52        | 216        | 96         | 364        |
| +45 mins.    | <b>20</b> | 29        | 18        | <b>67</b> | <b>50</b> | 64         | <b>19</b> | 133        | 26        | <b>27</b> | 12        | <b>65</b> | 62        | <b>225</b> | <b>108</b> | <b>395</b> |
| Total Volume | 51        | 108       | 73        | 232       | 101       | 346        | 42        | 489        | 90        | 89        | 43        | 222       | 206       | 834        | 344        | 1384       |
| % App. Total | 22        | 46.6      | 31.5      |           | 20.7      | 70.8       | 8.6       |            | 40.5      | 40.1      | 19.4      |           | 14.9      | 60.3       | 24.9       |            |
| PHF          | .638      | .871      | .760      | .866      | .505      | .759       | .553      | .867       | .804      | .824      | .827      | .854      | .805      | .927       | .796       | .876       |

City of San Bernardino  
 N/S: E Street  
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File Name : SBCEBORAM  
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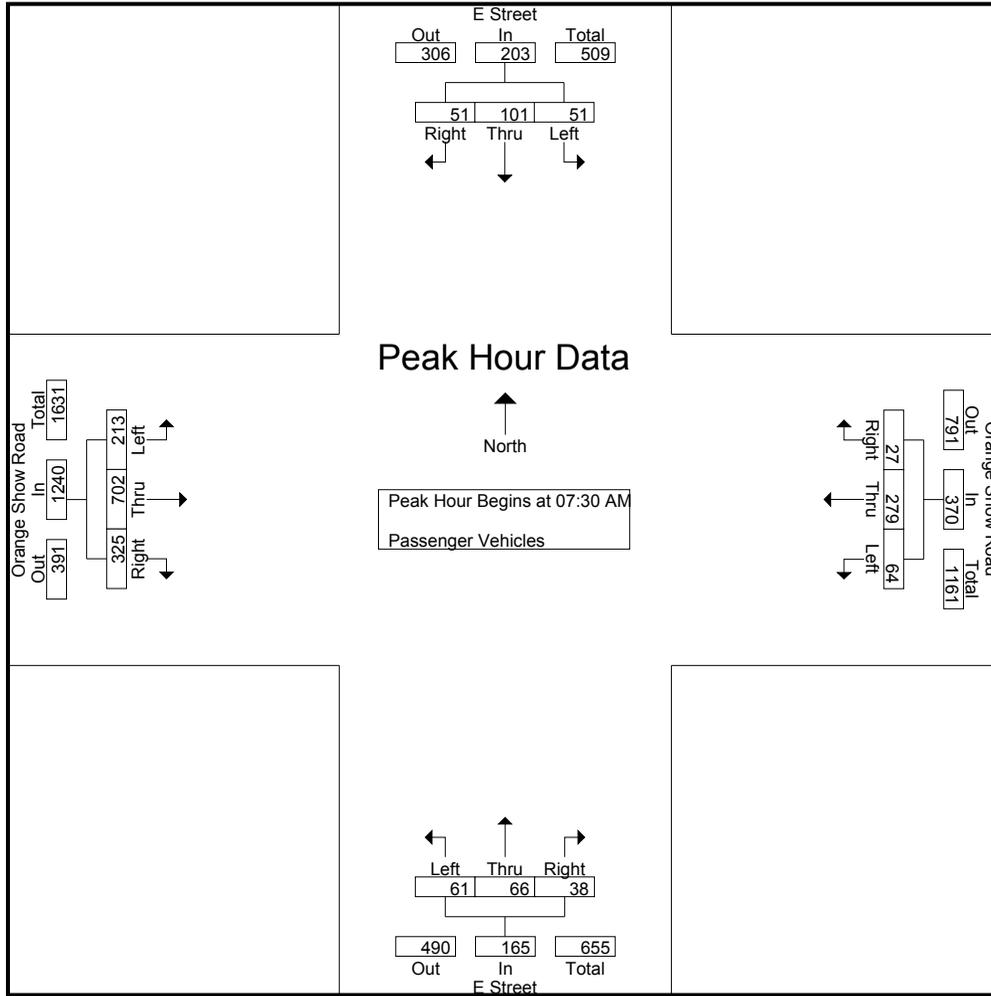
Groups Printed- Passenger Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 5                   | 4    | 5     | 14         | 8                          | 48   | 6     | 62         | 10                  | 12   | 7     | 29         | 35                         | 175  | 44    | 254        | 359        |
| 07:15 AM    | 5                   | 9    | 6     | 20         | 6                          | 48   | 5     | 59         | 12                  | 11   | 14    | 37         | 28                         | 189  | 66    | 283        | 399        |
| 07:30 AM    | 8                   | 17   | 9     | 34         | 16                         | 55   | 7     | 78         | 12                  | 14   | 8     | 34         | 63                         | 187  | 74    | 324        | 470        |
| 07:45 AM    | 17                  | 29   | 12    | 58         | 17                         | 59   | 8     | 84         | 17                  | 15   | 11    | 43         | 50                         | 205  | 95    | 350        | 535        |
| Total       | 35                  | 59   | 32    | 126        | 47                         | 210  | 26    | 283        | 51                  | 52   | 40    | 143        | 176                        | 756  | 279   | 1211       | 1763       |
| 08:00 AM    | 13                  | 29   | 12    | 54         | 13                         | 67   | 6     | 86         | 19                  | 20   | 13    | 52         | 62                         | 216  | 104   | 382        | 574        |
| 08:15 AM    | 13                  | 26   | 18    | 57         | 18                         | 98   | 6     | 122        | 13                  | 17   | 6     | 36         | 38                         | 94   | 52    | 184        | 399        |
| 08:30 AM    | 5                   | 15   | 23    | 43         | 7                          | 82   | 11    | 100        | 26                  | 24   | 12    | 62         | 45                         | 92   | 45    | 182        | 387        |
| 08:45 AM    | 20                  | 16   | 18    | 54         | 27                         | 51   | 18    | 96         | 23                  | 21   | 3     | 47         | 51                         | 105  | 56    | 212        | 409        |
| Total       | 51                  | 86   | 71    | 208        | 65                         | 298  | 41    | 404        | 81                  | 82   | 34    | 197        | 196                        | 507  | 257   | 960        | 1769       |
| Grand Total | 86                  | 145  | 103   | 334        | 112                        | 508  | 67    | 687        | 132                 | 134  | 74    | 340        | 372                        | 1263 | 536   | 2171       | 3532       |
| Apprch %    | 25.7                | 43.4 | 30.8  |            | 16.3                       | 73.9 | 9.8   |            | 38.8                | 39.4 | 21.8  |            | 17.1                       | 58.2 | 24.7  |            |            |
| Total %     | 2.4                 | 4.1  | 2.9   | 9.5        | 3.2                        | 14.4 | 1.9   | 19.5       | 3.7                 | 3.8  | 2.1   | 9.6        | 10.5                       | 35.8 | 15.2  | 61.5       |            |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |           |          |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |            |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|-----------|----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|------------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru      | Right    | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right      | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |           |           |            |                            |           |          |            |                     |           |           |            |                            |            |            |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |           |           |            |                            |           |          |            |                     |           |           |            |                            |            |            |            |            |
| 07:30 AM   | 8                   | 17        | 9         | 34         | 16                         | 55        | 7        | 78         | 12                  | 14        | 8         | 34         | <b>63</b>                  | 187        | 74         | 324        | 470        |
| 07:45 AM   | <b>17</b>           | <b>29</b> | 12        | <b>58</b>  | 17                         | 59        | <b>8</b> | 84         | 17                  | 15        | 11        | 43         | 50                         | 205        | 95         | 350        | 535        |
| 08:00 AM   | 13                  | 29        | 12        | 54         | 13                         | 67        | 6        | 86         | <b>19</b>           | <b>20</b> | <b>13</b> | <b>52</b>  | 62                         | <b>216</b> | <b>104</b> | <b>382</b> | <b>574</b> |
| 08:15 AM   | 13                  | 26        | <b>18</b> | 57         | <b>18</b>                  | <b>98</b> | 6        | <b>122</b> | 13                  | 17        | 6         | 36         | 38                         | 94         | 52         | 184        | 399        |
| Total Volume   | 51                  | 101       | 51        | 203        | 64                         | 279       | 27       | 370        | 61                  | 66        | 38        | 165        | 213                        | 702        | 325        | 1240       | 1978       |
| % App. Total   | 25.1                | 49.8      | 25.1      |            | 17.3                       | 75.4      | 7.3      |            | 37                  | 40        | 23        |            | 17.2                       | 56.6       | 26.2       |            |            |
| PHF  | .750                | .871      | .708      | .875       | .889                       | .712      | .844     | .758       | .803                | .825      | .731      | .793       | .845                       | .813       | .781       | .812       | .861       |

City of San Bernardino  
 N/S: E Street  
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File Name : SBCEBORAM  
 Site Code : 07515438  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM  |           |           |           | 07:30 AM  |           |          |            | 07:30 AM  |           |           |           | 07:30 AM  |            |            |            |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| +0 mins.     | 8         | 17        | 9         | 34        | 16        | 55        | 7        | 78         | 12        | 14        | 8         | 34        | <b>63</b> | 187        | 74         | 324        |
| +15 mins.    | <b>17</b> | <b>29</b> | 12        | <b>58</b> | 17        | 59        | <b>8</b> | 84         | 17        | 15        | 11        | 43        | 50        | 205        | 95         | 350        |
| +30 mins.    | 13        | 29        | 12        | 54        | 13        | 67        | 6        | 86         | <b>19</b> | <b>20</b> | <b>13</b> | <b>52</b> | 62        | <b>216</b> | <b>104</b> | <b>382</b> |
| +45 mins.    | 13        | 26        | <b>18</b> | 57        | <b>18</b> | <b>98</b> | 6        | <b>122</b> | 13        | 17        | 6         | 36        | 38        | 94         | 52         | 184        |
| Total Volume | 51        | 101       | 51        | 203       | 64        | 279       | 27       | 370        | 61        | 66        | 38        | 165       | 213       | 702        | 325        | 1240       |
| % App. Total | 25.1      | 49.8      | 25.1      |           | 17.3      | 75.4      | 7.3      |            | 37        | 40        | 23        |           | 17.2      | 56.6       | 26.2       |            |
| PHF          | .750      | .871      | .708      | .875      | .889      | .712      | .844     | .758       | .803      | .825      | .731      | .793      | .845      | .813       | .781       | .812       |

City of San Bernardino  
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File Name : SBCEBORAM  
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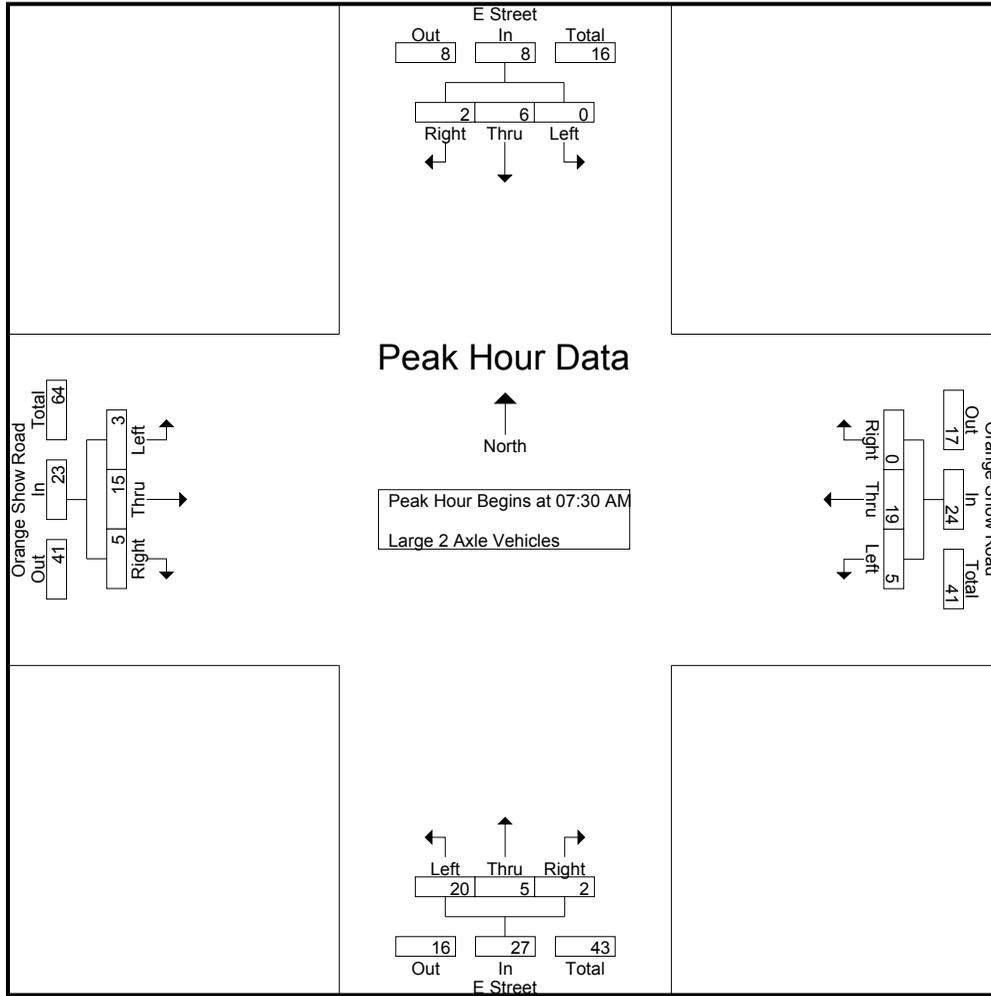
Groups Printed- Large 2 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                   | 0    | 0     | 0          | 1                          | 2    | 0     | 3          | 5                   | 6    | 2     | 13         | 1                          | 0    | 0     | 1          | 17         |
| 07:15 AM    | 0                   | 4    | 1     | 5          | 0                          | 9    | 0     | 9          | 1                   | 1    | 1     | 3          | 0                          | 1    | 0     | 1          | 18         |
| 07:30 AM    | 0                   | 1    | 1     | 2          | 0                          | 2    | 0     | 2          | 7                   | 0    | 1     | 8          | 1                          | 3    | 0     | 4          | 16         |
| 07:45 AM    | 0                   | 3    | 0     | 3          | 0                          | 4    | 0     | 4          | 10                  | 4    | 1     | 15         | 2                          | 5    | 1     | 8          | 30         |
| Total       | 0                   | 8    | 2     | 10         | 1                          | 17   | 0     | 18         | 23                  | 11   | 5     | 39         | 4                          | 9    | 1     | 14         | 81         |
| 08:00 AM    | 0                   | 1    | 0     | 1          | 3                          | 4    | 0     | 7          | 1                   | 0    | 0     | 1          | 0                          | 3    | 2     | 5          | 14         |
| 08:15 AM    | 0                   | 1    | 1     | 2          | 2                          | 9    | 0     | 11         | 2                   | 1    | 0     | 3          | 0                          | 4    | 2     | 6          | 22         |
| 08:30 AM    | 0                   | 2    | 1     | 3          | 7                          | 8    | 0     | 15         | 0                   | 0    | 0     | 0          | 1                          | 5    | 13    | 19         | 37         |
| 08:45 AM    | 0                   | 12   | 0     | 12         | 23                         | 7    | 1     | 31         | 0                   | 2    | 0     | 2          | 2                          | 7    | 51    | 60         | 105        |
| Total       | 0                   | 16   | 2     | 18         | 35                         | 28   | 1     | 64         | 3                   | 3    | 0     | 6          | 3                          | 19   | 68    | 90         | 178        |
| Grand Total | 0                   | 24   | 4     | 28         | 36                         | 45   | 1     | 82         | 26                  | 14   | 5     | 45         | 7                          | 28   | 69    | 104        | 259        |
| Apprch %    | 0                   | 85.7 | 14.3  |            | 43.9                       | 54.9 | 1.2   |            | 57.8                | 31.1 | 11.1  |            | 6.7                        | 26.9 | 66.3  |            |            |
| Total %     | 0                   | 9.3  | 1.5   | 10.8       | 13.9                       | 17.4 | 0.4   | 31.7       | 10                  | 5.4  | 1.9   | 17.4       | 2.7                        | 10.8 | 26.6  | 40.2       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 0                   | 1    | 1     | 2          | 0                          | 2    | 0     | 2          | 7                   | 0    | 1     | 8          | 1                          | 3    | 0     | 4          | 16         |
| 07:45 AM   | 0                   | 3    | 0     | 3          | 0                          | 4    | 0     | 4          | 10                  | 4    | 1     | 15         | 2                          | 5    | 1     | 8          | 30         |
| 08:00 AM   | 0                   | 1    | 0     | 1          | 3                          | 4    | 0     | 7          | 1                   | 0    | 0     | 1          | 0                          | 3    | 2     | 5          | 14         |
| 08:15 AM   | 0                   | 1    | 1     | 2          | 2                          | 9    | 0     | 11         | 2                   | 1    | 0     | 3          | 0                          | 4    | 2     | 6          | 22         |
| Total Volume   | 0                   | 6    | 2     | 8          | 5                          | 19   | 0     | 24         | 20                  | 5    | 2     | 27         | 3                          | 15   | 5     | 23         | 82         |
| % App. Total   | 0                   | 75   | 25    |            | 20.8                       | 79.2 | 0     |            | 74.1                | 18.5 | 7.4   |            | 13                         | 65.2 | 21.7  |            |            |
| PHF  | .000                | .500 | .500  | .667       | .417                       | .528 | .000  | .545       | .500                | .313 | .500  | .450       | .375                       | .750 | .625  | .719       | .683       |

City of San Bernardino  
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File Name : SBCESORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 1    | 2    | 0        | 2    | 0    | 2    | 7        | 0    | 1    | 8    | 1        | 3    | 0    | 4    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 4    | 0    | 4    | 10       | 4    | 1    | 15   | 2        | 5    | 1    | 8    |
| +30 mins.    | 0        | 1    | 0    | 1    | 3        | 4    | 0    | 7    | 1        | 0    | 0    | 1    | 0        | 3    | 2    | 5    |
| +45 mins.    | 0        | 1    | 1    | 2    | 2        | 9    | 0    | 11   | 2        | 1    | 0    | 3    | 0        | 4    | 2    | 6    |
| Total Volume | 0        | 6    | 2    | 8    | 5        | 19   | 0    | 24   | 20       | 5    | 2    | 27   | 3        | 15   | 5    | 23   |
| % App. Total | 0        | 75   | 25   |      | 20.8     | 79.2 | 0    |      | 74.1     | 18.5 | 7.4  |      | 13       | 65.2 | 21.7 |      |
| PHF          | .000     | .500 | .500 | .667 | .417     | .528 | .000 | .545 | .500     | .313 | .500 | .450 | .375     | .750 | .625 | .719 |

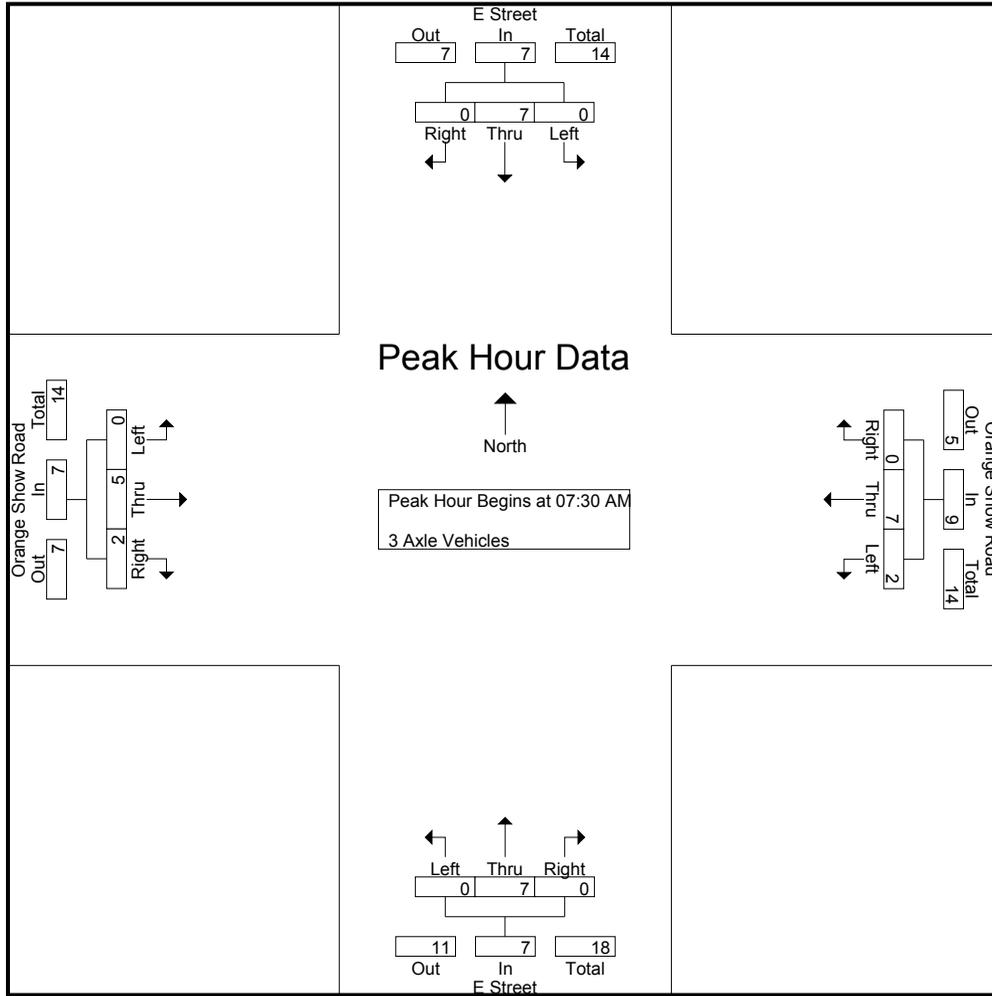
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |    |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|----|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |    |
| 07:00 AM    | 2                   | 1    | 0     | 3          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0          | 4  |
| 07:15 AM    | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 0                   | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 1          | 7  |
| 07:30 AM    | 0                   | 1    | 0     | 1          | 1                          | 4    | 0     | 5          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 9  |
| 07:45 AM    | 0                   | 2    | 0     | 2          | 0                          | 0    | 0     | 0          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 5  |
| Total       | 2                   | 6    | 0     | 8          | 1                          | 7    | 0     | 8          | 0                   | 5    | 1     | 6          | 0                          | 3    | 0     | 3          | 3          | 25 |
| 08:00 AM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 1    | 2     | 3          | 3          | 6  |
| 08:15 AM    | 0                   | 3    | 0     | 3          | 1                          | 2    | 0     | 3          | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 2          | 10 |
| 08:30 AM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 3    | 0     | 3          | 1                          | 5    | 0     | 6          | 6          | 11 |
| 08:45 AM    | 0                   | 1    | 0     | 1          | 0                          | 3    | 0     | 3          | 1                   | 1    | 0     | 2          | 0                          | 3    | 1     | 4          | 4          | 10 |
| Total       | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 7    | 0     | 8          | 1                          | 11   | 3     | 15         | 15         | 37 |
| Grand Total | 2                   | 12   | 0     | 14         | 2                          | 14   | 0     | 16         | 1                   | 12   | 1     | 14         | 1                          | 14   | 3     | 18         | 18         | 62 |
| Apprch %    | 14.3                | 85.7 | 0     |            | 12.5                       | 87.5 | 0     |            | 7.1                 | 85.7 | 7.1   |            | 5.6                        | 77.8 | 16.7  |            |            |    |
| Total %     | 3.2                 | 19.4 | 0     | 22.6       | 3.2                        | 22.6 | 0     | 25.8       | 1.6                 | 19.4 | 1.6   | 22.6       | 1.6                        | 22.6 | 4.8   | 29         |            |    |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |      |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |      |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |      |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |      |
| 07:30 AM   | 0                   | 1    | 0     | 1          | 1                          | 4    | 0     | 5          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 9    |
| 07:45 AM   | 0                   | 2    | 0     | 2          | 0                          | 0    | 0     | 0          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 5    |
| 08:00 AM   | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 1    | 2     | 3          | 3          | 6    |
| 08:15 AM   | 0                   | 3    | 0     | 3          | 1                          | 2    | 0     | 3          | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 2          | 10   |
| Total Volume   | 0                   | 7    | 0     | 7          | 2                          | 7    | 0     | 9          | 0                   | 7    | 0     | 7          | 0                          | 5    | 2     | 7          | 7          | 30   |
| % App. Total   | 0                   | 100  | 0     |            | 22.2                       | 77.8 | 0     |            | 0                   | 100  | 0     |            | 0                          | 71.4 | 28.6  |            |            |      |
| PHF  | .000                | .583 | .000  | .583       | .500                       | .438 | .000  | .450       | .000                | .875 | .000  | .875       | .000                       | .625 | .250  | .583       |            | .750 |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 0    | 1    | 1        | 4    | 0    | 5    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 2    | 3    |
| +45 mins.    | 0        | 3    | 0    | 3    | 1        | 2    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 2    | 0    | 2    |
| Total Volume | 0        | 7    | 0    | 7    | 2        | 7    | 0    | 9    | 0        | 7    | 0    | 7    | 0        | 5    | 2    | 7    |
| % App. Total | 0        | 100  | 0    |      | 22.2     | 77.8 | 0    |      | 0        | 100  | 0    |      | 0        | 71.4 | 28.6 |      |
| PHF          | .000     | .583 | .000 | .583 | .500     | .438 | .000 | .450 | .000     | .875 | .000 | .875 | .000     | .625 | .250 | .583 |

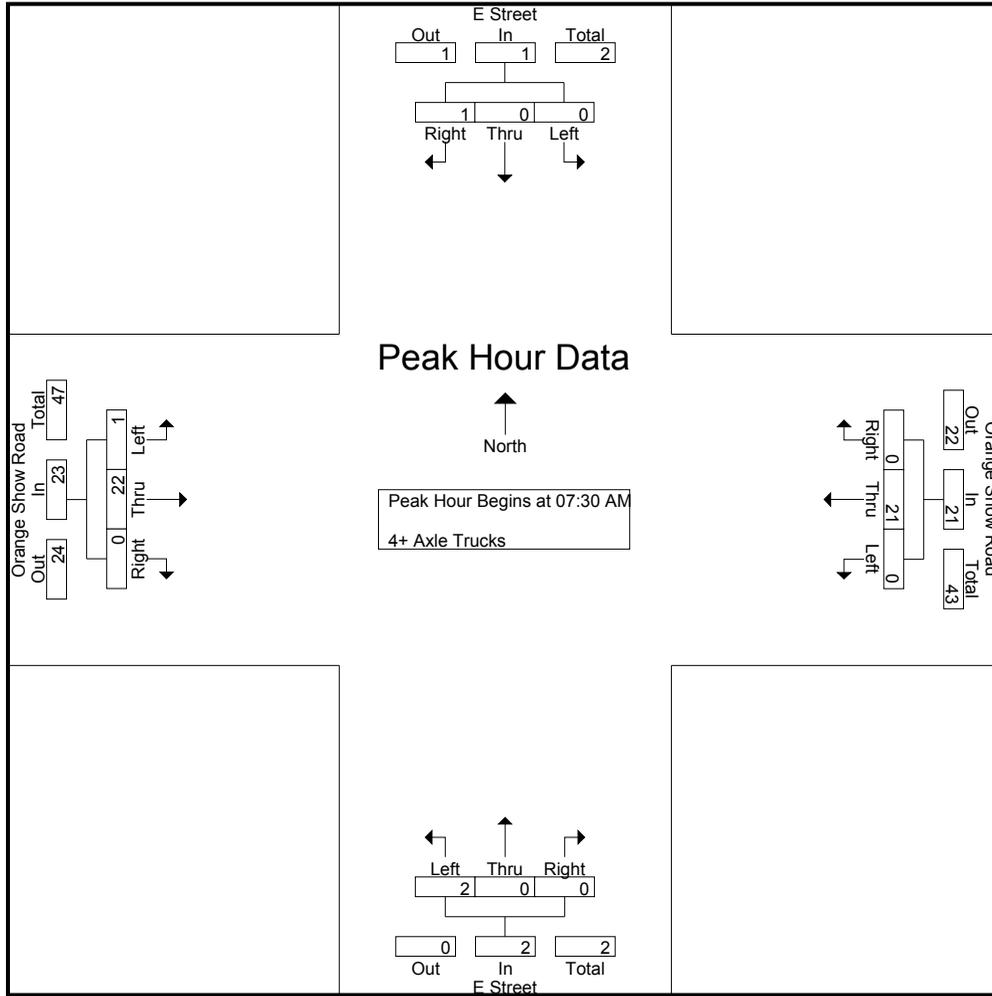
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 1                   | 0    | 0     | 1          | 0                          | 9    | 0     | 9          | 13         |
| 07:15 AM    | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 2                   | 0    | 0     | 2          | 0                          | 4    | 0     | 4          | 12         |
| 07:30 AM    | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 0                   | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 16         |
| 07:45 AM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                   | 0    | 0     | 1          | 0                          | 5    | 0     | 5          | 10         |
| Total       | 0                   | 0    | 1     | 1          | 0                          | 21   | 0     | 21         | 4                   | 0    | 0     | 4          | 0                          | 25   | 0     | 25         | 51         |
| 08:00 AM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 9          |
| 08:15 AM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 12         |
| 08:30 AM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 8    | 0     | 8          | 9          |
| 08:45 AM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 10         |
| Total       | 0                   | 0    | 0     | 0          | 0                          | 13   | 0     | 13         | 2                   | 0    | 0     | 2          | 2                          | 23   | 0     | 25         | 40         |
| Grand Total | 0                   | 0    | 1     | 1          | 0                          | 34   | 0     | 34         | 6                   | 0    | 0     | 6          | 2                          | 48   | 0     | 50         | 91         |
| Apprch %    | 0                   | 0    | 100   |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 4                          | 96   | 0     |            |            |
| Total %     | 0                   | 0    | 1.1   | 1.1        | 0                          | 37.4 | 0     | 37.4       | 6.6                 | 0    | 0     | 6.6        | 2.2                        | 52.7 | 0     | 54.9       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 0                   | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 16         |
| 07:45 AM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                   | 0    | 0     | 1          | 0                          | 5    | 0     | 5          | 10         |
| 08:00 AM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 9          |
| 08:15 AM   | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 12         |
| Total Volume   | 0                   | 0    | 1     | 1          | 0                          | 21   | 0     | 21         | 2                   | 0    | 0     | 2          | 1                          | 22   | 0     | 23         | 47         |
| % App. Total   | 0                   | 0    | 100   |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 4.3                        | 95.7 | 0     |            |            |
| PHF  | .000                | .000 | .250  | .250       | .000                       | .656 | .000  | .656       | .500                | .000 | .000  | .500       | .250                       | .786 | .000  | .821       | .734       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 1    | 1    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    | 0        | 7    | 0    | 7    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 1        | 0    | 0    | 1    | 0        | 5    | 0    | 5    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 1        | 0    | 0    | 1    | 1        | 5    | 0    | 6    |
| Total Volume | 0        | 0    | 1    | 1    | 0        | 21   | 0    | 21   | 2        | 0    | 0    | 2    | 1        | 22   | 0    | 23   |
| % App. Total | 0        | 0    | 100  |      | 0        | 100  | 0    |      | 100      | 0    | 0    |      | 4.3      | 95.7 | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .656 | .000 | .656 | .500     | .000 | .000 | .500 | .250     | .786 | .000 | .821 |

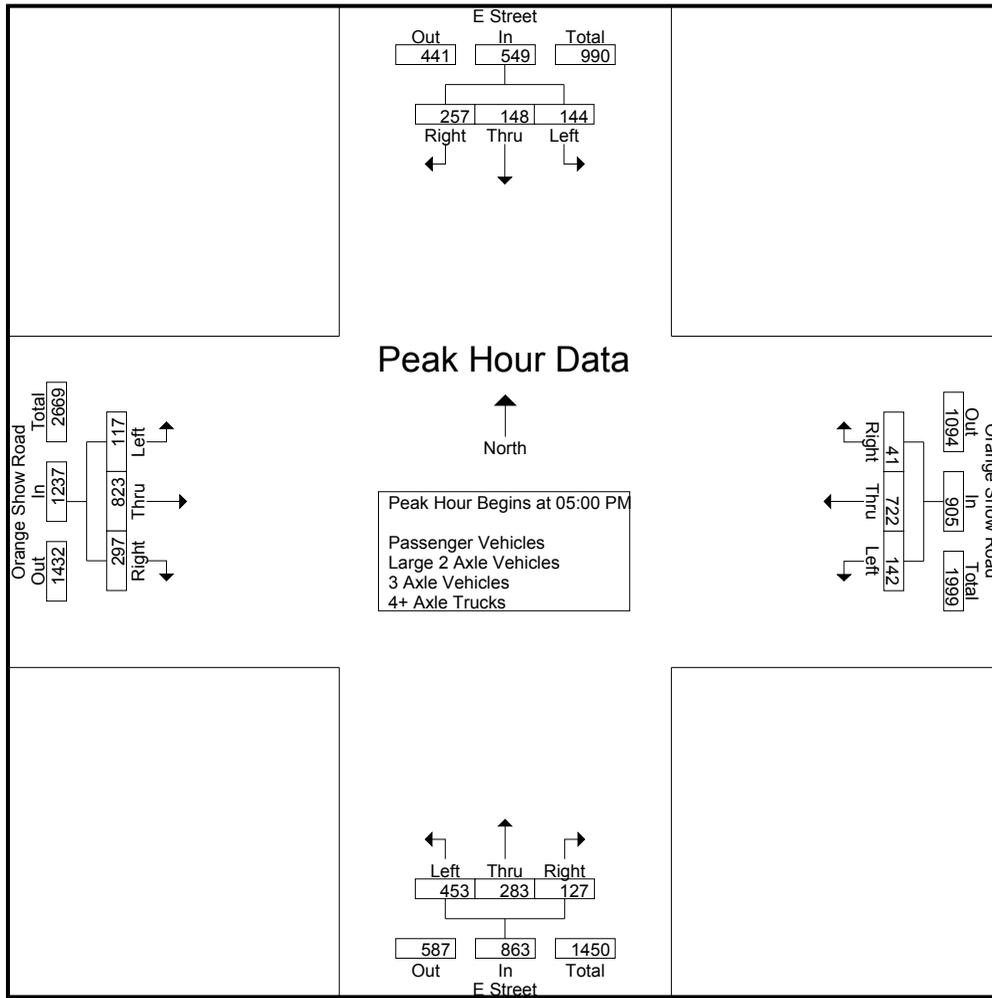
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 38                  | 50   | 66    | 154        | 40                         | 132  | 8     | 180        | 91                  | 39   | 12    | 142        | 34                         | 98   | 79    | 211        | 687        |
| 04:15 PM                | 27                  | 38   | 64    | 129        | 36                         | 129  | 9     | 174        | 86                  | 47   | 22    | 155        | 41                         | 109  | 63    | 213        | 671        |
| 04:30 PM                | 40                  | 38   | 46    | 124        | 25                         | 169  | 18    | 212        | 95                  | 34   | 16    | 145        | 53                         | 154  | 63    | 270        | 751        |
| 04:45 PM                | 37                  | 48   | 60    | 145        | 23                         | 141  | 17    | 181        | 91                  | 46   | 23    | 160        | 41                         | 119  | 64    | 224        | 710        |
| Total                   | 142                 | 174  | 236   | 552        | 124                        | 571  | 52    | 747        | 363                 | 166  | 73    | 602        | 169                        | 480  | 269   | 918        | 2819       |
| 05:00 PM                | 31                  | 37   | 80    | 148        | 31                         | 171  | 8     | 210        | 105                 | 68   | 26    | 199        | 39                         | 205  | 76    | 320        | 877        |
| 05:15 PM                | 31                  | 41   | 60    | 132        | 42                         | 172  | 7     | 221        | 119                 | 76   | 38    | 233        | 26                         | 194  | 73    | 293        | 879        |
| 05:30 PM                | 46                  | 38   | 66    | 150        | 42                         | 195  | 18    | 255        | 124                 | 74   | 30    | 228        | 25                         | 217  | 83    | 325        | 958        |
| 05:45 PM                | 36                  | 32   | 51    | 119        | 27                         | 184  | 8     | 219        | 105                 | 65   | 33    | 203        | 27                         | 207  | 65    | 299        | 840        |
| Total                   | 144                 | 148  | 257   | 549        | 142                        | 722  | 41    | 905        | 453                 | 283  | 127   | 863        | 117                        | 823  | 297   | 1237       | 3554       |
| Grand Total             | 286                 | 322  | 493   | 1101       | 266                        | 1293 | 93    | 1652       | 816                 | 449  | 200   | 1465       | 286                        | 1303 | 566   | 2155       | 6373       |
| Apprch %                | 26                  | 29.2 | 44.8  |            | 16.1                       | 78.3 | 5.6   |            | 55.7                | 30.6 | 13.7  |            | 13.3                       | 60.5 | 26.3  |            |            |
| Total %                 | 4.5                 | 5.1  | 7.7   | 17.3       | 4.2                        | 20.3 | 1.5   | 25.9       | 12.8                | 7    | 3.1   | 23         | 4.5                        | 20.4 | 8.9   | 33.8       |            |
| Passenger Vehicles      | 283                 | 273  | 487   | 1043       | 230                        | 1221 | 91    | 1542       | 802                 | 433  | 195   | 1430       | 280                        | 1210 | 496   | 1986       | 6001       |
| % Passenger Vehicles    | 99                  | 84.8 | 98.8  | 94.7       | 86.5                       | 94.4 | 97.8  | 93.3       | 98.3                | 96.4 | 97.5  | 97.6       | 97.9                       | 92.9 | 87.6  | 92.2       | 94.2       |
| Large 2 Axle Vehicles   | 3                   | 36   | 5     | 44         | 35                         | 19   | 2     | 56         | 9                   | 6    | 4     | 19         | 3                          | 21   | 67    | 91         | 210        |
| % Large 2 Axle Vehicles | 1                   | 11.2 | 1     | 4          | 13.2                       | 1.5  | 2.2   | 3.4        | 1.1                 | 1.3  | 2     | 1.3        | 1                          | 1.6  | 11.8  | 4.2        | 3.3        |
| 3 Axle Vehicles         | 0                   | 12   | 0     | 12         | 1                          | 15   | 0     | 16         | 3                   | 10   | 0     | 13         | 1                          | 17   | 1     | 19         | 60         |
| % 3 Axle Vehicles       | 0                   | 3.7  | 0     | 1.1        | 0.4                        | 1.2  | 0     | 1          | 0.4                 | 2.2  | 0     | 0.9        | 0.3                        | 1.3  | 0.2   | 0.9        | 0.9        |
| 4+ Axle Trucks          | 0                   | 1    | 1     | 2          | 0                          | 38   | 0     | 38         | 2                   | 0    | 1     | 3          | 2                          | 55   | 2     | 59         | 102        |
| % 4+ Axle Trucks        | 0                   | 0.3  | 0.2   | 0.2        | 0                          | 2.9  | 0     | 2.3        | 0.2                 | 0    | 0.5   | 0.2        | 0.7                        | 4.2  | 0.4   | 2.7        | 1.6        |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |            |           |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| 05:00 PM   | 31                  | 37        | <b>80</b> | 148        | 31                         | 171        | 8         | 210        | 105                 | 68        | 26        | 199        | <b>39</b>                  | 205        | 76        | 320        | 877        |
| 05:15 PM   | 31                  | <b>41</b> | 60        | 132        | <b>42</b>                  | 172        | 7         | 221        | 119                 | <b>76</b> | <b>38</b> | <b>233</b> | 26                         | 194        | 73        | 293        | 879        |
| 05:30 PM   | <b>46</b>           | 38        | 66        | <b>150</b> | 42                         | <b>195</b> | <b>18</b> | <b>255</b> | <b>124</b>          | 74        | 30        | 228        | 25                         | <b>217</b> | <b>83</b> | <b>325</b> | <b>958</b> |
| 05:45 PM   | 36                  | 32        | 51        | 119        | 27                         | 184        | 8         | 219        | 105                 | 65        | 33        | 203        | 27                         | 207        | 65        | 299        | 840        |
| Total Volume   | 144                 | 148       | 257       | 549        | 142                        | 722        | 41        | 905        | 453                 | 283       | 127       | 863        | 117                        | 823        | 297       | 1237       | 3554       |
| % App. Total   | 26.2                | 27        | 46.8      |            | 15.7                       | 79.8       | 4.5       |            | 52.5                | 32.8      | 14.7      |            | 9.5                        | 66.5       | 24        |            |            |
| PHF  | .783                | .902      | .803      | .915       | .845                       | .926       | .569      | .887       | .913                | .931      | .836      | .926       | .750                       | .948       | .895      | .952       | .927       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM  |           |           |            | 05:00 PM  |            |           |            | 05:00 PM   |           |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|-----------|-----------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 37        | <b>48</b> | 60        | 145        | 31        | 171        | 8         | 210        | 105        | 68        | 26        | 199        | <b>39</b> | 205        | 76        | 320        |
| +15 mins.    | 31        | 37        | <b>80</b> | 148        | <b>42</b> | 172        | 7         | 221        | 119        | <b>76</b> | <b>38</b> | <b>233</b> | 26        | 194        | 73        | 293        |
| +30 mins.    | 31        | 41        | 60        | 132        | 42        | <b>195</b> | <b>18</b> | <b>255</b> | <b>124</b> | 74        | 30        | 228        | 25        | <b>217</b> | <b>83</b> | <b>325</b> |
| +45 mins.    | <b>46</b> | 38        | 66        | <b>150</b> | 27        | 184        | 8         | 219        | 105        | 65        | 33        | 203        | 27        | 207        | 65        | 299        |
| Total Volume | 145       | 164       | 266       | 575        | 142       | 722        | 41        | 905        | 453        | 283       | 127       | 863        | 117       | 823        | 297       | 1237       |
| % App. Total | 25.2      | 28.5      | 46.3      |            | 15.7      | 79.8       | 4.5       |            | 52.5       | 32.8      | 14.7      |            | 9.5       | 66.5       | 24        |            |
| PHF          | .788      | .854      | .831      | .958       | .845      | .926       | .569      | .887       | .913       | .931      | .836      | .926       | .750      | .948       | .895      | .952       |

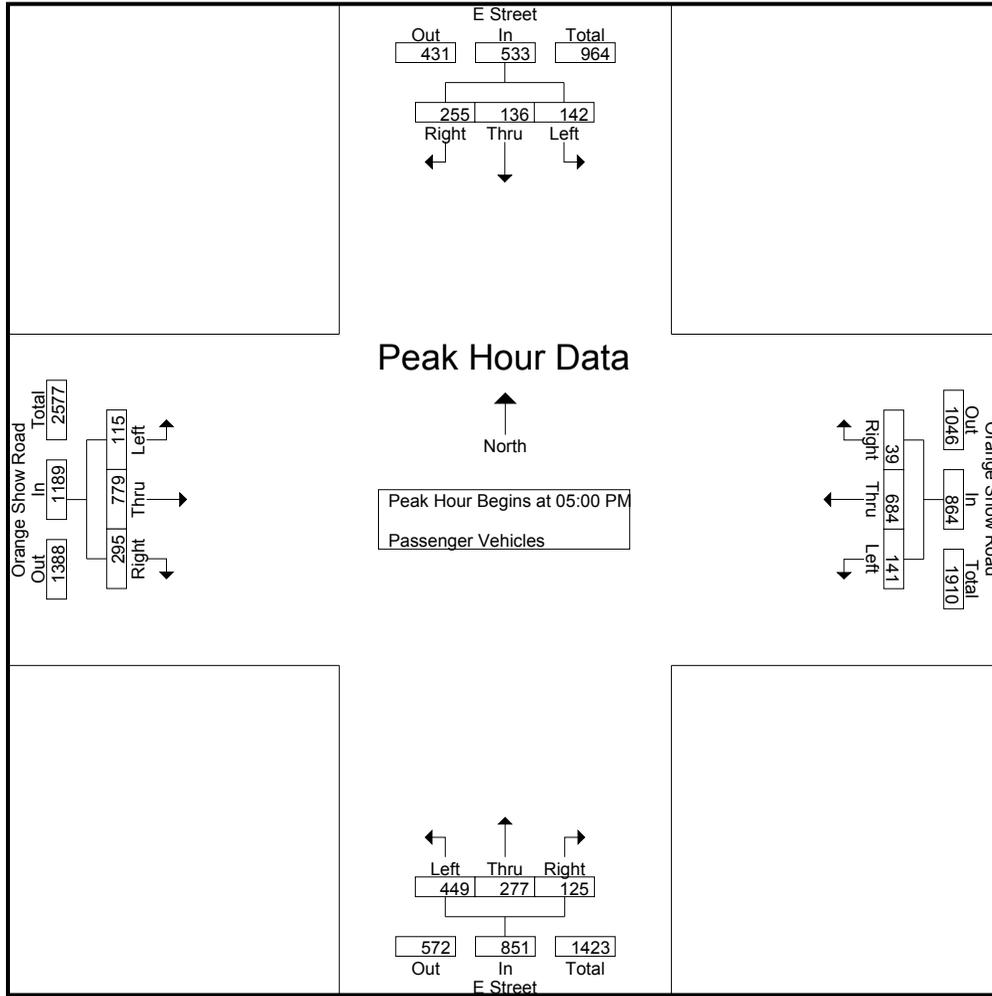
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 38                  | 41   | 64    | 143        | 27                         | 121  | 8     | 156        | 88                  | 37   | 12    | 137        | 33                         | 87   | 49    | 169        | 605        |
| 04:15 PM    | 27                  | 23   | 63    | 113        | 19                         | 120  | 9     | 148        | 84                  | 45   | 19    | 148        | 40                         | 97   | 38    | 175        | 584        |
| 04:30 PM    | 39                  | 30   | 46    | 115        | 22                         | 164  | 18    | 204        | 95                  | 31   | 16    | 142        | 52                         | 138  | 54    | 244        | 705        |
| 04:45 PM    | 37                  | 43   | 59    | 139        | 21                         | 132  | 17    | 170        | 86                  | 43   | 23    | 152        | 40                         | 109  | 60    | 209        | 670        |
| Total       | 141                 | 137  | 232   | 510        | 89                         | 537  | 52    | 678        | 353                 | 156  | 70    | 579        | 165                        | 431  | 201   | 797        | 2564       |
| 05:00 PM    | 30                  | 32   | 79    | 141        | 31                         | 164  | 7     | 202        | 104                 | 67   | 26    | 197        | 38                         | 194  | 75    | 307        | 847        |
| 05:15 PM    | 31                  | 37   | 59    | 127        | 41                         | 165  | 7     | 213        | 119                 | 73   | 38    | 230        | 26                         | 184  | 72    | 282        | 852        |
| 05:30 PM    | 46                  | 36   | 66    | 148        | 42                         | 185  | 17    | 244        | 123                 | 73   | 30    | 226        | 24                         | 207  | 83    | 314        | 932        |
| 05:45 PM    | 35                  | 31   | 51    | 117        | 27                         | 170  | 8     | 205        | 103                 | 64   | 31    | 198        | 27                         | 194  | 65    | 286        | 806        |
| Total       | 142                 | 136  | 255   | 533        | 141                        | 684  | 39    | 864        | 449                 | 277  | 125   | 851        | 115                        | 779  | 295   | 1189       | 3437       |
| Grand Total | 283                 | 273  | 487   | 1043       | 230                        | 1221 | 91    | 1542       | 802                 | 433  | 195   | 1430       | 280                        | 1210 | 496   | 1986       | 6001       |
| Apprch %    | 27.1                | 26.2 | 46.7  |            | 14.9                       | 79.2 | 5.9   |            | 56.1                | 30.3 | 13.6  |            | 14.1                       | 60.9 | 25    |            |            |
| Total %     | 4.7                 | 4.5  | 8.1   | 17.4       | 3.8                        | 20.3 | 1.5   | 25.7       | 13.4                | 7.2  | 3.2   | 23.8       | 4.7                        | 20.2 | 8.3   | 33.1       |            |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |            |           |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| 05:00 PM   | 30                  | 32        | <b>79</b> | 141        | 31                         | 164        | 7         | 202        | 104                 | 67        | 26        | 197        | <b>38</b>                  | 194        | 75        | 307        | 847        |
| 05:15 PM   | 31                  | <b>37</b> | 59        | 127        | 41                         | 165        | 7         | 213        | 119                 | <b>73</b> | <b>38</b> | <b>230</b> | 26                         | 184        | 72        | 282        | 852        |
| 05:30 PM   | <b>46</b>           | 36        | 66        | <b>148</b> | <b>42</b>                  | <b>185</b> | <b>17</b> | <b>244</b> | <b>123</b>          | 73        | 30        | 226        | 24                         | <b>207</b> | <b>83</b> | <b>314</b> | <b>932</b> |
| 05:45 PM   | 35                  | 31        | 51        | 117        | 27                         | 170        | 8         | 205        | 103                 | 64        | 31        | 198        | 27                         | 194        | 65        | 286        | 806        |
| Total Volume   | 142                 | 136       | 255       | 533        | 141                        | 684        | 39        | 864        | 449                 | 277       | 125       | 851        | 115                        | 779        | 295       | 1189       | 3437       |
| % App. Total   | 26.6                | 25.5      | 47.8      |            | 16.3                       | 79.2       | 4.5       |            | 52.8                | 32.5      | 14.7      |            | 9.7                        | 65.5       | 24.8      |            |            |
| PHF  | .772                | .919      | .807      | .900       | .839                       | .924       | .574      | .885       | .913                | .949      | .822      | .925       | .757                       | .941       | .889      | .947       | .922       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM  |           |           |            | 05:00 PM  |            |           |            | 05:00 PM   |           |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|-----------|-----------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 30        | 32        | <b>79</b> | 141        | 31        | 164        | 7         | 202        | 104        | 67        | 26        | 197        | <b>38</b> | 194        | 75        | 307        |
| +15 mins.    | 31        | <b>37</b> | 59        | 127        | 41        | 165        | 7         | 213        | 119        | <b>73</b> | <b>38</b> | <b>230</b> | 26        | 184        | 72        | 282        |
| +30 mins.    | <b>46</b> | 36        | 66        | <b>148</b> | <b>42</b> | <b>185</b> | <b>17</b> | <b>244</b> | <b>123</b> | 73        | 30        | 226        | 24        | <b>207</b> | <b>83</b> | <b>314</b> |
| +45 mins.    | 35        | 31        | 51        | 117        | 27        | 170        | 8         | 205        | 103        | 64        | 31        | 198        | 27        | 194        | 65        | 286        |
| Total Volume | 142       | 136       | 255       | 533        | 141       | 684        | 39        | 864        | 449        | 277       | 125       | 851        | 115       | 779        | 295       | 1189       |
| % App. Total | 26.6      | 25.5      | 47.8      |            | 16.3      | 79.2       | 4.5       |            | 52.8       | 32.5      | 14.7      |            | 9.7       | 65.5       | 24.8      |            |
| PHF          | .772      | .919      | .807      | .900       | .839      | .924       | .574      | .885       | .913       | .949      | .822      | .925       | .757      | .941       | .889      | .947       |

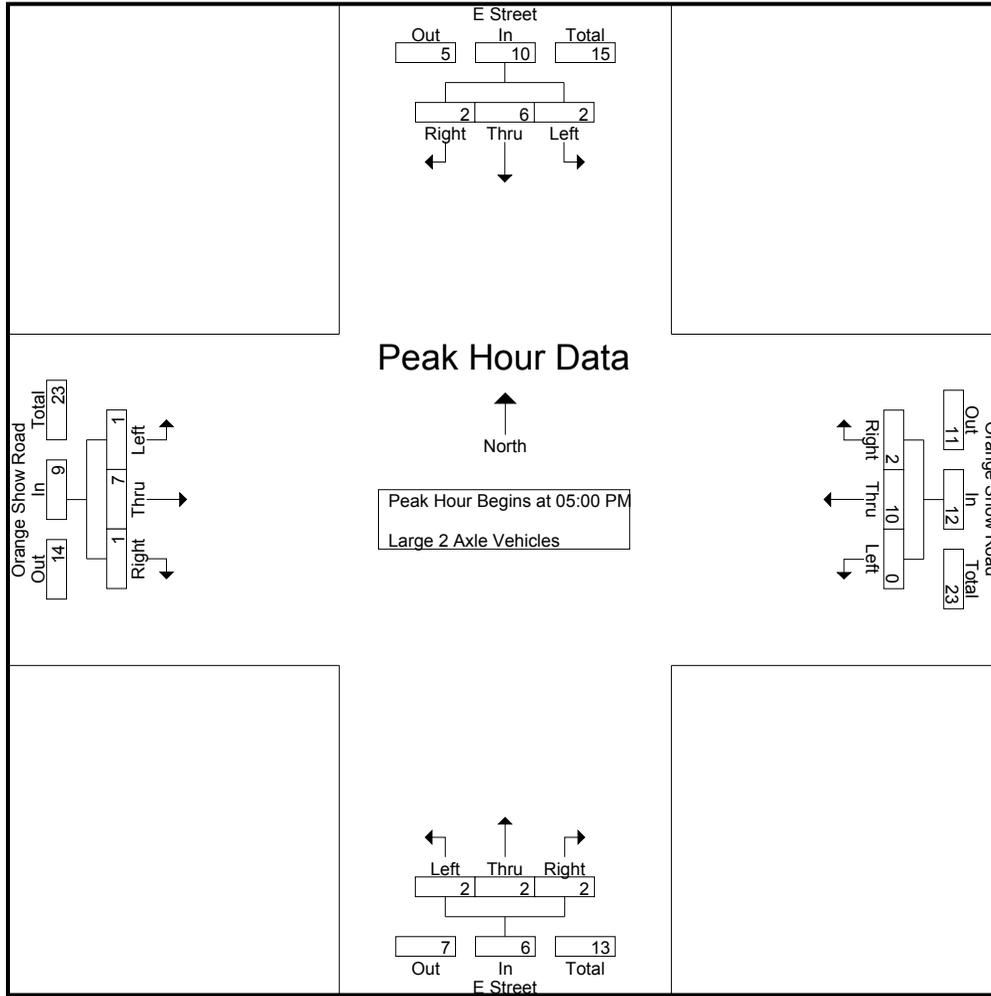
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCESORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 7    | 2     | 9          | 13                         | 2    | 0     | 15         | 1                   | 0    | 0     | 1          | 0                          | 6    | 30    | 36         | 61         |
| 04:15 PM    | 0                   | 12   | 0     | 12         | 17                         | 1    | 0     | 18         | 2                   | 2    | 2     | 6          | 1                          | 2    | 25    | 28         | 64         |
| 04:30 PM    | 1                   | 8    | 0     | 9          | 3                          | 3    | 0     | 6          | 0                   | 0    | 0     | 0          | 1                          | 4    | 8     | 13         | 28         |
| 04:45 PM    | 0                   | 3    | 1     | 4          | 2                          | 3    | 0     | 5          | 4                   | 2    | 0     | 6          | 0                          | 2    | 3     | 5          | 20         |
| Total       | 1                   | 30   | 3     | 34         | 35                         | 9    | 0     | 44         | 7                   | 4    | 2     | 13         | 2                          | 14   | 66    | 82         | 173        |
| 05:00 PM    | 1                   | 3    | 1     | 5          | 0                          | 3    | 1     | 4          | 1                   | 0    | 0     | 1          | 1                          | 3    | 1     | 5          | 15         |
| 05:15 PM    | 0                   | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:30 PM    | 0                   | 1    | 0     | 1          | 0                          | 2    | 1     | 3          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM    | 1                   | 0    | 0     | 1          | 0                          | 3    | 0     | 3          | 0                   | 1    | 2     | 3          | 0                          | 1    | 0     | 1          | 8          |
| Total       | 2                   | 6    | 2     | 10         | 0                          | 10   | 2     | 12         | 2                   | 2    | 2     | 6          | 1                          | 7    | 1     | 9          | 37         |
| Grand Total | 3                   | 36   | 5     | 44         | 35                         | 19   | 2     | 56         | 9                   | 6    | 4     | 19         | 3                          | 21   | 67    | 91         | 210        |
| Apprch %    | 6.8                 | 81.8 | 11.4  |            | 62.5                       | 33.9 | 3.6   |            | 47.4                | 31.6 | 21.1  |            | 3.3                        | 23.1 | 73.6  |            |            |
| Total %     | 1.4                 | 17.1 | 2.4   | 21         | 16.7                       | 9    | 1     | 26.7       | 4.3                 | 2.9  | 1.9   | 9          | 1.4                        | 10   | 31.9  | 43.3       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 1                   | 3    | 1     | 5          | 0                          | 3    | 1     | 4          | 1                   | 0    | 0     | 1          | 1                          | 3    | 1     | 5          | 15         |
| 05:15 PM   | 0                   | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:30 PM   | 0                   | 1    | 0     | 1          | 0                          | 2    | 1     | 3          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM   | 1                   | 0    | 0     | 1          | 0                          | 3    | 0     | 3          | 0                   | 1    | 2     | 3          | 0                          | 1    | 0     | 1          | 8          |
| Total Volume   | 2                   | 6    | 2     | 10         | 0                          | 10   | 2     | 12         | 2                   | 2    | 2     | 6          | 1                          | 7    | 1     | 9          | 37         |
| % App. Total   | 20                  | 60   | 20    |            | 0                          | 83.3 | 16.7  |            | 33.3                | 33.3 | 33.3  |            | 11.1                       | 77.8 | 11.1  |            |            |
| PHF  | .500                | .500 | .500  | .500       | .000                       | .833 | .500  | .750       | .500                | .500 | .250  | .500       | .250                       | .583 | .250  | .450       | .617       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 3    | 1    | 5    | 0        | 3    | 1    | 4    | 1        | 0    | 0    | 1    | 1        | 3    | 1    | 5    |
| +15 mins.    | 0        | 2    | 1    | 3    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 2    | 1    | 3    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    |
| +45 mins.    | 1        | 0    | 0    | 1    | 0        | 3    | 0    | 3    | 0        | 1    | 2    | 3    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 6    | 2    | 10   | 0        | 10   | 2    | 12   | 2        | 2    | 2    | 6    | 1        | 7    | 1    | 9    |
| % App. Total | 20       | 60   | 20   |      | 0        | 83.3 | 16.7 |      | 33.3     | 33.3 | 33.3 |      | 11.1     | 77.8 | 11.1 |      |
| PHF          | .500     | .500 | .500 | .500 | .000     | .833 | .500 | .750 | .500     | .500 | .250 | .500 | .250     | .583 | .250 | .450 |

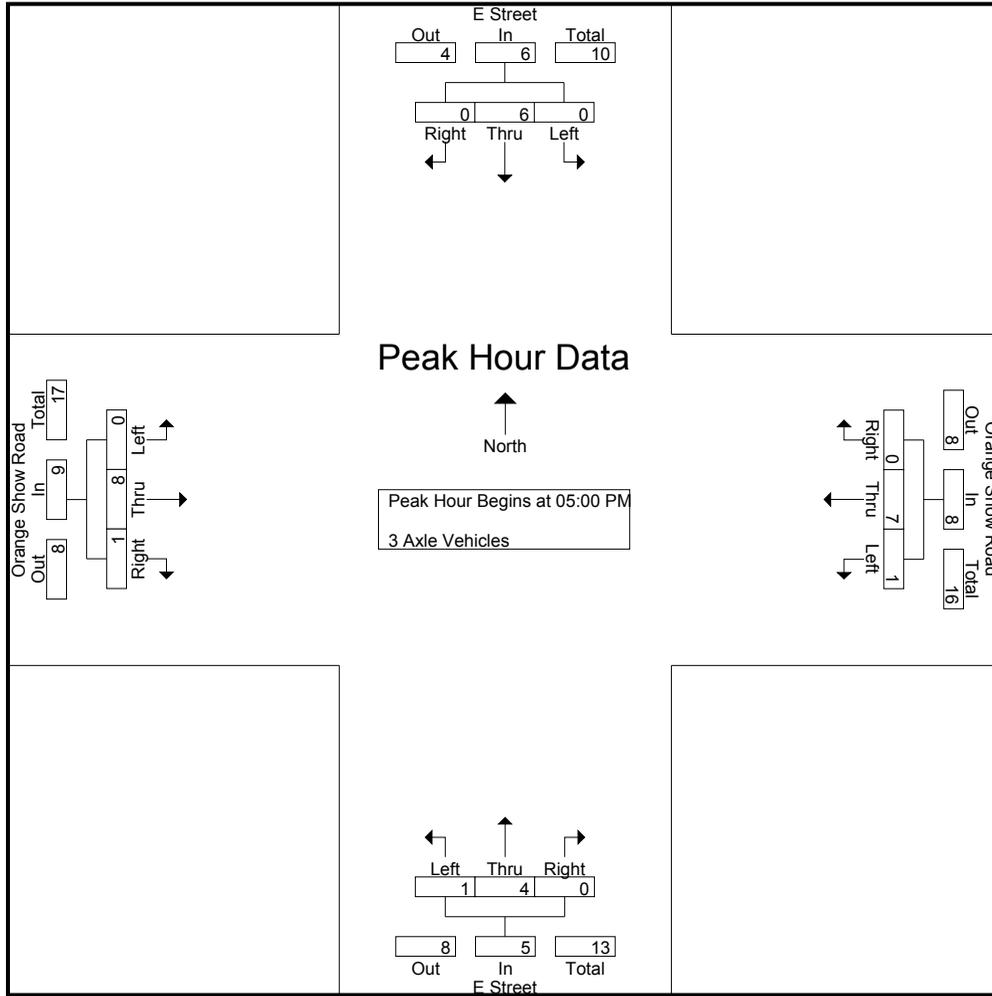
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCESORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 2    | 0     | 2          | 0                          | 4    | 0     | 4          | 1                   | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 11         |
| 04:15 PM    | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 0                   | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 6          |
| 04:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 3    | 0     | 3          | 0                          | 1    | 0     | 1          | 5          |
| 04:45 PM    | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1                   | 1    | 0     | 2          | 1                          | 4    | 0     | 5          | 10         |
| Total       | 0                   | 6    | 0     | 6          | 0                          | 8    | 0     | 8          | 2                   | 6    | 0     | 8          | 1                          | 9    | 0     | 10         | 32         |
| 05:00 PM    | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| 05:15 PM    | 0                   | 2    | 0     | 2          | 1                          | 1    | 0     | 2          | 0                   | 2    | 0     | 2          | 0                          | 3    | 1     | 4          | 10         |
| 05:30 PM    | 0                   | 1    | 0     | 1          | 0                          | 4    | 0     | 4          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:45 PM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 5          |
| Total       | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 4    | 0     | 5          | 0                          | 8    | 1     | 9          | 28         |
| Grand Total | 0                   | 12   | 0     | 12         | 1                          | 15   | 0     | 16         | 3                   | 10   | 0     | 13         | 1                          | 17   | 1     | 19         | 60         |
| Apprch %    | 0                   | 100  | 0     |            | 6.2                        | 93.8 | 0     |            | 23.1                | 76.9 | 0     |            | 5.3                        | 89.5 | 5.3   |            |            |
| Total %     | 0                   | 20   | 0     | 20         | 1.7                        | 25   | 0     | 26.7       | 5                   | 16.7 | 0     | 21.7       | 1.7                        | 28.3 | 1.7   | 31.7       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| 05:15 PM   | 0                   | 2    | 0     | 2          | 1                          | 1    | 0     | 2          | 0                   | 2    | 0     | 2          | 0                          | 3    | 1     | 4          | 10         |
| 05:30 PM   | 0                   | 1    | 0     | 1          | 0                          | 4    | 0     | 4          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:45 PM   | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 5          |
| Total Volume   | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 4    | 0     | 5          | 0                          | 8    | 1     | 9          | 28         |
| % App. Total   | 0                   | 100  | 0     |            | 12.5                       | 87.5 | 0     |            | 20                  | 80   | 0     |            | 0                          | 88.9 | 11.1  |            |            |
| PHF  | .000                | .750 | .000  | .750       | .250                       | .438 | .000  | .500       | .250                | .500 | .000  | .625       | .000                       | .667 | .250  | .563       | .700       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    |
| +15 mins.    | 0        | 2    | 0    | 2    | 1        | 1    | 0    | 2    | 0        | 2    | 0    | 2    | 0        | 3    | 1    | 4    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 4    | 0    | 4    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| +45 mins.    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    |
| Total Volume | 0        | 6    | 0    | 6    | 1        | 7    | 0    | 8    | 1        | 4    | 0    | 5    | 0        | 8    | 1    | 9    |
| % App. Total | 0        | 100  | 0    |      | 12.5     | 87.5 | 0    |      | 20       | 80   | 0    |      | 0        | 88.9 | 11.1 |      |
| PHF          | .000     | .750 | .000 | .750 | .250     | .438 | .000 | .500 | .250     | .500 | .000 | .625 | .000     | .667 | .250 | .563 |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

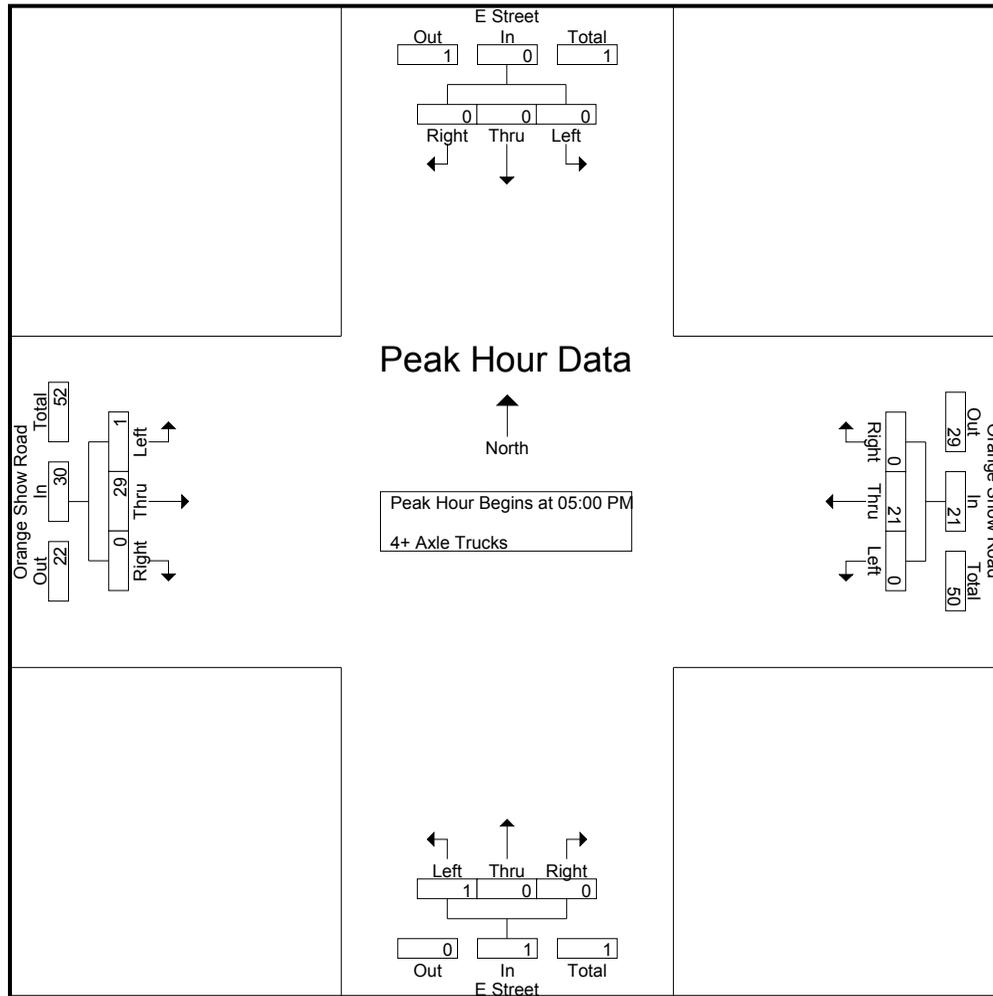
Groups Printed- 4+ Axle Trucks

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 10         |
| 04:15 PM    | 0                   | 1    | 1     | 2          | 0                          | 6    | 0     | 6          | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 17         |
| 04:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 11   | 1     | 12         | 13         |
| 04:45 PM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                   | 0    | 0     | 0          | 0                          | 4    | 1     | 5          | 10         |
| Total       | 0                   | 1    | 1     | 2          | 0                          | 17   | 0     | 17         | 1                   | 0    | 1     | 2          | 1                          | 26   | 2     | 29         | 50         |
| 05:00 PM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 05:15 PM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 1                          | 7    | 0     | 8          | 12         |
| 05:45 PM    | 0                   | 0    | 0     | 0          | 0                          | 10   | 0     | 10         | 1                   | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 21         |
| Total       | 0                   | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 1                   | 0    | 0     | 1          | 1                          | 29   | 0     | 30         | 52         |
| Grand Total | 0                   | 1    | 1     | 2          | 0                          | 38   | 0     | 38         | 2                   | 0    | 1     | 3          | 2                          | 55   | 2     | 59         | 102        |
| Apprch %    | 0                   | 50   | 50    |            | 0                          | 100  | 0     |            | 66.7                | 0    | 33.3  |            | 3.4                        | 93.2 | 3.4   |            |            |
| Total %     | 0                   | 1    | 1     | 2          | 0                          | 37.3 | 0     | 37.3       | 2                   | 0    | 1     | 2.9        | 2                          | 53.9 | 2     | 57.8       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 05:15 PM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:30 PM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 1                          | 7    | 0     | 8          | 12         |
| 05:45 PM   | 0                   | 0    | 0     | 0          | 0                          | 10   | 0     | 10         | 1                   | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 21         |
| Total Volume   | 0                   | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 1                   | 0    | 0     | 1          | 1                          | 29   | 0     | 30         | 52         |
| % App. Total   | 0                   | 0    | 0     |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 3.3                        | 96.7 | 0     |            |            |
| PHF  | .000                | .000 | .000  | .000       | .000                       | .525 | .000  | .525       | .250                | .000 | .000  | .250       | .250                       | .725 | .000  | .750       | .619       |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCESORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |           |      |           | 05:00 PM |      |      |          | 05:00 PM |           |      |           |
|--------------|----------|------|------|------|----------|-----------|------|-----------|----------|------|------|----------|----------|-----------|------|-----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 3         | 0    | 3         | 0        | 0    | 0    | 0        | 0        | 6         | 0    | 6         |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4         | 0    | 4         | 0        | 0    | 0    | 0        | 0        | 6         | 0    | 6         |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 4         | 0    | 4         | 0        | 0    | 0    | 0        | 1        | 7         | 0    | 8         |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | <b>10</b> | 0    | <b>10</b> | <b>1</b> | 0    | 0    | <b>1</b> | 0        | <b>10</b> | 0    | <b>10</b> |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 21        | 0    | 21        | 1        | 0    | 0    | 1        | 1        | 29        | 0    | 30        |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 100       | 0    | 100       | 100      | 0    | 0    | 100      | 3.3      | 96.7      | 0    | 100       |
| PHF          | .000     | .000 | .000 | .000 | .000     | .525      | .000 | .525      | .250     | .000 | .000 | .250     | .250     | .725      | .000 | .750      |

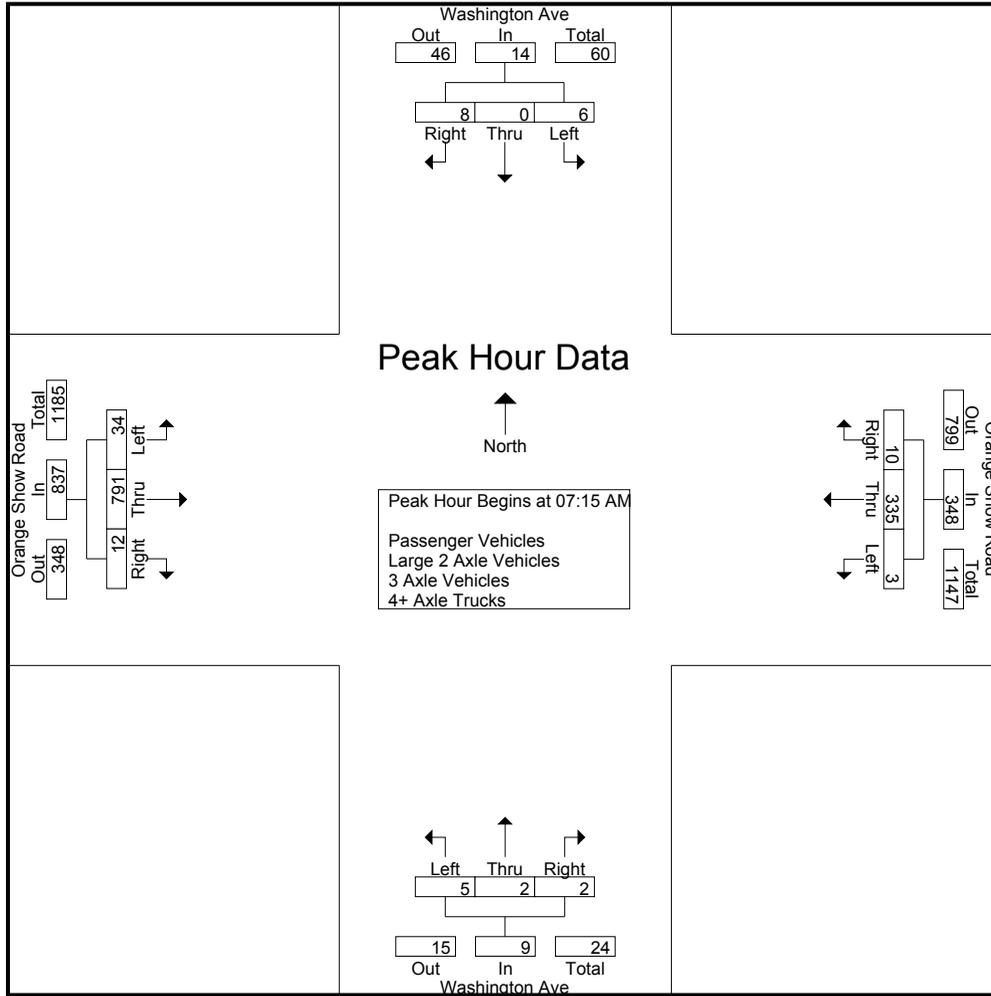
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Washington Ave Southbound |          |           |            | Orange Show Road Westbound |            |           |            | Washington Ave Northbound |          |          |            | Orange Show Road Eastbound |             |           |             | Int. Total  |
|-------------------------|---------------------------|----------|-----------|------------|----------------------------|------------|-----------|------------|---------------------------|----------|----------|------------|----------------------------|-------------|-----------|-------------|-------------|
|                         | Left                      | Thru     | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                      | Thru     | Right    | App. Total | Left                       | Thru        | Right     | App. Total  |             |
| 07:00 AM                | 1                         | 0        | 2         | 3          | 1                          | 65         | 2         | 68         | 2                         | 1        | 1        | 4          | 3                          | 165         | 4         | 172         | 247         |
| 07:15 AM                | 3                         | 0        | 0         | 3          | 0                          | 65         | 2         | 67         | 1                         | 0        | 1        | 2          | 13                         | 172         | 2         | 187         | 259         |
| 07:30 AM                | 1                         | 0        | 1         | 2          | 1                          | 85         | 3         | 89         | 4                         | 2        | 1        | 7          | 7                          | 182         | 2         | 191         | 289         |
| 07:45 AM                | 1                         | 0        | 2         | 3          | 0                          | 91         | 0         | 91         | 0                         | 0        | 0        | 0          | 7                          | 216         | 3         | 226         | 320         |
| <b>Total</b>            | <b>6</b>                  | <b>0</b> | <b>5</b>  | <b>11</b>  | <b>2</b>                   | <b>306</b> | <b>7</b>  | <b>315</b> | <b>7</b>                  | <b>3</b> | <b>3</b> | <b>13</b>  | <b>30</b>                  | <b>735</b>  | <b>11</b> | <b>776</b>  | <b>1115</b> |
| 08:00 AM                | 1                         | 0        | 5         | 6          | 2                          | 94         | 5         | 101        | 0                         | 0        | 0        | 0          | 7                          | 221         | 5         | 233         | 340         |
| 08:15 AM                | 3                         | 0        | 7         | 10         | 1                          | 95         | 2         | 98         | 0                         | 1        | 0        | 1          | 4                          | 106         | 2         | 112         | 221         |
| 08:30 AM                | 2                         | 1        | 2         | 5          | 1                          | 83         | 1         | 85         | 2                         | 2        | 0        | 4          | 8                          | 84          | 2         | 94          | 188         |
| 08:45 AM                | 1                         | 0        | 2         | 3          | 0                          | 109        | 1         | 110        | 2                         | 0        | 0        | 2          | 12                         | 105         | 3         | 120         | 235         |
| <b>Total</b>            | <b>7</b>                  | <b>1</b> | <b>16</b> | <b>24</b>  | <b>4</b>                   | <b>381</b> | <b>9</b>  | <b>394</b> | <b>4</b>                  | <b>3</b> | <b>0</b> | <b>7</b>   | <b>31</b>                  | <b>516</b>  | <b>12</b> | <b>559</b>  | <b>984</b>  |
| <b>Grand Total</b>      | <b>13</b>                 | <b>1</b> | <b>21</b> | <b>35</b>  | <b>6</b>                   | <b>687</b> | <b>16</b> | <b>709</b> | <b>11</b>                 | <b>6</b> | <b>3</b> | <b>20</b>  | <b>61</b>                  | <b>1251</b> | <b>23</b> | <b>1335</b> | <b>2099</b> |
| Apprch %                | 37.1                      | 2.9      | 60        |            | 0.8                        | 96.9       | 2.3       |            | 55                        | 30       | 15       |            | 4.6                        | 93.7        | 1.7       |             |             |
| Total %                 | 0.6                       | 0        | 1         | 1.7        | 0.3                        | 32.7       | 0.8       | 33.8       | 0.5                       | 0.3      | 0.1      | 1          | 2.9                        | 59.6        | 1.1       | 63.6        |             |
| Passenger Vehicles      | 12                        | 1        | 16        | 29         | 6                          | 589        | 13        | 608        | 10                        | 2        | 2        | 14         | 60                         | 1178        | 23        | 1261        | 1912        |
| % Passenger Vehicles    | 92.3                      | 100      | 76.2      | 82.9       | 100                        | 85.7       | 81.2      | 85.8       | 90.9                      | 33.3     | 66.7     | 70         | 98.4                       | 94.2        | 100       | 94.5        | 91.1        |
| Large 2 Axle Vehicles   | 0                         | 0        | 4         | 4          | 0                          | 62         | 3         | 65         | 1                         | 4        | 1        | 6          | 1                          | 23          | 0         | 24          | 99          |
| % Large 2 Axle Vehicles | 0                         | 0        | 19        | 11.4       | 0                          | 9          | 18.8      | 9.2        | 9.1                       | 66.7     | 33.3     | 30         | 1.6                        | 1.8         | 0         | 1.8         | 4.7         |
| 3 Axle Vehicles         | 0                         | 0        | 1         | 1          | 0                          | 12         | 0         | 12         | 0                         | 0        | 0        | 0          | 0                          | 9           | 0         | 9           | 22          |
| % 3 Axle Vehicles       | 0                         | 0        | 4.8       | 2.9        | 0                          | 1.7        | 0         | 1.7        | 0                         | 0        | 0        | 0          | 0                          | 0.7         | 0         | 0.7         | 1           |
| 4+ Axle Trucks          | 1                         | 0        | 0         | 1          | 0                          | 24         | 0         | 24         | 0                         | 0        | 0        | 0          | 0                          | 41          | 0         | 41          | 66          |
| % 4+ Axle Trucks        | 7.7                       | 0        | 0         | 2.9        | 0                          | 3.5        | 0         | 3.4        | 0                         | 0        | 0        | 0          | 0                          | 3.3         | 0         | 3.1         | 3.1         |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 3                         | 0    | 0     | 3          | 0                          | 65   | 2     | 67         | 1                         | 0    | 1     | 2          | 13                         | 172  | 2     | 187        | 259        |
| 07:30 AM   | 1                         | 0    | 1     | 2          | 1                          | 85   | 3     | 89         | 4                         | 2    | 1     | 7          | 7                          | 182  | 2     | 191        | 289        |
| 07:45 AM   | 1                         | 0    | 2     | 3          | 0                          | 91   | 0     | 91         | 0                         | 0    | 0     | 0          | 7                          | 216  | 3     | 226        | 320        |
| 08:00 AM   | 1                         | 0    | 5     | 6          | 2                          | 94   | 5     | 101        | 0                         | 0    | 0     | 0          | 7                          | 221  | 5     | 233        | 340        |
| Total Volume   | 6                         | 0    | 8     | 14         | 3                          | 335  | 10    | 348        | 5                         | 2    | 2     | 9          | 34                         | 791  | 12    | 837        | 1208       |
| % App. Total   | 42.9                      | 0    | 57.1  |            | 0.9                        | 96.3 | 2.9   |            | 55.6                      | 22.2 | 22.2  |            | 4.1                        | 94.5 | 1.4   |            |            |
| PHF  | .500                      | .000 | .400  | .583       | .375                       | .891 | .500  | .861       | .313                      | .250 | .500  | .321       | .654                       | .895 | .600  | .898       | .888       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 08:00 AM |      |      |      | 07:00 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 0    | 2    | 3    | 2        | 94   | 5    | 101  | 2        | 1    | 1    | 4    | 13       | 172  | 2    | 187  |
| +15 mins.    | 1        | 0    | 5    | 6    | 1        | 95   | 2    | 98   | 1        | 0    | 1    | 2    | 7        | 182  | 2    | 191  |
| +30 mins.    | 3        | 0    | 7    | 10   | 1        | 83   | 1    | 85   | 4        | 2    | 1    | 7    | 7        | 216  | 3    | 226  |
| +45 mins.    | 2        | 1    | 2    | 5    | 0        | 109  | 1    | 110  | 0        | 0    | 0    | 0    | 7        | 221  | 5    | 233  |
| Total Volume | 7        | 1    | 16   | 24   | 4        | 381  | 9    | 394  | 7        | 3    | 3    | 13   | 34       | 791  | 12   | 837  |
| % App. Total | 29.2     | 4.2  | 66.7 |      | 1        | 96.7 | 2.3  |      | 53.8     | 23.1 | 23.1 |      | 4.1      | 94.5 | 1.4  |      |
| PHF          | .583     | .250 | .571 | .600 | .500     | .874 | .450 | .895 | .438     | .375 | .750 | .464 | .654     | .895 | .600 | .898 |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

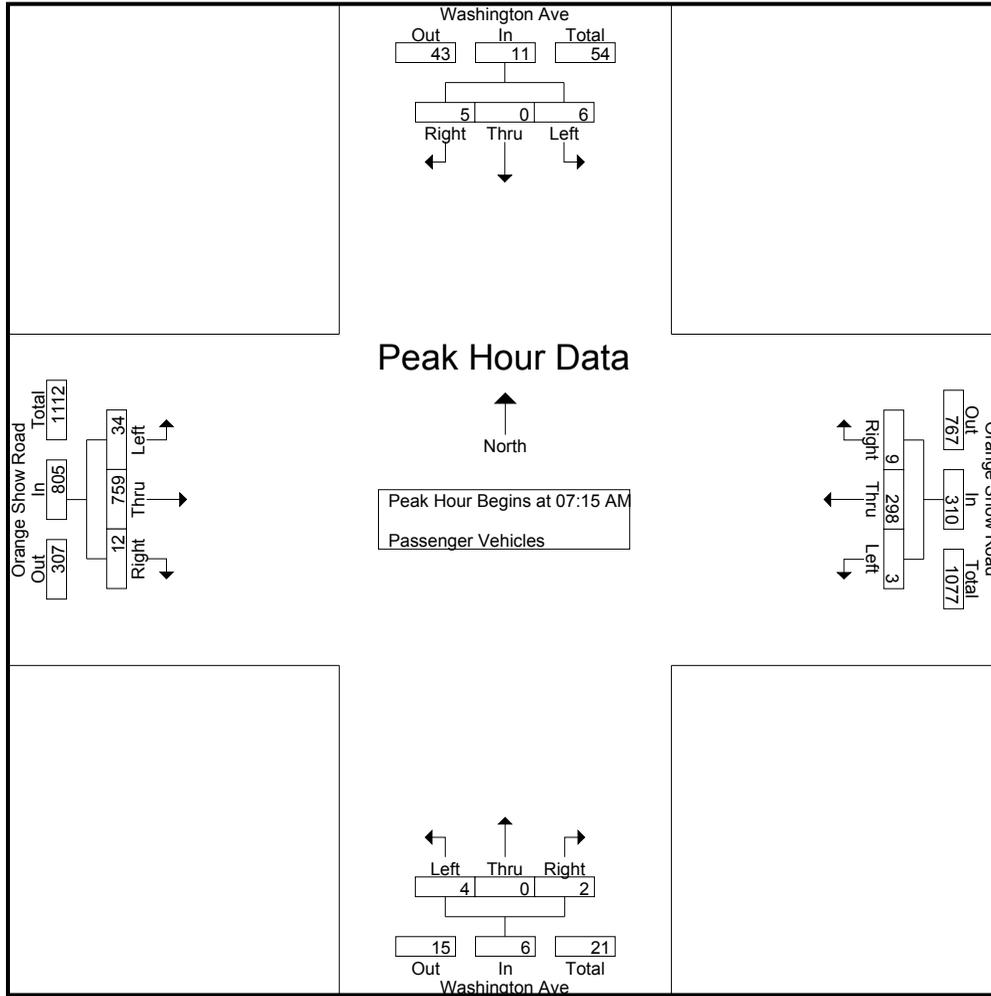
Groups Printed- Passenger Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 1                         | 0    | 2     | 3          | 1                          | 58   | 1     | 60         | 2                         | 0    | 0     | 2          | 3                          | 155  | 4     | 162        | 227        |
| 07:15 AM    | 3                         | 0    | 0     | 3          | 0                          | 52   | 2     | 54         | 1                         | 0    | 1     | 2          | 13                         | 168  | 2     | 183        | 242        |
| 07:30 AM    | 1                         | 0    | 0     | 1          | 1                          | 74   | 3     | 78         | 3                         | 0    | 1     | 4          | 7                          | 175  | 2     | 184        | 267        |
| 07:45 AM    | 1                         | 0    | 2     | 3          | 0                          | 88   | 0     | 88         | 0                         | 0    | 0     | 0          | 7                          | 205  | 3     | 215        | 306        |
| Total       | 6                         | 0    | 4     | 10         | 2                          | 272  | 6     | 280        | 6                         | 0    | 2     | 8          | 30                         | 703  | 11    | 744        | 1042       |
| 08:00 AM    | 1                         | 0    | 3     | 4          | 2                          | 84   | 4     | 90         | 0                         | 0    | 0     | 0          | 7                          | 211  | 5     | 223        | 317        |
| 08:15 AM    | 2                         | 0    | 5     | 7          | 1                          | 83   | 2     | 86         | 0                         | 0    | 0     | 0          | 3                          | 97   | 2     | 102        | 195        |
| 08:30 AM    | 2                         | 1    | 2     | 5          | 1                          | 71   | 0     | 72         | 2                         | 2    | 0     | 4          | 8                          | 74   | 2     | 84         | 165        |
| 08:45 AM    | 1                         | 0    | 2     | 3          | 0                          | 79   | 1     | 80         | 2                         | 0    | 0     | 2          | 12                         | 93   | 3     | 108        | 193        |
| Total       | 6                         | 1    | 12    | 19         | 4                          | 317  | 7     | 328        | 4                         | 2    | 0     | 6          | 30                         | 475  | 12    | 517        | 870        |
| Grand Total | 12                        | 1    | 16    | 29         | 6                          | 589  | 13    | 608        | 10                        | 2    | 2     | 14         | 60                         | 1178 | 23    | 1261       | 1912       |
| Apprch %    | 41.4                      | 3.4  | 55.2  |            | 1                          | 96.9 | 2.1   |            | 71.4                      | 14.3 | 14.3  |            | 4.8                        | 93.4 | 1.8   |            |            |
| Total %     | 0.6                       | 0.1  | 0.8   | 1.5        | 0.3                        | 30.8 | 0.7   | 31.8       | 0.5                       | 0.1  | 0.1   | 0.7        | 3.1                        | 61.6 | 1.2   | 66         |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 3                         | 0    | 0     | 3          | 0                          | 52   | 2     | 54         | 1                         | 0    | 1     | 2          | 13                         | 168  | 2     | 183        | 242        |
| 07:30 AM   | 1                         | 0    | 0     | 1          | 1                          | 74   | 3     | 78         | 3                         | 0    | 1     | 4          | 7                          | 175  | 2     | 184        | 267        |
| 07:45 AM   | 1                         | 0    | 2     | 3          | 0                          | 88   | 0     | 88         | 0                         | 0    | 0     | 0          | 7                          | 205  | 3     | 215        | 306        |
| 08:00 AM   | 1                         | 0    | 3     | 4          | 2                          | 84   | 4     | 90         | 0                         | 0    | 0     | 0          | 7                          | 211  | 5     | 223        | 317        |
| Total Volume   | 6                         | 0    | 5     | 11         | 3                          | 298  | 9     | 310        | 4                         | 0    | 2     | 6          | 34                         | 759  | 12    | 805        | 1132       |
| % App. Total   | 54.5                      | 0    | 45.5  |            | 1                          | 96.1 | 2.9   |            | 66.7                      | 0    | 33.3  |            | 4.2                        | 94.3 | 1.5   |            |            |
| PHF  | .500                      | .000 | .417  | .688       | .375                       | .847 | .563  | .861       | .333                      | .000 | .500  | .375       | .654                       | .899 | .600  | .902       | .893       |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 3        | 0    | 0    | 3    | 0        | 52   | 2    | 54   | 1        | 0    | 1    | 2    | 13       | 168  | 2    | 183  |
| +15 mins.    | 1        | 0    | 0    | 1    | 1        | 74   | 3    | 78   | 3        | 0    | 1    | 4    | 7        | 175  | 2    | 184  |
| +30 mins.    | 1        | 0    | 2    | 3    | 0        | 88   | 0    | 88   | 0        | 0    | 0    | 0    | 7        | 205  | 3    | 215  |
| +45 mins.    | 1        | 0    | 3    | 4    | 2        | 84   | 4    | 90   | 0        | 0    | 0    | 0    | 7        | 211  | 5    | 223  |
| Total Volume | 6        | 0    | 5    | 11   | 3        | 298  | 9    | 310  | 4        | 0    | 2    | 6    | 34       | 759  | 12   | 805  |
| % App. Total | 54.5     | 0    | 45.5 |      | 1        | 96.1 | 2.9  |      | 66.7     | 0    | 33.3 |      | 4.2      | 94.3 | 1.5  |      |
| PHF          | .500     | .000 | .417 | .688 | .375     | .847 | .563 | .861 | .333     | .000 | .500 | .375 | .654     | .899 | .600 | .902 |

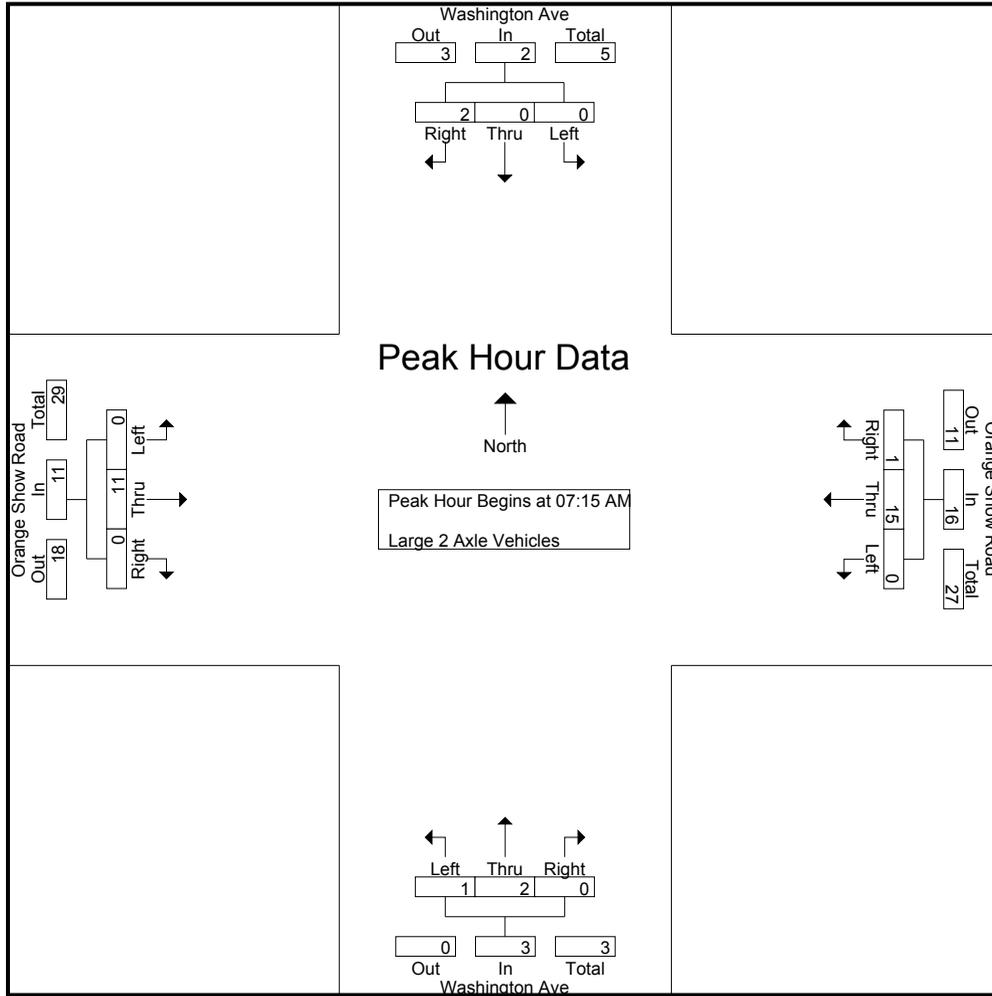
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 1     | 5          | 0                         | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 07:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                         | 2    | 0     | 3          | 0                          | 1    | 0     | 1          | 8          |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 13   | 1     | 14         | 1                         | 3    | 1     | 5          | 0                          | 10   | 0     | 10         | 29         |
| 08:00 AM    | 0                         | 0    | 2     | 2          | 0                          | 6    | 1     | 7          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 13         |
| 08:15 AM    | 0                         | 0    | 2     | 2          | 0                          | 6    | 0     | 6          | 0                         | 1    | 0     | 1          | 1                          | 3    | 0     | 4          | 13         |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 10   | 1     | 11         | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 12         |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 27   | 0     | 27         | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 32         |
| Total       | 0                         | 0    | 4     | 4          | 0                          | 49   | 2     | 51         | 0                         | 1    | 0     | 1          | 1                          | 13   | 0     | 14         | 70         |
| Grand Total | 0                         | 0    | 4     | 4          | 0                          | 62   | 3     | 65         | 1                         | 4    | 1     | 6          | 1                          | 23   | 0     | 24         | 99         |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 95.4 | 4.6   |            | 16.7                      | 66.7 | 16.7  |            | 4.2                        | 95.8 | 0     |            |            |
| Total %     | 0                         | 0    | 4     | 4          | 0                          | 62.6 | 3     | 65.7       | 1                         | 4    | 1     | 6.1        | 1                          | 23.2 | 0     | 24.2       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 07:30 AM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                         | 2    | 0     | 3          | 0                          | 1    | 0     | 1          | 8          |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| 08:00 AM   | 0                         | 0    | 2     | 2          | 0                          | 6    | 1     | 7          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 13         |
| Total Volume   | 0                         | 0    | 2     | 2          | 0                          | 15   | 1     | 16         | 1                         | 2    | 0     | 3          | 0                          | 11   | 0     | 11         | 32         |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 93.8 | 6.2   |            | 33.3                      | 66.7 | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .625 | .250  | .571       | .250                      | .250 | .000  | .250       | .000                       | .550 | .000  | .550       | .615       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 1        | 2    | 0    | 3    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    |
| +45 mins.    | 0        | 0    | 2    | 2    | 0        | 6    | 1    | 7    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    |
| Total Volume | 0        | 0    | 2    | 2    | 0        | 15   | 1    | 16   | 1        | 2    | 0    | 3    | 0        | 11   | 0    | 11   |
| % App. Total | 0        | 0    | 100  |      | 0        | 93.8 | 6.2  |      | 33.3     | 66.7 | 0    |      | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .625 | .250 | .571 | .250     | .250 | .000 | .250 | .000     | .550 | .000 | .550 |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

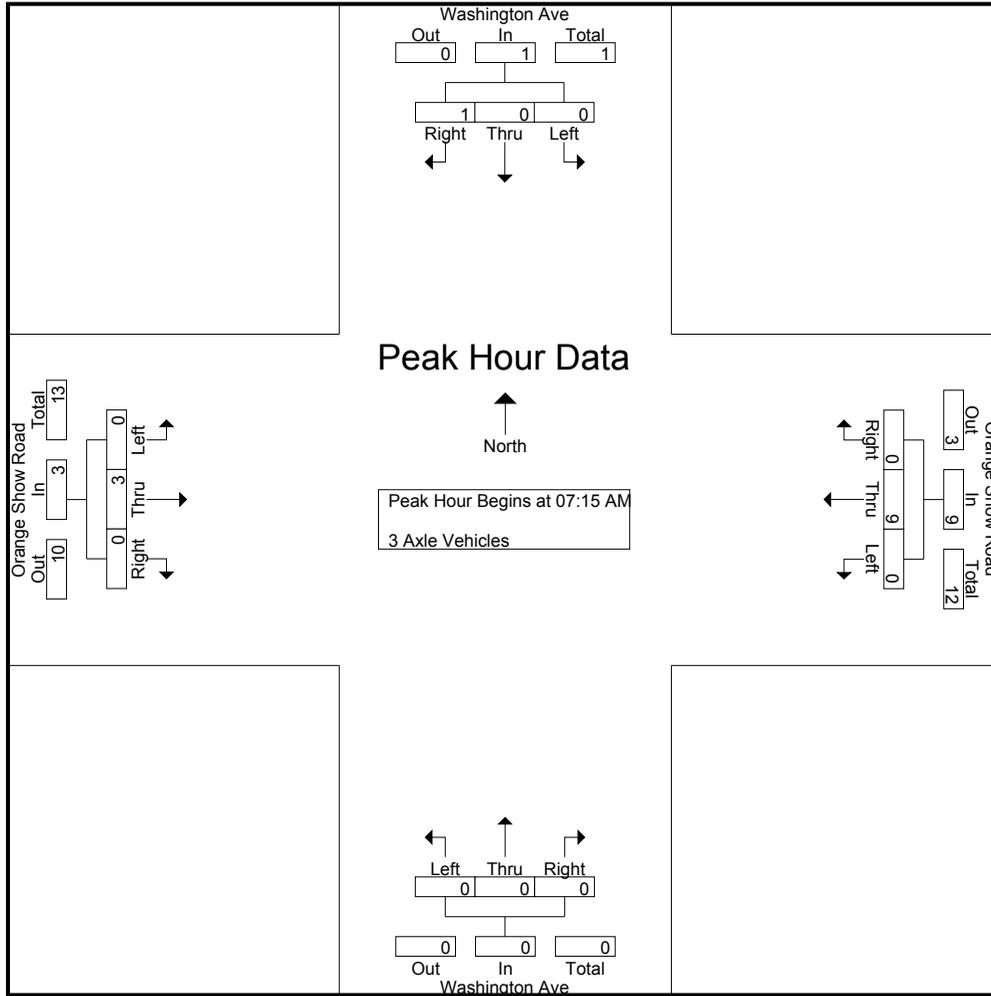
Groups Printed- 3 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |    |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|----|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |    |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0          | 1  |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 3  |
| 07:30 AM    | 0                         | 0    | 1     | 1          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0          | 5  |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 1  |
| Total       | 0                         | 0    | 1     | 1          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 0          | 2          | 10 |
| 08:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 4  |
| 08:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 0          | 2          | 2  |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 0          | 2          | 3  |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 0          | 2          | 3  |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 0          | 7          | 12 |
| Grand Total | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 0          | 9          | 22 |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |    |
| Total %     | 0                         | 0    | 4.5   | 4.5        | 0                          | 54.5 | 0     | 54.5       | 0                         | 0    | 0     | 0          | 0                          | 40.9 | 0     | 40.9       |            |    |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |    |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|----|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |    |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |    |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |    |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 3  |
| 07:30 AM   | 0                         | 0    | 1     | 1          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0          | 5  |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 1  |
| 08:00 AM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 0          | 1          | 4  |
| Total Volume   | 0                         | 0    | 1     | 1          | 0                          | 9    | 0     | 9          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 0          | 3          | 13 |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |    |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .563 | .000  | .563       | .000                      | .000 | .000  | .000       | .000                       | .750 | .000  | .750       | .650       |    |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 0    | 1    | 1    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| Total Volume | 0        | 0    | 1    | 1    | 0        | 9    | 0    | 9    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    |
| % App. Total | 0        | 0    | 100  |      | 0        | 100  | 0    |      | 0        | 0    | 0    |      | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .563 | .000 | .563 | .000     | .000 | .000 | .000 | .000     | .750 | .000 | .750 |

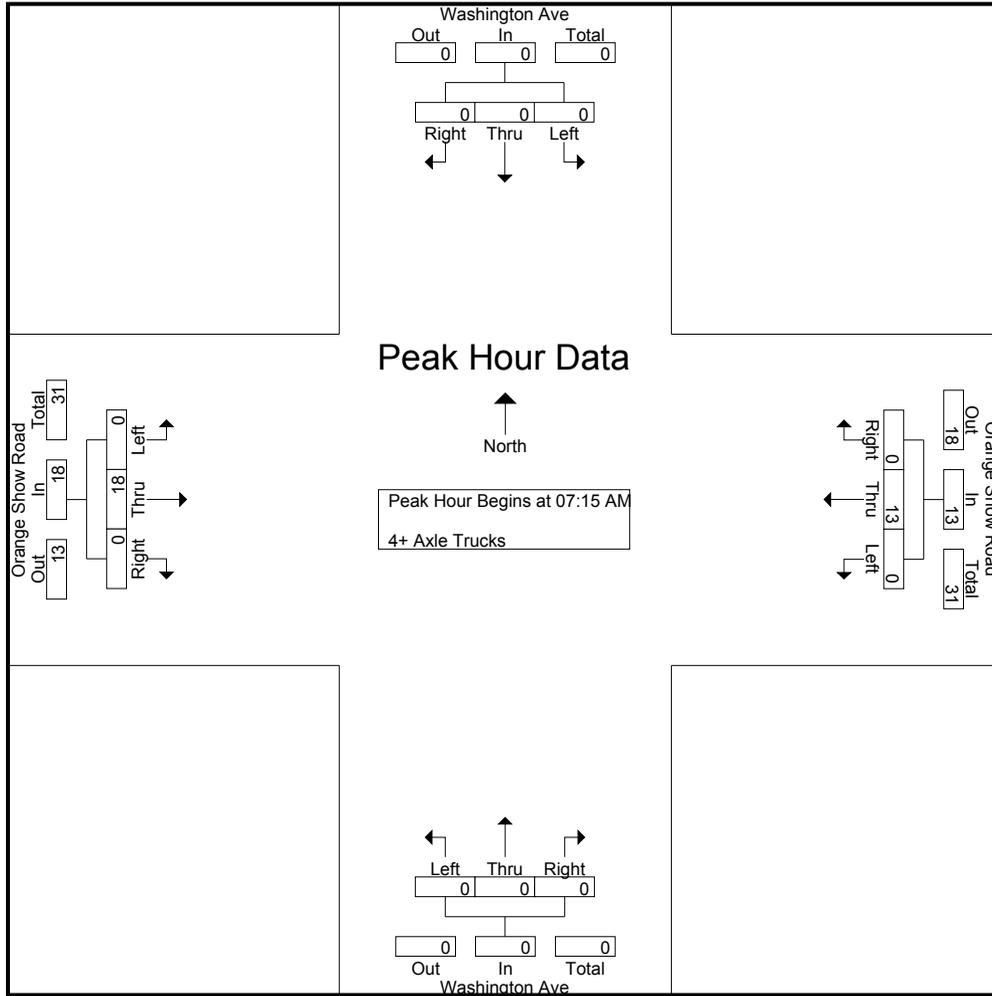
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 9          |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 9          |
| 07:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 14   | 0     | 14         | 0                         | 0    | 0     | 0          | 0                          | 20   | 0     | 20         | 34         |
| 08:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| 08:15 AM    | 1                         | 0    | 0     | 1          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 11         |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 8          |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| Total       | 1                         | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 0                         | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 32         |
| Grand Total | 1                         | 0    | 0     | 1          | 0                          | 24   | 0     | 24         | 0                         | 0    | 0     | 0          | 0                          | 41   | 0     | 41         | 66         |
| Apprch %    | 100                       | 0    | 0     |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| Total %     | 1.5                       | 0    | 0     | 1.5        | 0                          | 36.4 | 0     | 36.4       | 0                         | 0    | 0     | 0          | 0                          | 62.1 | 0     | 62.1       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 9          |
| 07:30 AM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| 08:00 AM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 13   | 0     | 13         | 0                         | 0    | 0     | 0          | 0                          | 18   | 0     | 18         | 31         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .464 | .000  | .464       | .000                      | .000 | .000  | .000       | .000                       | .750 | .000  | .750       | .861       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |          |      |          | 07:15 AM |      |      |      | 07:15 AM |          |      |          |
|--------------|----------|------|------|------|----------|----------|------|----------|----------|------|------|------|----------|----------|------|----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | <b>7</b> | 0    | <b>7</b> | 0        | 0    | 0    | 0    | 0        | 2        | 0    | 2        |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0    | 3        | 0        | 0    | 0    | 0    | 0        | <b>6</b> | 0    | <b>6</b> |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 2        | 0    | 2        | 0        | 0    | 0    | 0    | 0        | 5        | 0    | 5        |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 1        | 0    | 1        | 0        | 0    | 0    | 0    | 0        | 5        | 0    | 5        |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 13       | 0    | 13       | 0        | 0    | 0    | 0    | 0        | 18       | 0    | 18       |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 100      | 0    | 0        | 0        | 0    | 0    | 0    | 0        | 100      | 0    | 0        |
| PHF          | .000     | .000 | .000 | .000 | .000     | .464     | .000 | .464     | .000     | .000 | .000 | .000 | .000     | .750     | .000 | .750     |

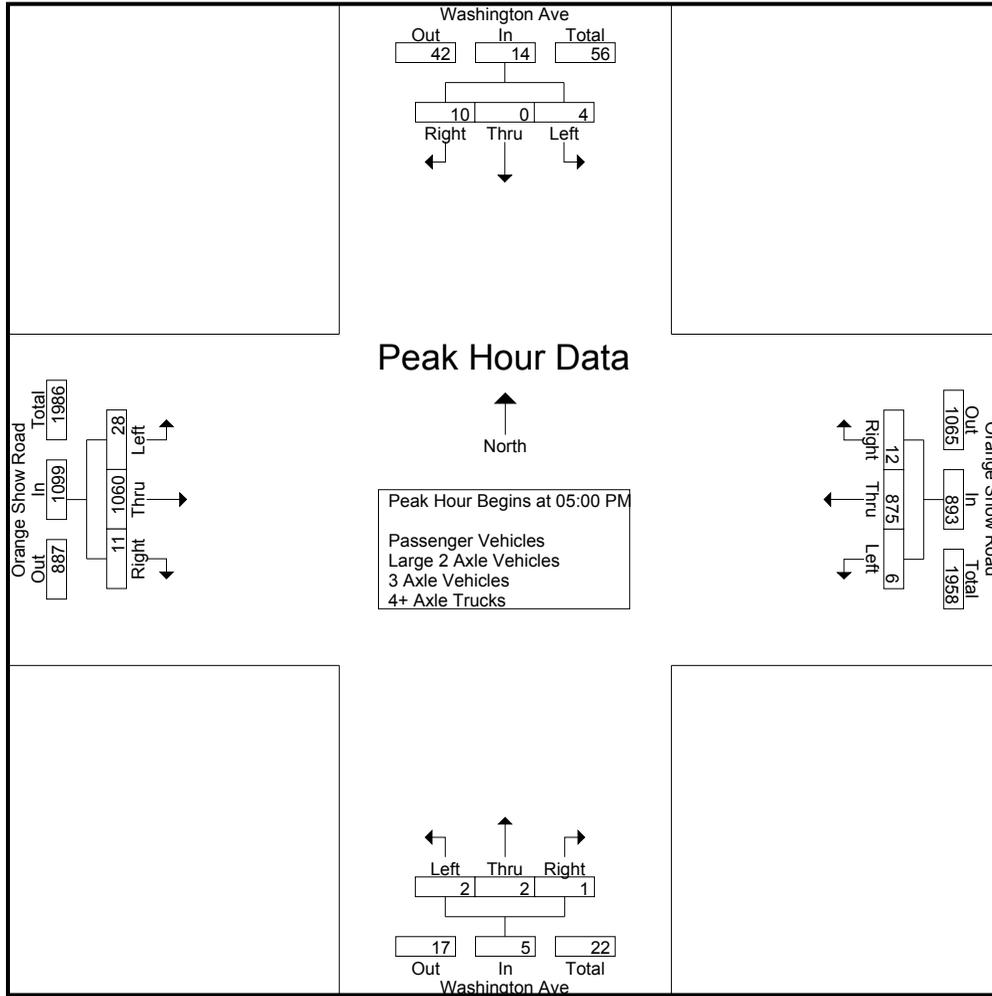
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 0                         | 0    | 9     | 9          | 1                          | 111  | 4     | 116        | 3                         | 0    | 0     | 3          | 3                          | 124  | 0     | 127        | 255        |
| 04:15 PM                | 0                         | 0    | 4     | 4          | 0                          | 117  | 3     | 120        | 3                         | 0    | 0     | 3          | 6                          | 121  | 0     | 127        | 254        |
| 04:30 PM                | 1                         | 1    | 4     | 6          | 1                          | 138  | 4     | 143        | 3                         | 0    | 0     | 3          | 7                          | 186  | 0     | 193        | 345        |
| 04:45 PM                | 2                         | 0    | 4     | 6          | 0                          | 100  | 2     | 102        | 2                         | 0    | 0     | 2          | 5                          | 161  | 0     | 166        | 276        |
| Total                   | 3                         | 1    | 21    | 25         | 2                          | 466  | 13    | 481        | 11                        | 0    | 0     | 11         | 21                         | 592  | 0     | 613        | 1130       |
| 05:00 PM                | 2                         | 0    | 3     | 5          | 0                          | 196  | 3     | 199        | 0                         | 1    | 0     | 1          | 8                          | 262  | 3     | 273        | 478        |
| 05:15 PM                | 1                         | 0    | 1     | 2          | 1                          | 237  | 3     | 241        | 1                         | 0    | 0     | 1          | 4                          | 264  | 4     | 272        | 516        |
| 05:30 PM                | 0                         | 0    | 4     | 4          | 1                          | 258  | 4     | 263        | 1                         | 1    | 0     | 2          | 5                          | 273  | 1     | 279        | 548        |
| 05:45 PM                | 1                         | 0    | 2     | 3          | 4                          | 184  | 2     | 190        | 0                         | 0    | 1     | 1          | 11                         | 261  | 3     | 275        | 469        |
| Total                   | 4                         | 0    | 10    | 14         | 6                          | 875  | 12    | 893        | 2                         | 2    | 1     | 5          | 28                         | 1060 | 11    | 1099       | 2011       |
| Grand Total             | 7                         | 1    | 31    | 39         | 8                          | 1341 | 25    | 1374       | 13                        | 2    | 1     | 16         | 49                         | 1652 | 11    | 1712       | 3141       |
| Apprch %                | 17.9                      | 2.6  | 79.5  |            | 0.6                        | 97.6 | 1.8   |            | 81.2                      | 12.5 | 6.2   |            | 2.9                        | 96.5 | 0.6   |            |            |
| Total %                 | 0.2                       | 0    | 1     | 1.2        | 0.3                        | 42.7 | 0.8   | 43.7       | 0.4                       | 0.1  | 0     | 0.5        | 1.6                        | 52.6 | 0.4   | 54.5       |            |
| Passenger Vehicles      | 7                         | 1    | 28    | 36         | 8                          | 1252 | 22    | 1282       | 13                        | 2    | 1     | 16         | 45                         | 1562 | 10    | 1617       | 2951       |
| % Passenger Vehicles    | 100                       | 100  | 90.3  | 92.3       | 100                        | 93.4 | 88    | 93.3       | 100                       | 100  | 100   | 100        | 91.8                       | 94.6 | 90.9  | 94.5       | 94         |
| Large 2 Axle Vehicles   | 0                         | 0    | 3     | 3          | 0                          | 39   | 1     | 40         | 0                         | 0    | 0     | 0          | 3                          | 27   | 1     | 31         | 74         |
| % Large 2 Axle Vehicles | 0                         | 0    | 9.7   | 7.7        | 0                          | 2.9  | 4     | 2.9        | 0                         | 0    | 0     | 0          | 6.1                        | 1.6  | 9.1   | 1.8        | 2.4        |
| 3 Axle Vehicles         | 0                         | 0    | 0     | 0          | 0                          | 16   | 1     | 17         | 0                         | 0    | 0     | 0          | 1                          | 17   | 0     | 18         | 35         |
| % 3 Axle Vehicles       | 0                         | 0    | 0     | 0          | 0                          | 1.2  | 4     | 1.2        | 0                         | 0    | 0     | 0          | 2                          | 1    | 0     | 1.1        | 1.1        |
| 4+ Axle Trucks          | 0                         | 0    | 0     | 0          | 0                          | 34   | 1     | 35         | 0                         | 0    | 0     | 0          | 0                          | 46   | 0     | 46         | 81         |
| % 4+ Axle Trucks        | 0                         | 0    | 0     | 0          | 0                          | 2.5  | 4     | 2.5        | 0                         | 0    | 0     | 0          | 0                          | 2.8  | 0     | 2.7        | 2.6        |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 2                         | 0    | 3     | 5          | 0                          | 196  | 3     | 199        | 0                         | 1    | 0     | 1          | 8                          | 262  | 3     | 273        | 478        |
| 05:15 PM   | 1                         | 0    | 1     | 2          | 1                          | 237  | 3     | 241        | 1                         | 0    | 0     | 1          | 4                          | 264  | 4     | 272        | 516        |
| 05:30 PM   | 0                         | 0    | 4     | 4          | 1                          | 258  | 4     | 263        | 1                         | 1    | 0     | 2          | 5                          | 273  | 1     | 279        | 548        |
| 05:45 PM   | 1                         | 0    | 2     | 3          | 4                          | 184  | 2     | 190        | 0                         | 0    | 1     | 1          | 11                         | 261  | 3     | 275        | 469        |
| Total Volume   | 4                         | 0    | 10    | 14         | 6                          | 875  | 12    | 893        | 2                         | 2    | 1     | 5          | 28                         | 1060 | 11    | 1099       | 2011       |
| % App. Total   | 28.6                      | 0    | 71.4  |            | 0.7                        | 98   | 1.3   |            | 40                        | 40   | 20    |            | 2.5                        | 96.5 | 1     |            |            |
| PHF  | .500                      | .000 | .625  | .700       | .375                       | .848 | .750  | .849       | .500                      | .500 | .250  | .625       | .636                       | .971 | .688  | .985       | .917       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:00 PM |      |      |      | 05:00 PM |      |      |      | 04:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 9    | 9    | 0        | 196  | 3    | 199  | 3        | 0    | 0    | 3    | 8        | 262  | 3    | 273  |
| +15 mins.    | 0        | 0    | 4    | 4    | 1        | 237  | 3    | 241  | 3        | 0    | 0    | 3    | 4        | 264  | 4    | 272  |
| +30 mins.    | 1        | 1    | 4    | 6    | 1        | 258  | 4    | 263  | 3        | 0    | 0    | 3    | 5        | 273  | 1    | 279  |
| +45 mins.    | 2        | 0    | 4    | 6    | 4        | 184  | 2    | 190  | 2        | 0    | 0    | 2    | 11       | 261  | 3    | 275  |
| Total Volume | 3        | 1    | 21   | 25   | 6        | 875  | 12   | 893  | 11       | 0    | 0    | 11   | 28       | 1060 | 11   | 1099 |
| % App. Total | 12       | 4    | 84   |      | 0.7      | 98   | 1.3  |      | 100      | 0    | 0    |      | 2.5      | 96.5 | 1    |      |
| PHF          | .375     | .250 | .583 | .694 | .375     | .848 | .750 | .849 | .917     | .000 | .000 | .917 | .636     | .971 | .688 | .985 |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

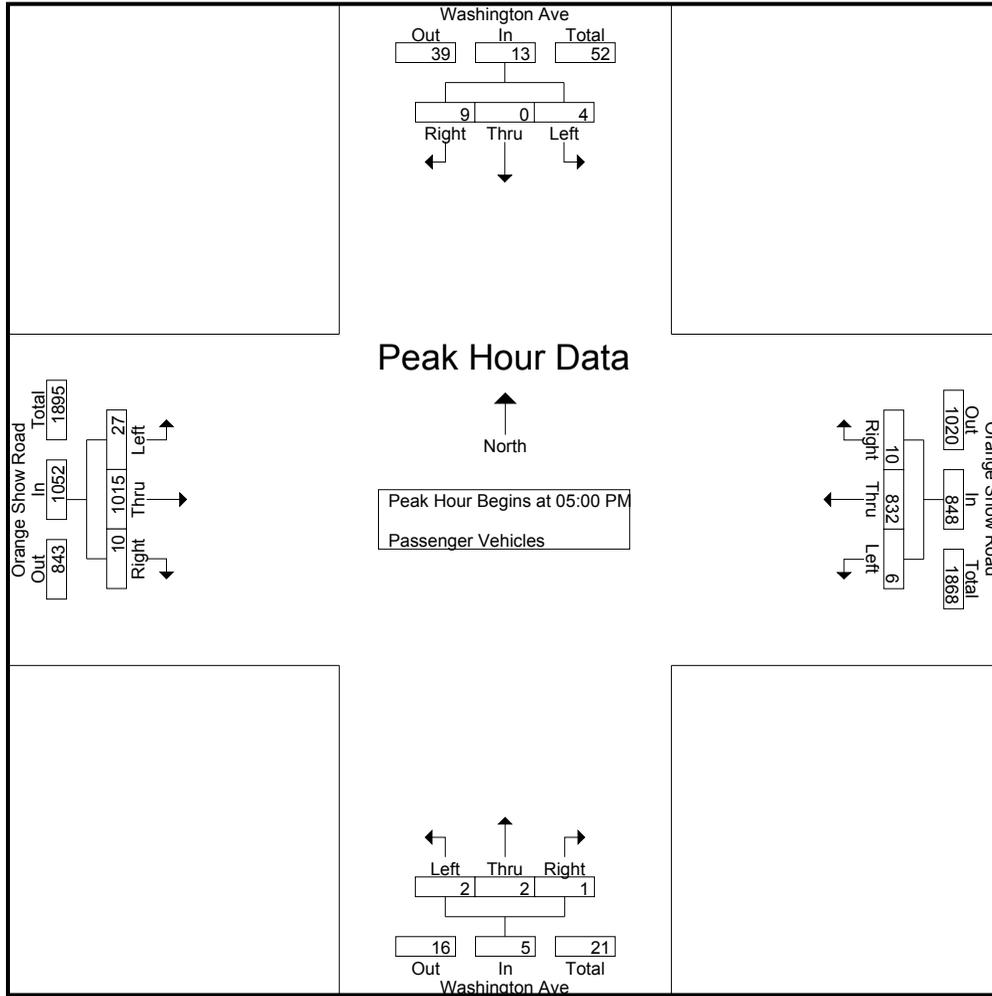
Groups Printed- Passenger Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 8     | 8          | 1                          | 95   | 3     | 99         | 3                         | 0    | 0     | 3          | 2                          | 114  | 0     | 116        | 226        |
| 04:15 PM    | 0                         | 0    | 3     | 3          | 0                          | 102  | 3     | 105        | 3                         | 0    | 0     | 3          | 6                          | 108  | 0     | 114        | 225        |
| 04:30 PM    | 1                         | 1    | 4     | 6          | 1                          | 128  | 4     | 133        | 3                         | 0    | 0     | 3          | 6                          | 174  | 0     | 180        | 322        |
| 04:45 PM    | 2                         | 0    | 4     | 6          | 0                          | 95   | 2     | 97         | 2                         | 0    | 0     | 2          | 4                          | 151  | 0     | 155        | 260        |
| Total       | 3                         | 1    | 19    | 23         | 2                          | 420  | 12    | 434        | 11                        | 0    | 0     | 11         | 18                         | 547  | 0     | 565        | 1033       |
| 05:00 PM    | 2                         | 0    | 3     | 5          | 0                          | 187  | 3     | 190        | 0                         | 1    | 0     | 1          | 8                          | 251  | 3     | 262        | 458        |
| 05:15 PM    | 1                         | 0    | 1     | 2          | 1                          | 226  | 3     | 230        | 1                         | 0    | 0     | 1          | 4                          | 253  | 4     | 261        | 494        |
| 05:30 PM    | 0                         | 0    | 4     | 4          | 1                          | 248  | 3     | 252        | 1                         | 1    | 0     | 2          | 5                          | 264  | 1     | 270        | 528        |
| 05:45 PM    | 1                         | 0    | 1     | 2          | 4                          | 171  | 1     | 176        | 0                         | 0    | 1     | 1          | 10                         | 247  | 2     | 259        | 438        |
| Total       | 4                         | 0    | 9     | 13         | 6                          | 832  | 10    | 848        | 2                         | 2    | 1     | 5          | 27                         | 1015 | 10    | 1052       | 1918       |
| Grand Total | 7                         | 1    | 28    | 36         | 8                          | 1252 | 22    | 1282       | 13                        | 2    | 1     | 16         | 45                         | 1562 | 10    | 1617       | 2951       |
| Apprch %    | 19.4                      | 2.8  | 77.8  |            | 0.6                        | 97.7 | 1.7   |            | 81.2                      | 12.5 | 6.2   |            | 2.8                        | 96.6 | 0.6   |            |            |
| Total %     | 0.2                       | 0    | 0.9   | 1.2        | 0.3                        | 42.4 | 0.7   | 43.4       | 0.4                       | 0.1  | 0     | 0.5        | 1.5                        | 52.9 | 0.3   | 54.8       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 2                         | 0    | 3     | 5          | 0                          | 187  | 3     | 190        | 0                         | 1    | 0     | 1          | 8                          | 251  | 3     | 262        | 458        |
| 05:15 PM   | 1                         | 0    | 1     | 2          | 1                          | 226  | 3     | 230        | 1                         | 0    | 0     | 1          | 4                          | 253  | 4     | 261        | 494        |
| 05:30 PM   | 0                         | 0    | 4     | 4          | 1                          | 248  | 3     | 252        | 1                         | 1    | 0     | 2          | 5                          | 264  | 1     | 270        | 528        |
| 05:45 PM   | 1                         | 0    | 1     | 2          | 4                          | 171  | 1     | 176        | 0                         | 0    | 1     | 1          | 10                         | 247  | 2     | 259        | 438        |
| Total Volume   | 4                         | 0    | 9     | 13         | 6                          | 832  | 10    | 848        | 2                         | 2    | 1     | 5          | 27                         | 1015 | 10    | 1052       | 1918       |
| % App. Total   | 30.8                      | 0    | 69.2  |            | 0.7                        | 98.1 | 1.2   |            | 40                        | 40   | 20    |            | 2.6                        | 96.5 | 1     |            |            |
| PHF  | .500                      | .000 | .563  | .650       | .375                       | .839 | .833  | .841       | .500                      | .500 | .250  | .625       | .675                       | .961 | .625  | .974       | .908       |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 2        | 0    | 3    | 5    | 0        | 187  | 3    | 190  | 0        | 1    | 0    | 1    | 8        | 251  | 3    | 262  |
| +15 mins.    | 1        | 0    | 1    | 2    | 1        | 226  | 3    | 230  | 1        | 0    | 0    | 1    | 4        | 253  | 4    | 261  |
| +30 mins.    | 0        | 0    | 4    | 4    | 1        | 248  | 3    | 252  | 1        | 1    | 0    | 2    | 5        | 264  | 1    | 270  |
| +45 mins.    | 1        | 0    | 1    | 2    | 4        | 171  | 1    | 176  | 0        | 0    | 1    | 1    | 10       | 247  | 2    | 259  |
| Total Volume | 4        | 0    | 9    | 13   | 6        | 832  | 10   | 848  | 2        | 2    | 1    | 5    | 27       | 1015 | 10   | 1052 |
| % App. Total | 30.8     | 0    | 69.2 |      | 0.7      | 98.1 | 1.2  |      | 40       | 40   | 20   |      | 2.6      | 96.5 | 1    |      |
| PHF          | .500     | .000 | .563 | .650 | .375     | .839 | .833 | .841 | .500     | .500 | .250 | .625 | .675     | .961 | .625 | .974 |

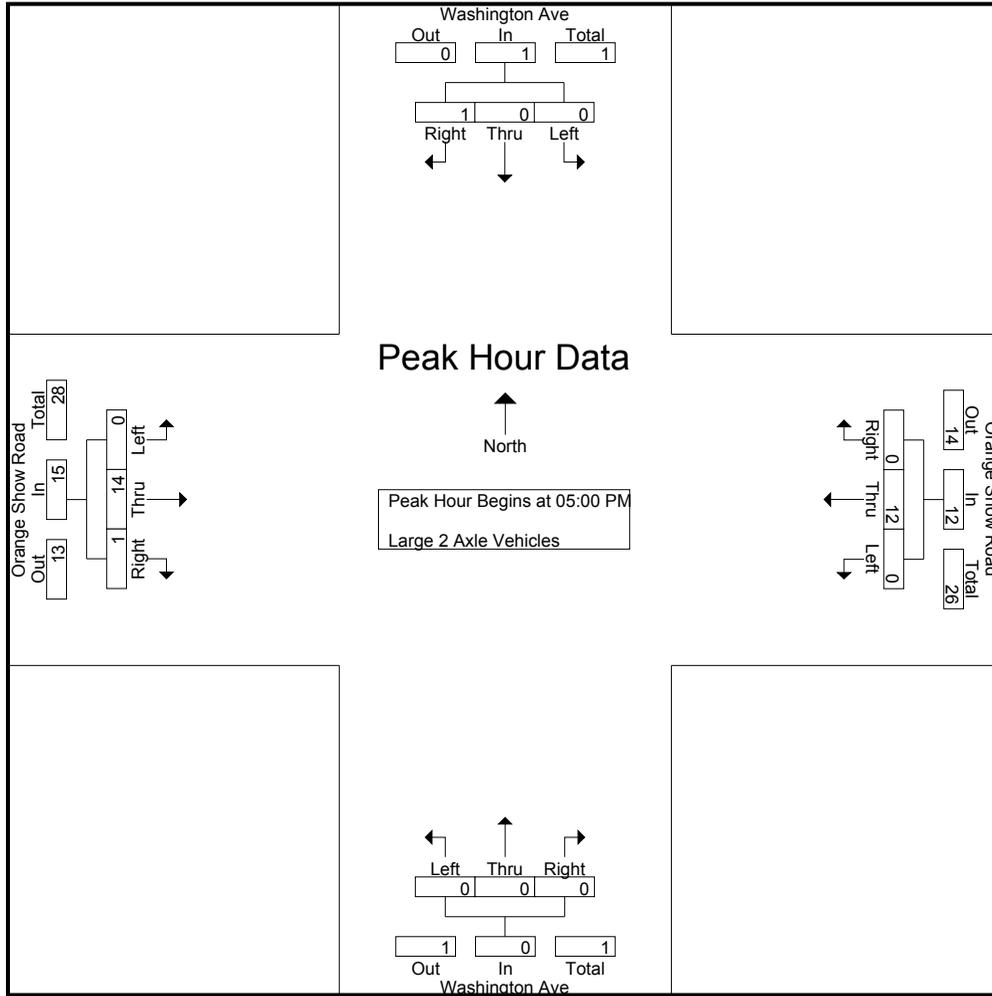
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 1     | 1          | 0                          | 10   | 1     | 11         | 0                         | 0    | 0     | 0          | 1                          | 5    | 0     | 6          | 18         |
| 04:15 PM    | 0                         | 0    | 1     | 1          | 0                          | 9    | 0     | 9          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 12         |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 9          |
| Total       | 0                         | 0    | 2     | 2          | 0                          | 27   | 1     | 28         | 0                         | 0    | 0     | 0          | 3                          | 13   | 0     | 16         | 46         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 6          |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 9          |
| 05:45 PM    | 0                         | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 1     | 6          | 9          |
| Total       | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 14   | 1     | 15         | 28         |
| Grand Total | 0                         | 0    | 3     | 3          | 0                          | 39   | 1     | 40         | 0                         | 0    | 0     | 0          | 3                          | 27   | 1     | 31         | 74         |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 97.5 | 2.5   |            | 0                         | 0    | 0     |            | 9.7                        | 87.1 | 3.2   |            |            |
| Total %     | 0                         | 0    | 4.1   | 4.1        | 0                          | 52.7 | 1.4   | 54.1       | 0                         | 0    | 0     | 0          | 4.1                        | 36.5 | 1.4   | 41.9       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 6          |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 9          |
| 05:45 PM   | 0                         | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 1     | 6          | 9          |
| Total Volume   | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 14   | 1     | 15         | 28         |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 93.3 | 6.7   |            |            |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .500 | .000  | .500       | .000                      | .000 | .000  | .000       | .000                       | .700 | .250  | .625       | .778       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    |
| +45 mins.    | 0        | 0    | 1    | 1    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 5    | 1    | 6    |
| Total Volume | 0        | 0    | 1    | 1    | 0        | 12   | 0    | 12   | 0        | 0    | 0    | 0    | 0        | 14   | 1    | 15   |
| % App. Total | 0        | 0    | 100  |      | 0        | 100  | 0    |      | 0        | 0    | 0    |      | 0        | 93.3 | 6.7  |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 | .000     | .700 | .250 | .625 |

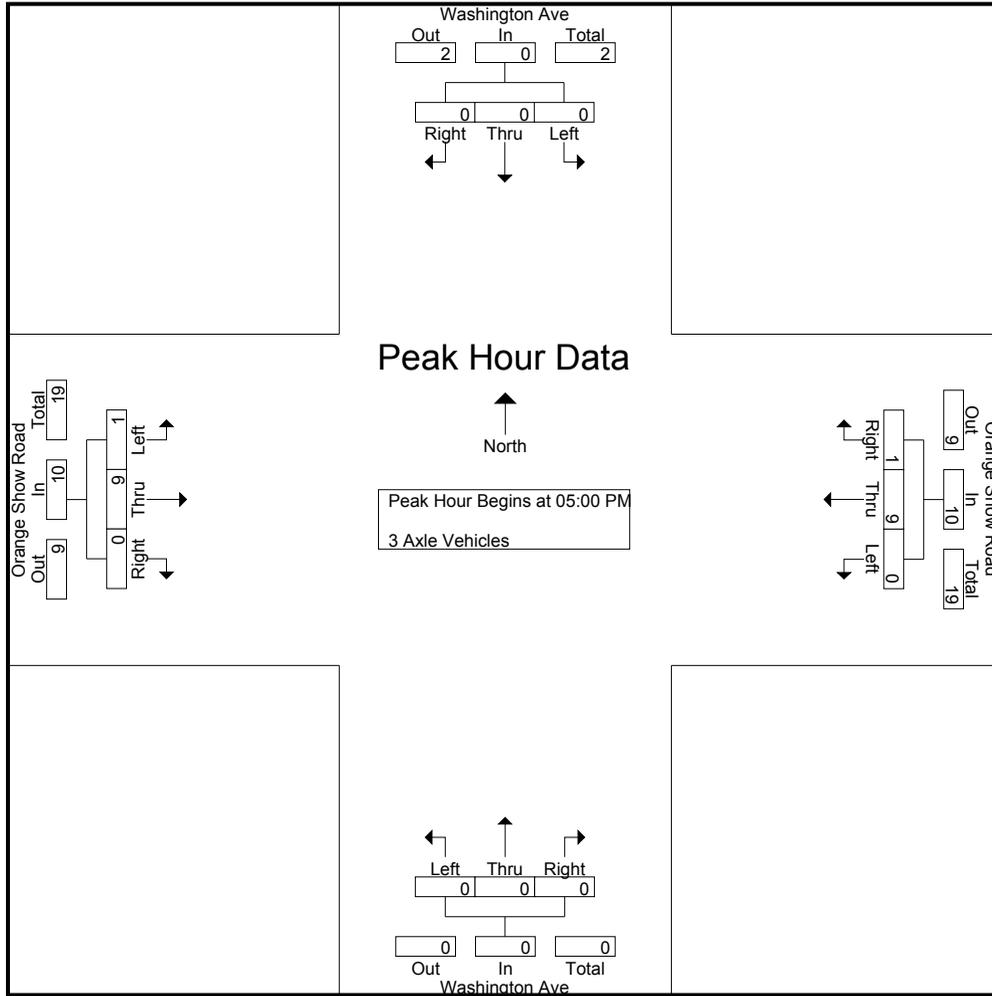
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Groups Printed- 3 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 5          |
| 04:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 2          |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 4          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 8    | 0     | 8          | 15         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 5          |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 9    | 1     | 10         | 0                         | 0    | 0     | 0          | 1                          | 9    | 0     | 10         | 20         |
| Grand Total | 0                         | 0    | 0     | 0          | 0                          | 16   | 1     | 17         | 0                         | 0    | 0     | 0          | 1                          | 17   | 0     | 18         | 35         |
| Apprch %    | 0                         | 0    | 0     |            | 0                          | 94.1 | 5.9   |            | 0                         | 0    | 0     |            | 5.6                        | 94.4 | 0     |            |            |
| Total %     | 0                         | 0    | 0     | 0          | 0                          | 45.7 | 2.9   | 48.6       | 0                         | 0    | 0     | 0          | 2.9                        | 48.6 | 0     | 51.4       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 5          |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:45 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 9    | 1     | 10         | 0                         | 0    | 0     | 0          | 1                          | 9    | 0     | 10         | 20         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 90   | 10    |            | 0                         | 0    | 0     |            | 10                         | 90   | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .750 | .250  | .833       | .000                      | .000 | .000  | .000       | .250                       | .750 | .000  | .625       | .714       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |          |          |          | 05:00 PM |      |      |      | 05:00 PM |      |          |      |          |
|--------------|----------|------|------|------|----------|----------|----------|----------|----------|------|------|------|----------|------|----------|------|----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | <b>3</b> | 0        | <b>3</b> | 0        | 0    | 0    | 0    | 0        | 0    | <b>1</b> | 0    | <b>1</b> |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 2        | 0        | 2        | 0        | 0    | 0    | 0    | 0        | 0    | <b>3</b> | 0    | <b>3</b> |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 1        | <b>1</b> | 2        | 0        | 0    | 0    | 0    | 0        | 0    | 2        | 0    | <b>2</b> |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0        | 3        | 0        | 0    | 0    | 0    | <b>1</b> | 3    | 0        | 0    | <b>4</b> |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 9        | 1        | 10       | 0        | 0    | 0    | 0    | 1        | 9    | 0        | 0    | 10       |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 90       | 10       |          | 0        | 0    | 0    | 0    | 10       | 90   | 0        | 0    |          |
| PHF          | .000     | .000 | .000 | .000 | .000     | .750     | .250     | .833     | .000     | .000 | .000 | .000 | .250     | .750 | .000     | .625 |          |

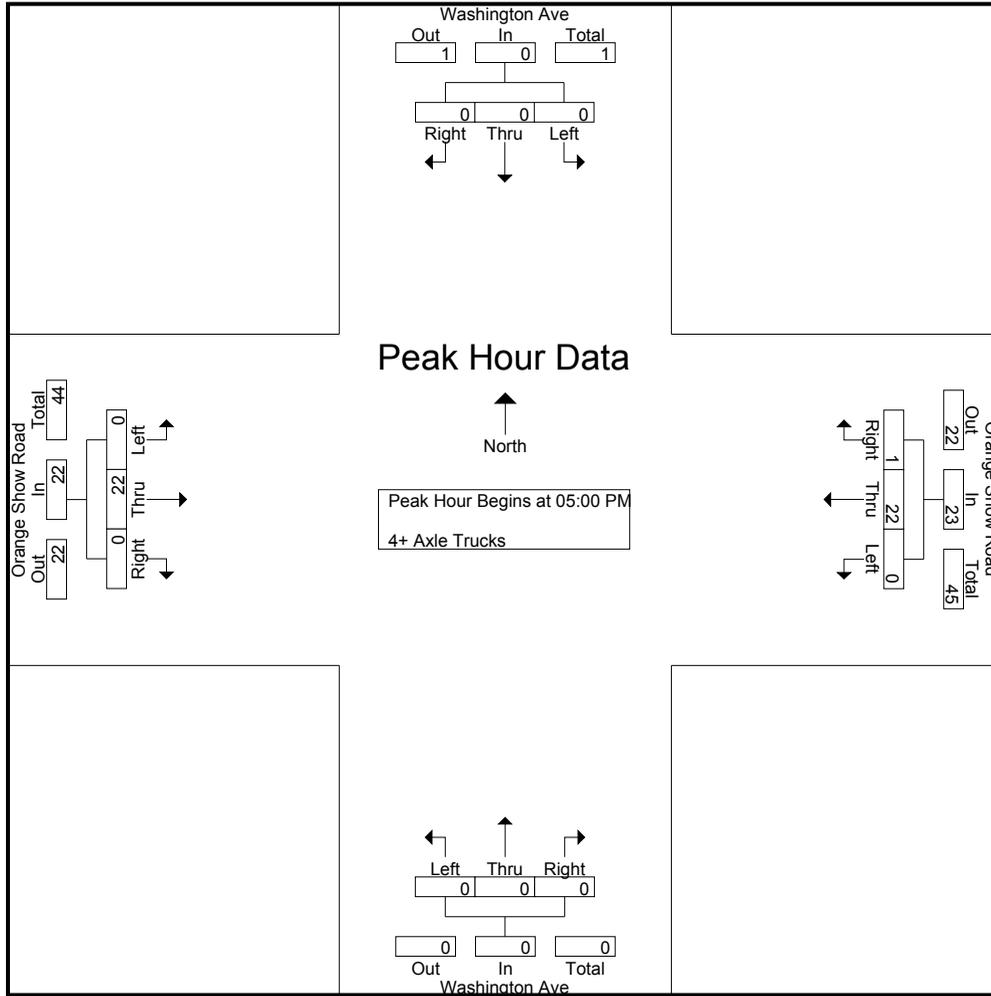
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 6          |
| 04:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 13         |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 14         |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 3          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 24   | 0     | 24         | 36         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 13         |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 7          |
| 05:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 8    | 1     | 9          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 22   | 1     | 23         | 0                         | 0    | 0     | 0          | 0                          | 22   | 0     | 22         | 45         |
| Grand Total | 0                         | 0    | 0     | 0          | 0                          | 34   | 1     | 35         | 0                         | 0    | 0     | 0          | 0                          | 46   | 0     | 46         | 81         |
| Apprch %    | 0                         | 0    | 0     |            | 0                          | 97.1 | 2.9   |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| Total %     | 0                         | 0    | 0     |            | 0                          | 42   | 1.2   | 43.2       | 0                         | 0    | 0     |            | 0                          | 56.8 | 0     | 56.8       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 13         |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 7          |
| 05:45 PM   | 0                         | 0    | 0     | 0          | 0                          | 8    | 1     | 9          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 22   | 1     | 23         | 0                         | 0    | 0     | 0          | 0                          | 22   | 0     | 22         | 45         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 95.7 | 4.3   |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .688 | .250  | .639       | .000                      | .000 | .000  | .000       | .000                       | .917 | .000  | .917       | .750       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |          |          |          | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|----------|----------|----------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4        | 0        | 4        | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 7        | 0        | 7        | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0        | 3        | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | <b>8</b> | <b>1</b> | <b>9</b> | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 22       | 1        | 23       | 0        | 0    | 0    | 0    | 0        | 22   | 0    | 22   |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 95.7     | 4.3      |          | 0        | 0    | 0    | 0    | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .000 | .000 | .000     | .688     | .250     | .639     | .000     | .000 | .000 | .000 | .000     | .917 | .000 | .917 |

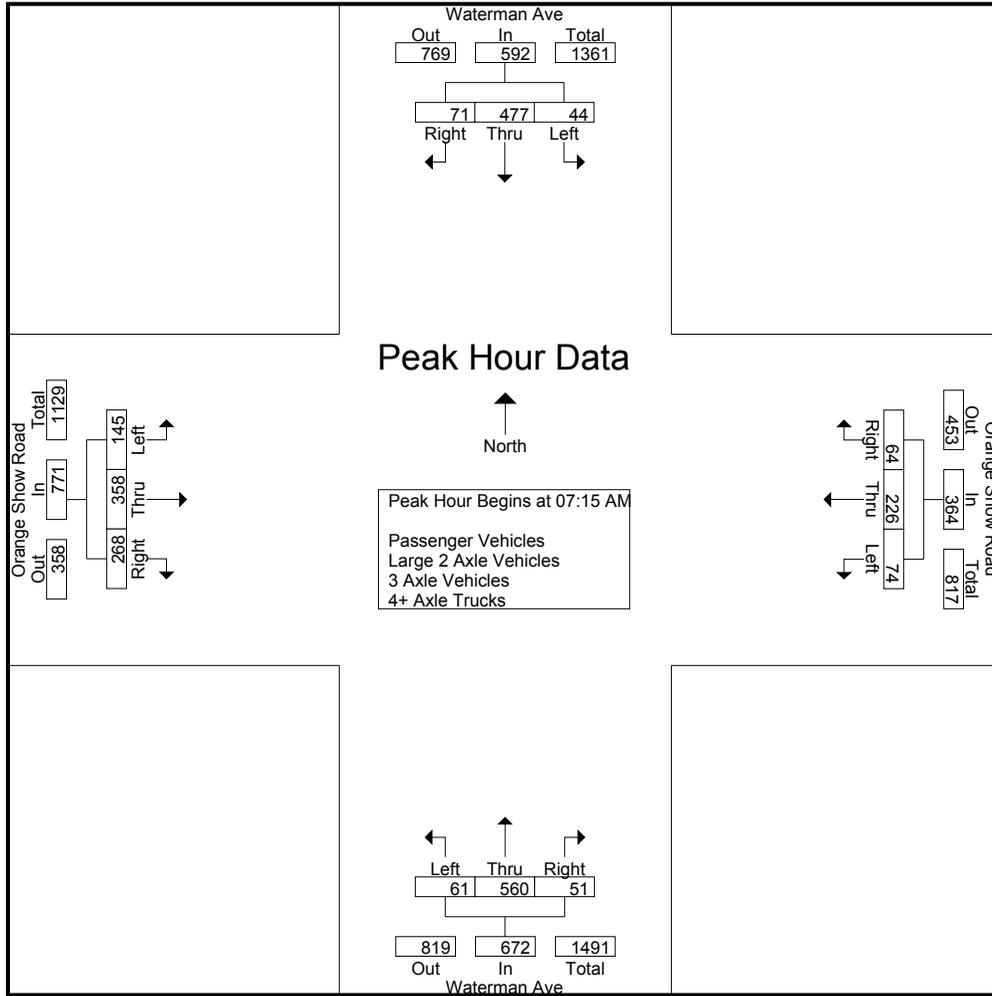
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM                | 12                      | 78   | 17    | 107        | 12                         | 39   | 9     | 60         | 15                      | 104  | 16    | 135        | 33                         | 101  | 31    | 165        | 467        |
| 07:15 AM                | 6                       | 110  | 13    | 129        | 13                         | 43   | 14    | 70         | 10                      | 130  | 9     | 149        | 33                         | 88   | 45    | 166        | 514        |
| 07:30 AM                | 12                      | 112  | 20    | 144        | 21                         | 50   | 14    | 85         | 21                      | 112  | 16    | 149        | 34                         | 81   | 69    | 184        | 562        |
| 07:45 AM                | 11                      | 142  | 20    | 173        | 23                         | 64   | 24    | 111        | 12                      | 168  | 16    | 196        | 27                         | 91   | 85    | 203        | 683        |
| Total                   | 41                      | 442  | 70    | 553        | 69                         | 196  | 61    | 326        | 58                      | 514  | 57    | 629        | 127                        | 361  | 230   | 718        | 2226       |
| 08:00 AM                | 15                      | 113  | 18    | 146        | 17                         | 69   | 12    | 98         | 18                      | 150  | 10    | 178        | 51                         | 98   | 69    | 218        | 640        |
| 08:15 AM                | 10                      | 122  | 21    | 153        | 19                         | 58   | 8     | 85         | 10                      | 130  | 12    | 152        | 25                         | 62   | 33    | 120        | 510        |
| 08:30 AM                | 10                      | 112  | 18    | 140        | 19                         | 46   | 11    | 76         | 21                      | 112  | 13    | 146        | 15                         | 41   | 26    | 82         | 444        |
| 08:45 AM                | 17                      | 123  | 24    | 164        | 9                          | 62   | 8     | 79         | 17                      | 118  | 8     | 143        | 25                         | 58   | 27    | 110        | 496        |
| Total                   | 52                      | 470  | 81    | 603        | 64                         | 235  | 39    | 338        | 66                      | 510  | 43    | 619        | 116                        | 259  | 155   | 530        | 2090       |
| Grand Total             | 93                      | 912  | 151   | 1156       | 133                        | 431  | 100   | 664        | 124                     | 1024 | 100   | 1248       | 243                        | 620  | 385   | 1248       | 4316       |
| Apprch %                | 8                       | 78.9 | 13.1  |            | 20                         | 64.9 | 15.1  |            | 9.9                     | 82.1 | 8     |            | 19.5                       | 49.7 | 30.8  |            |            |
| Total %                 | 2.2                     | 21.1 | 3.5   | 26.8       | 3.1                        | 10   | 2.3   | 15.4       | 2.9                     | 23.7 | 2.3   | 28.9       | 5.6                        | 14.4 | 8.9   | 28.9       |            |
| Passenger Vehicles      | 83                      | 852  | 119   | 1054       | 129                        | 371  | 92    | 592        | 118                     | 975  | 92    | 1185       | 221                        | 576  | 378   | 1175       | 4006       |
| % Passenger Vehicles    | 89.2                    | 93.4 | 78.8  | 91.2       | 97                         | 86.1 | 92    | 89.2       | 95.2                    | 95.2 | 92    | 95         | 90.9                       | 92.9 | 98.2  | 94.2       | 92.8       |
| Large 2 Axle Vehicles   | 6                       | 30   | 23    | 59         | 1                          | 36   | 5     | 42         | 6                       | 16   | 2     | 24         | 6                          | 10   | 6     | 22         | 147        |
| % Large 2 Axle Vehicles | 6.5                     | 3.3  | 15.2  | 5.1        | 0.8                        | 8.4  | 5     | 6.3        | 4.8                     | 1.6  | 2     | 1.9        | 2.5                        | 1.6  | 1.6   | 1.8        | 3.4        |
| 3 Axle Vehicles         | 3                       | 7    | 2     | 12         | 2                          | 8    | 2     | 12         | 0                       | 3    | 1     | 4          | 1                          | 8    | 0     | 9          | 37         |
| % 3 Axle Vehicles       | 3.2                     | 0.8  | 1.3   | 1          | 1.5                        | 1.9  | 2     | 1.8        | 0                       | 0.3  | 1     | 0.3        | 0.4                        | 1.3  | 0     | 0.7        | 0.9        |
| 4+ Axle Trucks          | 1                       | 23   | 7     | 31         | 1                          | 16   | 1     | 18         | 0                       | 30   | 5     | 35         | 15                         | 26   | 1     | 42         | 126        |
| % 4+ Axle Trucks        | 1.1                     | 2.5  | 4.6   | 2.7        | 0.8                        | 3.7  | 1     | 2.7        | 0                       | 2.9  | 5     | 2.8        | 6.2                        | 4.2  | 0.3   | 3.4        | 2.9        |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 6                       | 110  | 13    | 129        | 13                         | 43   | 14    | 70         | 10                      | 130  | 9     | 149        | 33                         | 88   | 45    | 166        | 514        |
| 07:30 AM   | 12                      | 112  | 20    | 144        | 21                         | 50   | 14    | 85         | 21                      | 112  | 16    | 149        | 34                         | 81   | 69    | 184        | 562        |
| 07:45 AM   | 11                      | 142  | 20    | 173        | 23                         | 64   | 24    | 111        | 12                      | 168  | 16    | 196        | 27                         | 91   | 85    | 203        | 683        |
| 08:00 AM   | 15                      | 113  | 18    | 146        | 17                         | 69   | 12    | 98         | 18                      | 150  | 10    | 178        | 51                         | 98   | 69    | 218        | 640        |
| Total Volume   | 44                      | 477  | 71    | 592        | 74                         | 226  | 64    | 364        | 61                      | 560  | 51    | 672        | 145                        | 358  | 268   | 771        | 2399       |
| % App. Total   | 7.4                     | 80.6 | 12    |            | 20.3                       | 62.1 | 17.6  |            | 9.1                     | 83.3 | 7.6   |            | 18.8                       | 46.4 | 34.8  |            |            |
| PHF  | .733                    | .840 | .888  | .855       | .804                       | .819 | .667  | .820       | .726                    | .833 | .797  | .857       | .711                       | .913 | .788  | .884       | .878       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 12       | 112  | 20   | 144  | 21       | 50   | 14   | 85   | 21       | 112  | 16   | 149  | 33       | 88   | 45   | 166  |
| +15 mins.    | 11       | 142  | 20   | 173  | 23       | 64   | 24   | 111  | 12       | 168  | 16   | 196  | 34       | 81   | 69   | 184  |
| +30 mins.    | 15       | 113  | 18   | 146  | 17       | 69   | 12   | 98   | 18       | 150  | 10   | 178  | 27       | 91   | 85   | 203  |
| +45 mins.    | 10       | 122  | 21   | 153  | 19       | 58   | 8    | 85   | 10       | 130  | 12   | 152  | 51       | 98   | 69   | 218  |
| Total Volume | 48       | 489  | 79   | 616  | 80       | 241  | 58   | 379  | 61       | 560  | 54   | 675  | 145      | 358  | 268  | 771  |
| % App. Total | 7.8      | 79.4 | 12.8 |      | 21.1     | 63.6 | 15.3 |      | 9        | 83   | 8    |      | 18.8     | 46.4 | 34.8 |      |
| PHF          | .800     | .861 | .940 | .890 | .870     | .873 | .604 | .854 | .726     | .833 | .844 | .861 | .711     | .913 | .788 | .884 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

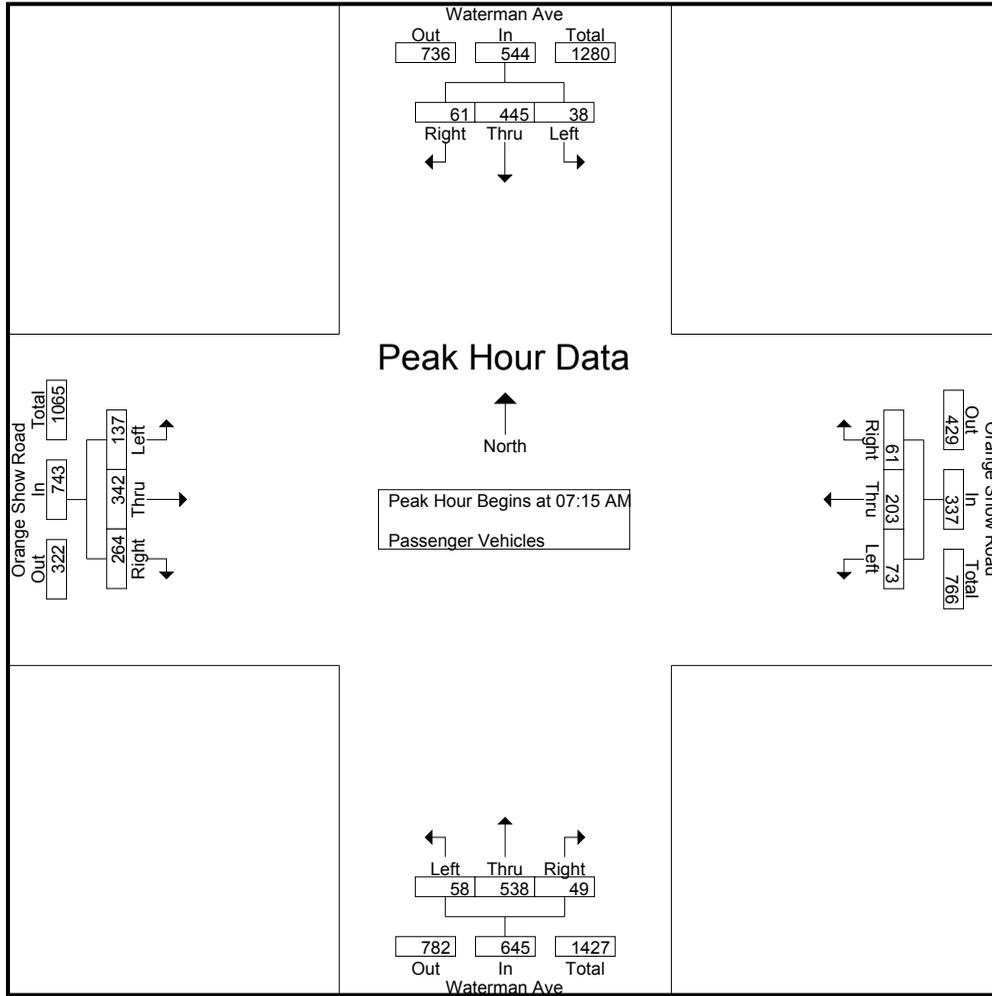
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 12                      | 68   | 16    | 96         | 11                         | 32   | 8     | 51         | 15                      | 98   | 15    | 128        | 30                         | 93   | 31    | 154        | 429        |
| 07:15 AM    | 6                       | 97   | 9     | 112        | 13                         | 38   | 12    | 63         | 8                       | 124  | 9     | 141        | 32                         | 85   | 44    | 161        | 477        |
| 07:30 AM    | 11                      | 107  | 18    | 136        | 21                         | 43   | 14    | 78         | 20                      | 110  | 16    | 146        | 31                         | 79   | 68    | 178        | 538        |
| 07:45 AM    | 11                      | 135  | 19    | 165        | 23                         | 60   | 24    | 107        | 12                      | 162  | 14    | 188        | 25                         | 84   | 84    | 193        | 653        |
| Total       | 40                      | 407  | 62    | 509        | 68                         | 173  | 58    | 299        | 55                      | 494  | 54    | 603        | 118                        | 341  | 227   | 686        | 2097       |
| 08:00 AM    | 10                      | 106  | 15    | 131        | 16                         | 62   | 11    | 89         | 18                      | 142  | 10    | 170        | 49                         | 94   | 68    | 211        | 601        |
| 08:15 AM    | 9                       | 116  | 14    | 139        | 18                         | 53   | 8     | 79         | 10                      | 123  | 10    | 143        | 20                         | 57   | 31    | 108        | 469        |
| 08:30 AM    | 9                       | 106  | 15    | 130        | 19                         | 39   | 10    | 68         | 19                      | 108  | 12    | 139        | 11                         | 37   | 26    | 74         | 411        |
| 08:45 AM    | 15                      | 117  | 13    | 145        | 8                          | 44   | 5     | 57         | 16                      | 108  | 6     | 130        | 23                         | 47   | 26    | 96         | 428        |
| Total       | 43                      | 445  | 57    | 545        | 61                         | 198  | 34    | 293        | 63                      | 481  | 38    | 582        | 103                        | 235  | 151   | 489        | 1909       |
| Grand Total | 83                      | 852  | 119   | 1054       | 129                        | 371  | 92    | 592        | 118                     | 975  | 92    | 1185       | 221                        | 576  | 378   | 1175       | 4006       |
| Apprch %    | 7.9                     | 80.8 | 11.3  |            | 21.8                       | 62.7 | 15.5  |            | 10                      | 82.3 | 7.8   |            | 18.8                       | 49   | 32.2  |            |            |
| Total %     | 2.1                     | 21.3 | 3     | 26.3       | 3.2                        | 9.3  | 2.3   | 14.8       | 2.9                     | 24.3 | 2.3   | 29.6       | 5.5                        | 14.4 | 9.4   | 29.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 6                       | 97   | 9     | 112        | 13                         | 38   | 12    | 63         | 8                       | 124  | 9     | 141        | 32                         | 85   | 44    | 161        | 477        |
| 07:30 AM   | 11                      | 107  | 18    | 136        | 21                         | 43   | 14    | 78         | 20                      | 110  | 16    | 146        | 31                         | 79   | 68    | 178        | 538        |
| 07:45 AM   | 11                      | 135  | 19    | 165        | 23                         | 60   | 24    | 107        | 12                      | 162  | 14    | 188        | 25                         | 84   | 84    | 193        | 653        |
| 08:00 AM   | 10                      | 106  | 15    | 131        | 16                         | 62   | 11    | 89         | 18                      | 142  | 10    | 170        | 49                         | 94   | 68    | 211        | 601        |
| Total Volume   | 38                      | 445  | 61    | 544        | 73                         | 203  | 61    | 337        | 58                      | 538  | 49    | 645        | 137                        | 342  | 264   | 743        | 2269       |
| % App. Total   | 7                       | 81.8 | 11.2  |            | 21.7                       | 60.2 | 18.1  |            | 9                       | 83.4 | 7.6   |            | 18.4                       | 46   | 35.5  |            |            |
| PHF  | .864                    | .824 | .803  | .824       | .793                       | .819 | .635  | .787       | .725                    | .830 | .766  | .858       | .699                       | .910 | .786  | .880       | .869       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 6        | 97   | 9    | 112  | 13       | 38   | 12   | 63   | 8        | 124  | 9    | 141  | 32       | 85   | 44   | 161  |
| +15 mins.    | 11       | 107  | 18   | 136  | 21       | 43   | 14   | 78   | 20       | 110  | 16   | 146  | 31       | 79   | 68   | 178  |
| +30 mins.    | 11       | 135  | 19   | 165  | 23       | 60   | 24   | 107  | 12       | 162  | 14   | 188  | 25       | 84   | 84   | 193  |
| +45 mins.    | 10       | 106  | 15   | 131  | 16       | 62   | 11   | 89   | 18       | 142  | 10   | 170  | 49       | 94   | 68   | 211  |
| Total Volume | 38       | 445  | 61   | 544  | 73       | 203  | 61   | 337  | 58       | 538  | 49   | 645  | 137      | 342  | 264  | 743  |
| % App. Total | 7        | 81.8 | 11.2 |      | 21.7     | 60.2 | 18.1 |      | 9        | 83.4 | 7.6  |      | 18.4     | 46   | 35.5 |      |
| PHF          | .864     | .824 | .803 | .824 | .793     | .819 | .635 | .787 | .725     | .830 | .766 | .858 | .699     | .910 | .786 | .880 |

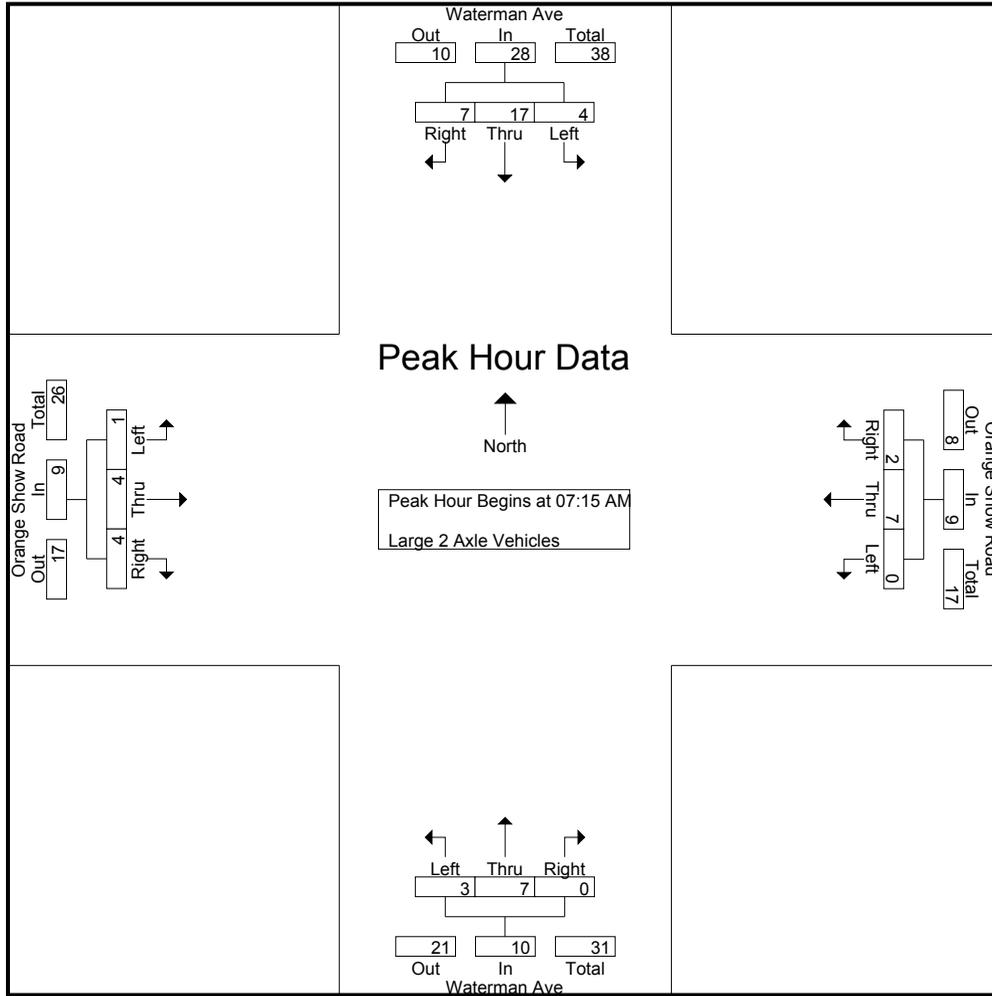
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 5    | 0     | 5          | 0                          | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 2                          | 2    | 0     | 4          | 15         |
| 07:15 AM    | 0                       | 8    | 1     | 9          | 0                          | 0    | 2     | 2          | 2                       | 1    | 0     | 3          | 0                          | 1    | 1     | 2          | 16         |
| 07:30 AM    | 0                       | 3    | 2     | 5          | 0                          | 3    | 0     | 3          | 1                       | 1    | 0     | 2          | 0                          | 0    | 1     | 1          | 11         |
| 07:45 AM    | 0                       | 3    | 1     | 4          | 0                          | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 1                          | 2    | 1     | 4          | 12         |
| Total       | 0                       | 19   | 4     | 23         | 0                          | 9    | 2     | 11         | 3                       | 6    | 0     | 9          | 3                          | 5    | 3     | 11         | 54         |
| 08:00 AM    | 4                       | 3    | 3     | 10         | 0                          | 2    | 0     | 2          | 0                       | 3    | 0     | 3          | 0                          | 1    | 1     | 2          | 17         |
| 08:15 AM    | 1                       | 3    | 4     | 8          | 1                          | 3    | 0     | 4          | 0                       | 4    | 1     | 5          | 1                          | 1    | 1     | 3          | 20         |
| 08:30 AM    | 1                       | 3    | 2     | 6          | 0                          | 5    | 0     | 5          | 2                       | 1    | 0     | 3          | 1                          | 0    | 0     | 1          | 15         |
| 08:45 AM    | 0                       | 2    | 10    | 12         | 0                          | 17   | 3     | 20         | 1                       | 2    | 1     | 4          | 1                          | 3    | 1     | 5          | 41         |
| Total       | 6                       | 11   | 19    | 36         | 1                          | 27   | 3     | 31         | 3                       | 10   | 2     | 15         | 3                          | 5    | 3     | 11         | 93         |
| Grand Total | 6                       | 30   | 23    | 59         | 1                          | 36   | 5     | 42         | 6                       | 16   | 2     | 24         | 6                          | 10   | 6     | 22         | 147        |
| Apprch %    | 10.2                    | 50.8 | 39    |            | 2.4                        | 85.7 | 11.9  |            | 25                      | 66.7 | 8.3   |            | 27.3                       | 45.5 | 27.3  |            |            |
| Total %     | 4.1                     | 20.4 | 15.6  | 40.1       | 0.7                        | 24.5 | 3.4   | 28.6       | 4.1                     | 10.9 | 1.4   | 16.3       | 4.1                        | 6.8  | 4.1   | 15         |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 8    | 1     | 9          | 0                          | 0    | 2     | 2          | 2                       | 1    | 0     | 3          | 0                          | 1    | 1     | 2          | 16         |
| 07:30 AM   | 0                       | 3    | 2     | 5          | 0                          | 3    | 0     | 3          | 1                       | 1    | 0     | 2          | 0                          | 0    | 1     | 1          | 11         |
| 07:45 AM   | 0                       | 3    | 1     | 4          | 0                          | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 1                          | 2    | 1     | 4          | 12         |
| 08:00 AM   | 4                       | 3    | 3     | 10         | 0                          | 2    | 0     | 2          | 0                       | 3    | 0     | 3          | 0                          | 1    | 1     | 2          | 17         |
| Total Volume   | 4                       | 17   | 7     | 28         | 0                          | 7    | 2     | 9          | 3                       | 7    | 0     | 10         | 1                          | 4    | 4     | 9          | 56         |
| % App. Total   | 14.3                    | 60.7 | 25    |            | 0                          | 77.8 | 22.2  |            | 30                      | 70   | 0     |            | 11.1                       | 44.4 | 44.4  |            |            |
| PHF  | .250                    | .531 | .583  | .700       | .000                       | .583 | .250  | .750       | .375                    | .583 | .000  | .833       | .250                       | .500 | 1.00  | .563       | .824       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |          |          |           | 07:15 AM |          |          |          | 07:15 AM |          |      |          | 07:15 AM |          |       |          |
|--------------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|------|----------|----------|----------|-------|----------|
| +0 mins.     | 0        | <b>8</b> | 1        | 9         | 0        | 0        | <b>2</b> | 2        | <b>2</b> | 1        | 0    | <b>3</b> | 0        | 1        | 1     | 2        |
| +15 mins.    | 0        | 3        | 2        | 5         | 0        | <b>3</b> | 0        | <b>3</b> | 1        | 1        | 0    | 2        | 0        | 0        | 1     | 1        |
| +30 mins.    | 0        | 3        | 1        | 4         | 0        | 2        | 0        | 2        | 0        | 2        | 0    | 2        | <b>1</b> | <b>2</b> | 1     | <b>4</b> |
| +45 mins.    | <b>4</b> | 3        | <b>3</b> | <b>10</b> | 0        | 2        | 0        | 2        | 0        | <b>3</b> | 0    | 3        | 0        | 1        | 1     | 2        |
| Total Volume | 4        | 17       | 7        | 28        | 0        | 7        | 2        | 9        | 3        | 7        | 0    | 10       | 1        | 4        | 4     | 9        |
| % App. Total | 14.3     | 60.7     | 25       |           | 0        | 77.8     | 22.2     |          | 30       | 70       | 0    |          | 11.1     | 44.4     | 44.4  |          |
| PHF          | .250     | .531     | .583     | .700      | .000     | .583     | .250     | .750     | .375     | .583     | .000 | .833     | .250     | .500     | 1.000 | .563     |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

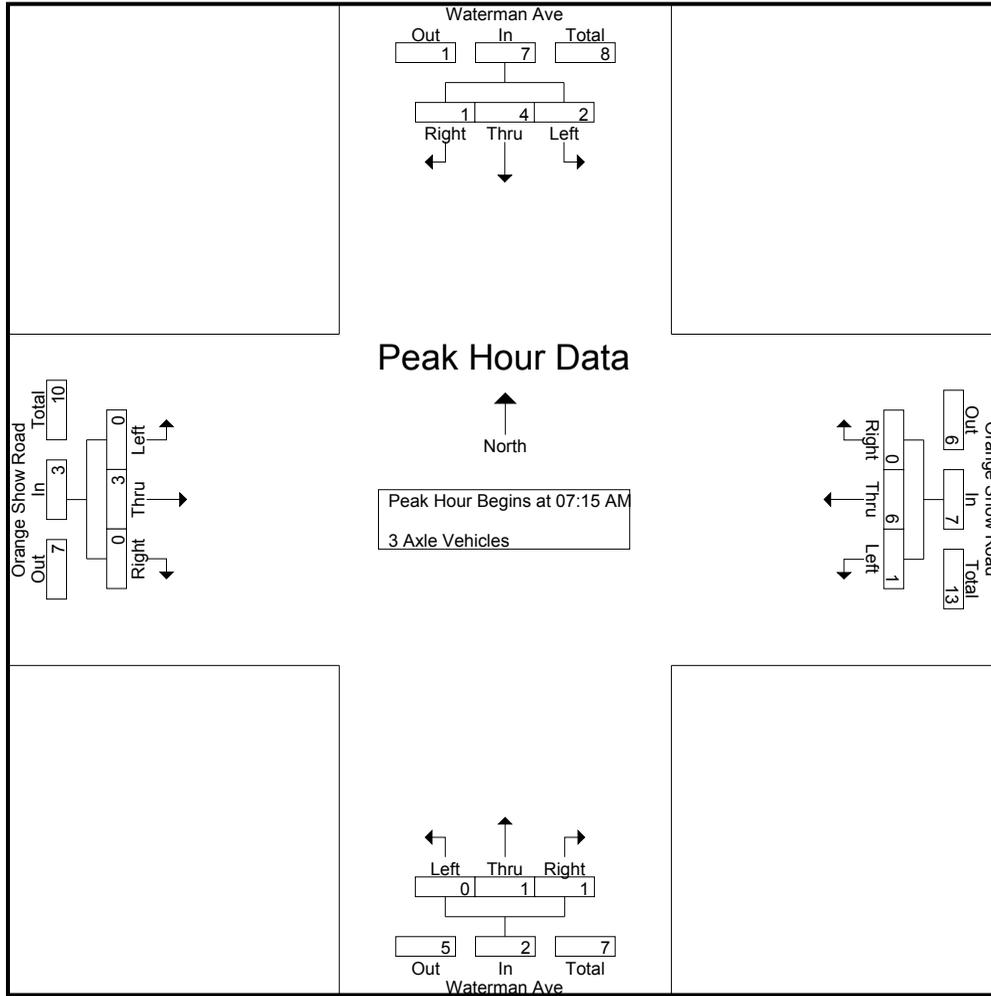
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 1    | 0     | 1          | 1                          | 1    | 1     | 3          | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 5          |
| 07:15 AM    | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 07:30 AM    | 1                       | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 4          |
| Total       | 1                       | 5    | 1     | 7          | 1                          | 4    | 1     | 6          | 0                       | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 18         |
| 08:00 AM    | 1                       | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 6          |
| 08:15 AM    | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1                          | 1    | 0     | 2          | 3          |
| 08:30 AM    | 0                       | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 08:45 AM    | 1                       | 1    | 1     | 3          | 0                          | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| Total       | 2                       | 2    | 1     | 5          | 1                          | 4    | 1     | 6          | 0                       | 1    | 0     | 1          | 1                          | 6    | 0     | 7          | 19         |
| Grand Total | 3                       | 7    | 2     | 12         | 2                          | 8    | 2     | 12         | 0                       | 3    | 1     | 4          | 1                          | 8    | 0     | 9          | 37         |
| Apprch %    | 25                      | 58.3 | 16.7  |            | 16.7                       | 66.7 | 16.7  |            | 0                       | 75   | 25    |            | 11.1                       | 88.9 | 0     |            |            |
| Total %     | 8.1                     | 18.9 | 5.4   | 32.4       | 5.4                        | 21.6 | 5.4   | 32.4       | 0                       | 8.1  | 2.7   | 10.8       | 2.7                        | 21.6 | 0     | 24.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 07:30 AM   | 1                       | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM   | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 4          |
| 08:00 AM   | 1                       | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 6          |
| Total Volume   | 2                       | 4    | 1     | 7          | 1                          | 6    | 0     | 7          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 19         |
| % App. Total   | 28.6                    | 57.1 | 14.3  |            | 14.3                       | 85.7 | 0     |            | 0                       | 50   | 50    |            | 0                          | 100  | 0     |            |            |
| PHF  | .500                    | .500 | .250  | .583       | .250                       | .500 | .000  | .438       | .000                    | .250 | .250  | .250       | .000                       | .750 | .000  | .750       | .792       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 1        | 2    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    |
| +45 mins.    | 1        | 0    | 0    | 1    | 1        | 3    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 4    | 1    | 7    | 1        | 6    | 0    | 7    | 0        | 1    | 1    | 2    | 0        | 3    | 0    | 3    |
| % App. Total | 28.6     | 57.1 | 14.3 |      | 14.3     | 85.7 | 0    |      | 0        | 50   | 50   |      | 0        | 100  | 0    |      |
| PHF          | .500     | .500 | .250 | .583 | .250     | .500 | .000 | .438 | .000     | .250 | .250 | .250 | .000     | .750 | .000 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

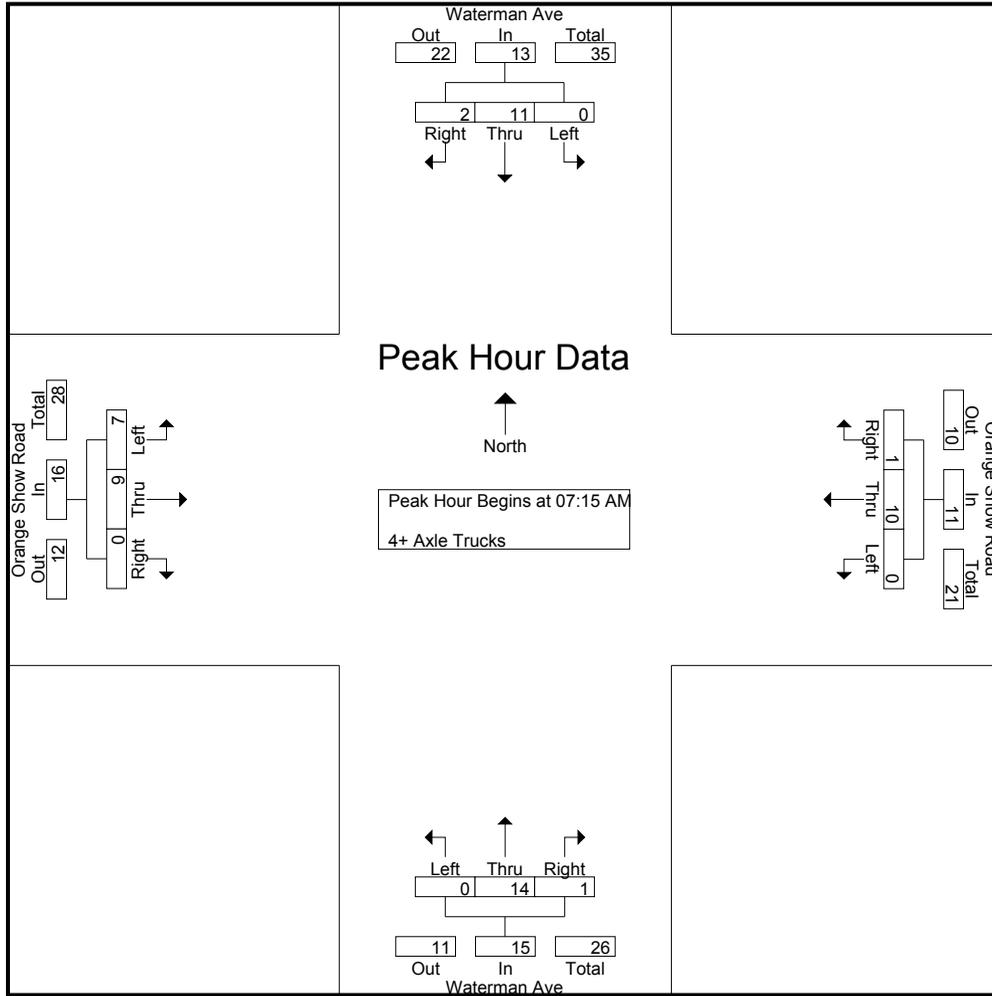
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 4    | 1     | 5          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 6    | 0     | 7          | 18         |
| 07:15 AM    | 0                       | 4    | 2     | 6          | 0                          | 4    | 0     | 4          | 0                       | 5    | 0     | 5          | 1                          | 1    | 0     | 2          | 17         |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 3                          | 2    | 0     | 5          | 8          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 4    | 0     | 5          | 14         |
| Total       | 0                       | 11   | 3     | 14         | 0                          | 10   | 0     | 10         | 0                       | 12   | 2     | 14         | 6                          | 13   | 0     | 19         | 57         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                          | 2    | 1     | 3          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 16         |
| 08:15 AM    | 0                       | 2    | 3     | 5          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 3                          | 3    | 1     | 7          | 18         |
| 08:30 AM    | 0                       | 3    | 1     | 4          | 0                          | 1    | 0     | 1          | 0                       | 3    | 1     | 4          | 3                          | 2    | 0     | 5          | 14         |
| 08:45 AM    | 1                       | 3    | 0     | 4          | 1                          | 1    | 0     | 2          | 0                       | 7    | 1     | 8          | 1                          | 6    | 0     | 7          | 21         |
| Total       | 1                       | 12   | 4     | 17         | 1                          | 6    | 1     | 8          | 0                       | 18   | 3     | 21         | 9                          | 13   | 1     | 23         | 69         |
| Grand Total | 1                       | 23   | 7     | 31         | 1                          | 16   | 1     | 18         | 0                       | 30   | 5     | 35         | 15                         | 26   | 1     | 42         | 126        |
| Apprch %    | 3.2                     | 74.2 | 22.6  |            | 5.6                        | 88.9 | 5.6   |            | 0                       | 85.7 | 14.3  |            | 35.7                       | 61.9 | 2.4   |            |            |
| Total %     | 0.8                     | 18.3 | 5.6   | 24.6       | 0.8                        | 12.7 | 0.8   | 14.3       | 0                       | 23.8 | 4     | 27.8       | 11.9                       | 20.6 | 0.8   | 33.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 4    | 2     | 6          | 0                          | 4    | 0     | 4          | 0                       | 5    | 0     | 5          | 1                          | 1    | 0     | 2          | 17         |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 3                          | 2    | 0     | 5          | 8          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 4    | 0     | 5          | 14         |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                          | 2    | 1     | 3          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 16         |
| Total Volume   | 0                       | 11   | 2     | 13         | 0                          | 10   | 1     | 11         | 0                       | 14   | 1     | 15         | 7                          | 9    | 0     | 16         | 55         |
| % App. Total   | 0                       | 84.6 | 15.4  |            | 0                          | 90.9 | 9.1   |            | 0                       | 93.3 | 6.7   |            | 43.8                       | 56.2 | 0     |            |            |
| PHF  | .000                    | .688 | .250  | .542       | .000                       | .625 | .250  | .688       | .000                    | .700 | .250  | .750       | .583                       | .563 | .000  | .800       | .809       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 4    | 2    | 6    | 0        | 4    | 0    | 4    | 0        | 5    | 0    | 5    | 1        | 1    | 0    | 2    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 3        | 2    | 0    | 5    |
| +30 mins.    | 0        | 3    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 3    | 1    | 4    | 1        | 4    | 0    | 5    |
| +45 mins.    | 0        | 4    | 0    | 4    | 0        | 2    | 1    | 3    | 0        | 5    | 0    | 5    | 2        | 2    | 0    | 4    |
| Total Volume | 0        | 11   | 2    | 13   | 0        | 10   | 1    | 11   | 0        | 14   | 1    | 15   | 7        | 9    | 0    | 16   |
| % App. Total | 0        | 84.6 | 15.4 |      | 0        | 90.9 | 9.1  |      | 0        | 93.3 | 6.7  |      | 43.8     | 56.2 | 0    |      |
| PHF          | .000     | .688 | .250 | .542 | .000     | .625 | .250 | .688 | .000     | .700 | .250 | .750 | .583     | .563 | .000 | .800 |

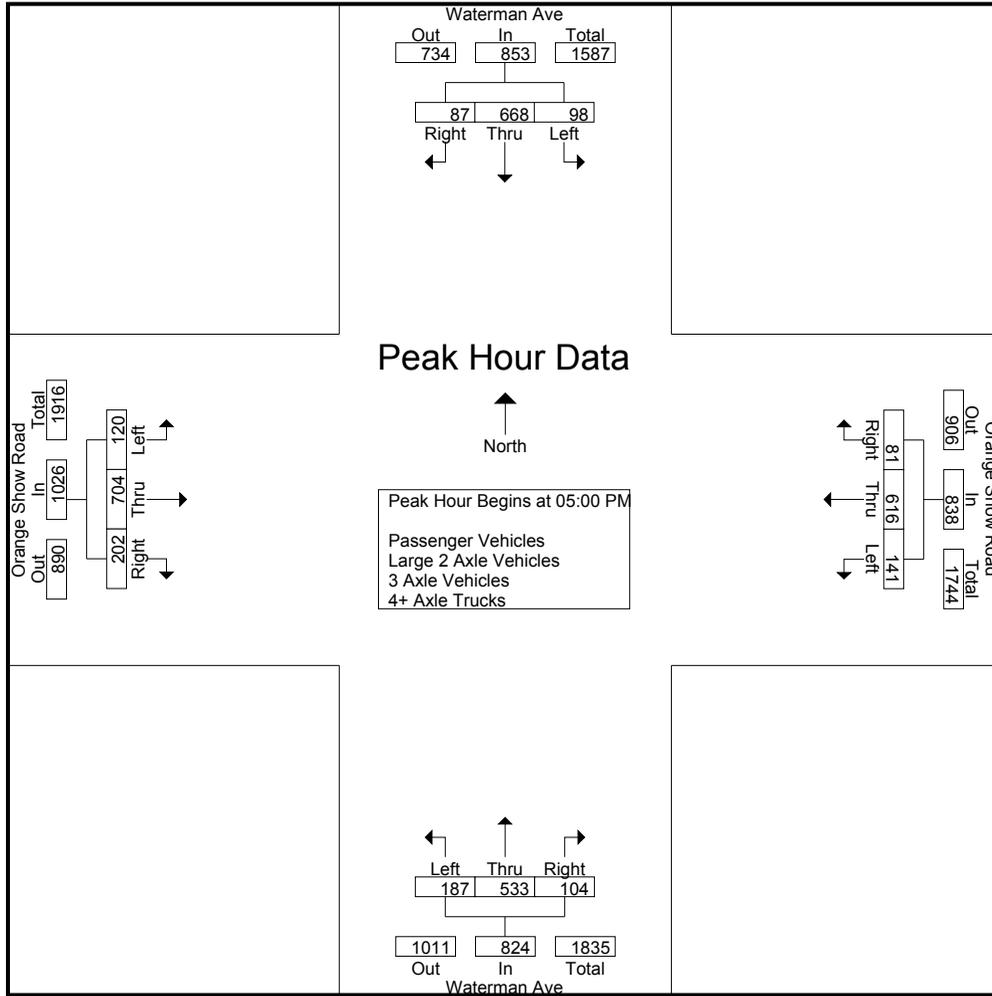
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 15                      | 139  | 28    | 182        | 14                         | 52   | 20    | 86         | 33                      | 151  | 11    | 195        | 26                         | 66   | 25    | 117        | 580        |
| 04:15 PM                | 19                      | 174  | 20    | 213        | 14                         | 66   | 10    | 90         | 35                      | 128  | 11    | 174        | 27                         | 69   | 25    | 121        | 598        |
| 04:30 PM                | 21                      | 211  | 17    | 249        | 21                         | 105  | 12    | 138        | 30                      | 134  | 13    | 177        | 33                         | 102  | 44    | 179        | 743        |
| 04:45 PM                | 22                      | 211  | 19    | 252        | 20                         | 53   | 9     | 82         | 24                      | 103  | 14    | 141        | 26                         | 96   | 33    | 155        | 630        |
| Total                   | 77                      | 735  | 84    | 896        | 69                         | 276  | 51    | 396        | 122                     | 516  | 49    | 687        | 112                        | 333  | 127   | 572        | 2551       |
| 05:00 PM                | 23                      | 186  | 24    | 233        | 16                         | 133  | 14    | 163        | 52                      | 158  | 32    | 242        | 39                         | 154  | 49    | 242        | 880        |
| 05:15 PM                | 29                      | 179  | 18    | 226        | 35                         | 174  | 25    | 234        | 54                      | 113  | 24    | 191        | 26                         | 198  | 60    | 284        | 935        |
| 05:30 PM                | 32                      | 162  | 28    | 222        | 43                         | 170  | 17    | 230        | 47                      | 141  | 28    | 216        | 25                         | 172  | 52    | 249        | 917        |
| 05:45 PM                | 14                      | 141  | 17    | 172        | 47                         | 139  | 25    | 211        | 34                      | 121  | 20    | 175        | 30                         | 180  | 41    | 251        | 809        |
| Total                   | 98                      | 668  | 87    | 853        | 141                        | 616  | 81    | 838        | 187                     | 533  | 104   | 824        | 120                        | 704  | 202   | 1026       | 3541       |
| Grand Total             | 175                     | 1403 | 171   | 1749       | 210                        | 892  | 132   | 1234       | 309                     | 1049 | 153   | 1511       | 232                        | 1037 | 329   | 1598       | 6092       |
| Apprch %                | 10                      | 80.2 | 9.8   |            | 17                         | 72.3 | 10.7  |            | 20.5                    | 69.4 | 10.1  |            | 14.5                       | 64.9 | 20.6  |            |            |
| Total %                 | 2.9                     | 23   | 2.8   | 28.7       | 3.4                        | 14.6 | 2.2   | 20.3       | 5.1                     | 17.2 | 2.5   | 24.8       | 3.8                        | 17   | 5.4   | 26.2       |            |
| Passenger Vehicles      | 171                     | 1353 | 155   | 1679       | 199                        | 814  | 125   | 1138       | 306                     | 1006 | 148   | 1460       | 218                        | 976  | 319   | 1513       | 5790       |
| % Passenger Vehicles    | 97.7                    | 96.4 | 90.6  | 96         | 94.8                       | 91.3 | 94.7  | 92.2       | 99                      | 95.9 | 96.7  | 96.6       | 94                         | 94.1 | 97    | 94.7       | 95         |
| Large 2 Axle Vehicles   | 1                       | 22   | 10    | 33         | 0                          | 31   | 1     | 32         | 3                       | 21   | 2     | 26         | 4                          | 15   | 4     | 23         | 114        |
| % Large 2 Axle Vehicles | 0.6                     | 1.6  | 5.8   | 1.9        | 0                          | 3.5  | 0.8   | 2.6        | 1                       | 2    | 1.3   | 1.7        | 1.7                        | 1.4  | 1.2   | 1.4        | 1.9        |
| 3 Axle Vehicles         | 2                       | 3    | 2     | 7          | 1                          | 16   | 3     | 20         | 0                       | 7    | 1     | 8          | 2                          | 11   | 4     | 17         | 52         |
| % 3 Axle Vehicles       | 1.1                     | 0.2  | 1.2   | 0.4        | 0.5                        | 1.8  | 2.3   | 1.6        | 0                       | 0.7  | 0.7   | 0.5        | 0.9                        | 1.1  | 1.2   | 1.1        | 0.9        |
| 4+ Axle Trucks          | 1                       | 25   | 4     | 30         | 10                         | 31   | 3     | 44         | 0                       | 15   | 2     | 17         | 8                          | 35   | 2     | 45         | 136        |
| % 4+ Axle Trucks        | 0.6                     | 1.8  | 2.3   | 1.7        | 4.8                        | 3.5  | 2.3   | 3.6        | 0                       | 1.4  | 1.3   | 1.1        | 3.4                        | 3.4  | 0.6   | 2.8        | 2.2        |

| Start Time   | Waterman Ave Southbound |            |           |            | Orange Show Road Westbound |            |           |            | Waterman Ave Northbound |            |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| 05:00 PM   | 23                      | <b>186</b> | 24        | <b>233</b> | 16                         | 133        | 14        | 163        | 52                      | <b>158</b> | <b>32</b> | <b>242</b> | <b>39</b>                  | 154        | 49        | 242        | 880        |
| 05:15 PM   | 29                      | 179        | 18        | 226        | 35                         | <b>174</b> | <b>25</b> | <b>234</b> | <b>54</b>               | 113        | 24        | 191        | 26                         | <b>198</b> | <b>60</b> | <b>284</b> | <b>935</b> |
| 05:30 PM   | <b>32</b>               | 162        | <b>28</b> | 222        | 43                         | 170        | 17        | 230        | 47                      | 141        | 28        | 216        | 25                         | 172        | 52        | 249        | 917        |
| 05:45 PM   | 14                      | 141        | 17        | 172        | <b>47</b>                  | 139        | 25        | 211        | 34                      | 121        | 20        | 175        | 30                         | 180        | 41        | 251        | 809        |
| Total Volume   | 98                      | 668        | 87        | 853        | 141                        | 616        | 81        | 838        | 187                     | 533        | 104       | 824        | 120                        | 704        | 202       | 1026       | 3541       |
| % App. Total   | 11.5                    | 78.3       | 10.2      |            | 16.8                       | 73.5       | 9.7       |            | 22.7                    | 64.7       | 12.6      |            | 11.7                       | 68.6       | 19.7      |            |            |
| PHF  | .766                    | .898       | .777      | .915       | .750                       | .885       | .810      | .895       | .866                    | .843       | .813      | .851       | .769                       | .889       | .842      | .903       | .947       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM  |            |           |            | 05:00 PM  |            |           |            | 05:00 PM  |            |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 21        | <b>211</b> | 17        | 249        | 16        | 133        | 14        | 163        | 52        | <b>158</b> | <b>32</b> | <b>242</b> | <b>39</b> | 154        | 49        | 242        |
| +15 mins.    | 22        | 211        | 19        | <b>252</b> | 35        | <b>174</b> | <b>25</b> | <b>234</b> | <b>54</b> | 113        | 24        | 191        | 26        | <b>198</b> | <b>60</b> | <b>284</b> |
| +30 mins.    | 23        | 186        | <b>24</b> | 233        | 43        | 170        | 17        | 230        | 47        | 141        | 28        | 216        | 25        | 172        | 52        | 249        |
| +45 mins.    | <b>29</b> | 179        | 18        | 226        | <b>47</b> | 139        | 25        | 211        | 34        | 121        | 20        | 175        | 30        | 180        | 41        | 251        |
| Total Volume | 95        | 787        | 78        | 960        | 141       | 616        | 81        | 838        | 187       | 533        | 104       | 824        | 120       | 704        | 202       | 1026       |
| % App. Total | 9.9       | 82         | 8.1       |            | 16.8      | 73.5       | 9.7       |            | 22.7      | 64.7       | 12.6      |            | 11.7      | 68.6       | 19.7      |            |
| PHF          | .819      | .932       | .813      | .952       | .750      | .885       | .810      | .895       | .866      | .843       | .813      | .851       | .769      | .889       | .842      | .903       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
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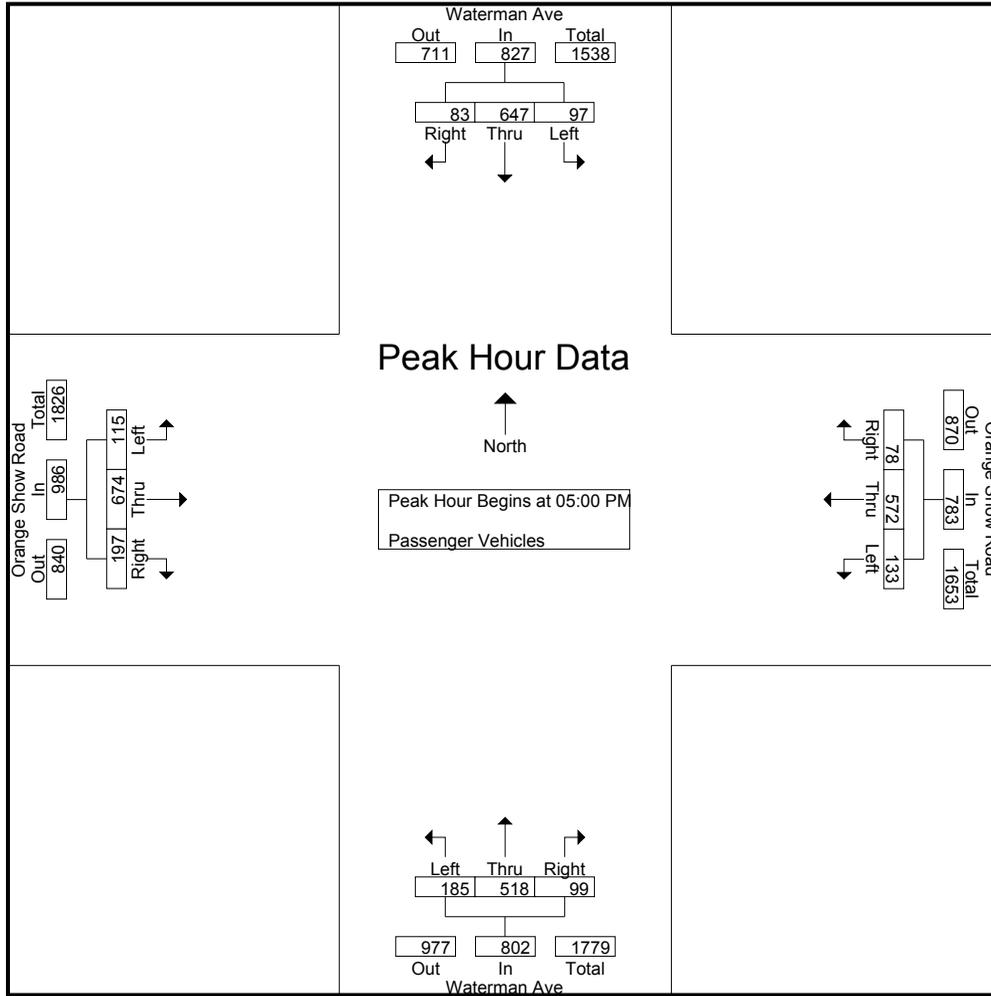
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 15                      | 135  | 20    | 170        | 13                         | 45   | 20    | 78         | 33                      | 141  | 11    | 185        | 21                         | 62   | 25    | 108        | 541        |
| 04:15 PM    | 17                      | 166  | 18    | 201        | 13                         | 54   | 10    | 77         | 34                      | 121  | 11    | 166        | 24                         | 61   | 24    | 109        | 553        |
| 04:30 PM    | 21                      | 204  | 16    | 241        | 21                         | 94   | 8     | 123        | 30                      | 127  | 13    | 170        | 32                         | 91   | 42    | 165        | 699        |
| 04:45 PM    | 21                      | 201  | 18    | 240        | 19                         | 49   | 9     | 77         | 24                      | 99   | 14    | 137        | 26                         | 88   | 31    | 145        | 599        |
| Total       | 74                      | 706  | 72    | 852        | 66                         | 242  | 47    | 355        | 121                     | 488  | 49    | 658        | 103                        | 302  | 122   | 527        | 2392       |
| 05:00 PM    | 23                      | 179  | 22    | 224        | 16                         | 123  | 14    | 153        | 52                      | 154  | 31    | 237        | 35                         | 150  | 47    | 232        | 846        |
| 05:15 PM    | 28                      | 176  | 18    | 222        | 34                         | 162  | 25    | 221        | 53                      | 110  | 23    | 186        | 26                         | 188  | 59    | 273        | 902        |
| 05:30 PM    | 32                      | 155  | 28    | 215        | 39                         | 161  | 14    | 214        | 46                      | 136  | 27    | 209        | 25                         | 165  | 52    | 242        | 880        |
| 05:45 PM    | 14                      | 137  | 15    | 166        | 44                         | 126  | 25    | 195        | 34                      | 118  | 18    | 170        | 29                         | 171  | 39    | 239        | 770        |
| Total       | 97                      | 647  | 83    | 827        | 133                        | 572  | 78    | 783        | 185                     | 518  | 99    | 802        | 115                        | 674  | 197   | 986        | 3398       |
| Grand Total | 171                     | 1353 | 155   | 1679       | 199                        | 814  | 125   | 1138       | 306                     | 1006 | 148   | 1460       | 218                        | 976  | 319   | 1513       | 5790       |
| Apprch %    | 10.2                    | 80.6 | 9.2   |            | 17.5                       | 71.5 | 11    |            | 21                      | 68.9 | 10.1  |            | 14.4                       | 64.5 | 21.1  |            |            |
| Total %     | 3                       | 23.4 | 2.7   | 29         | 3.4                        | 14.1 | 2.2   | 19.7       | 5.3                     | 17.4 | 2.6   | 25.2       | 3.8                        | 16.9 | 5.5   | 26.1       |            |

| Start Time   | Waterman Ave Southbound |            |           |            | Orange Show Road Westbound |            |           |            | Waterman Ave Northbound |            |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| 05:00 PM   | 23                      | <b>179</b> | 22        | <b>224</b> | 16                         | 123        | 14        | 153        | 52                      | <b>154</b> | <b>31</b> | <b>237</b> | <b>35</b>                  | 150        | 47        | 232        | 846        |
| 05:15 PM   | 28                      | 176        | 18        | 222        | 34                         | <b>162</b> | <b>25</b> | <b>221</b> | <b>53</b>               | 110        | 23        | 186        | 26                         | <b>188</b> | <b>59</b> | <b>273</b> | <b>902</b> |
| 05:30 PM   | <b>32</b>               | 155        | <b>28</b> | 215        | 39                         | 161        | 14        | 214        | 46                      | 136        | 27        | 209        | 25                         | 165        | 52        | 242        | 880        |
| 05:45 PM   | 14                      | 137        | 15        | 166        | <b>44</b>                  | 126        | 25        | 195        | 34                      | 118        | 18        | 170        | 29                         | 171        | 39        | 239        | 770        |
| Total Volume   | 97                      | 647        | 83        | 827        | 133                        | 572        | 78        | 783        | 185                     | 518        | 99        | 802        | 115                        | 674        | 197       | 986        | 3398       |
| % App. Total   | 11.7                    | 78.2       | 10        |            | 17                         | 73.1       | 10        |            | 23.1                    | 64.6       | 12.3      |            | 11.7                       | 68.4       | 20        |            |            |
| PHF  | .758                    | .904       | .741      | .923       | .756                       | .883       | .780      | .886       | .873                    | .841       | .798      | .846       | .821                       | .896       | .835      | .903       | .942       |

City of San Bernardino  
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 Weather: Clear

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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |            |      |            | 05:00 PM |            |      |            | 05:00 PM |            |      |            | 05:00 PM |            |      |            |
|--------------|----------|------------|------|------------|----------|------------|------|------------|----------|------------|------|------------|----------|------------|------|------------|
| +0 mins.     | 23       | <b>179</b> | 22   | <b>224</b> | 16       | 123        | 14   | 153        | 52       | <b>154</b> | 31   | <b>237</b> | 35       | 150        | 47   | 232        |
| +15 mins.    | 28       | 176        | 18   | 222        | 34       | <b>162</b> | 25   | <b>221</b> | 53       | 110        | 23   | 186        | 26       | <b>188</b> | 59   | <b>273</b> |
| +30 mins.    | 32       | 155        | 28   | 215        | 39       | 161        | 14   | 214        | 46       | 136        | 27   | 209        | 25       | 165        | 52   | 242        |
| +45 mins.    | 14       | 137        | 15   | 166        | 44       | 126        | 25   | 195        | 34       | 118        | 18   | 170        | 29       | 171        | 39   | 239        |
| Total Volume | 97       | 647        | 83   | 827        | 133      | 572        | 78   | 783        | 185      | 518        | 99   | 802        | 115      | 674        | 197  | 986        |
| % App. Total | 11.7     | 78.2       | 10   |            | 17       | 73.1       | 10   |            | 23.1     | 64.6       | 12.3 |            | 11.7     | 68.4       | 20   |            |
| PHF          | .758     | .904       | .741 | .923       | .756     | .883       | .780 | .886       | .873     | .841       | .798 | .846       | .821     | .896       | .835 | .903       |

City of San Bernardino  
 N/S: Waterman Ave  
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File Name : SBCWAORPM  
 Site Code : 07515438  
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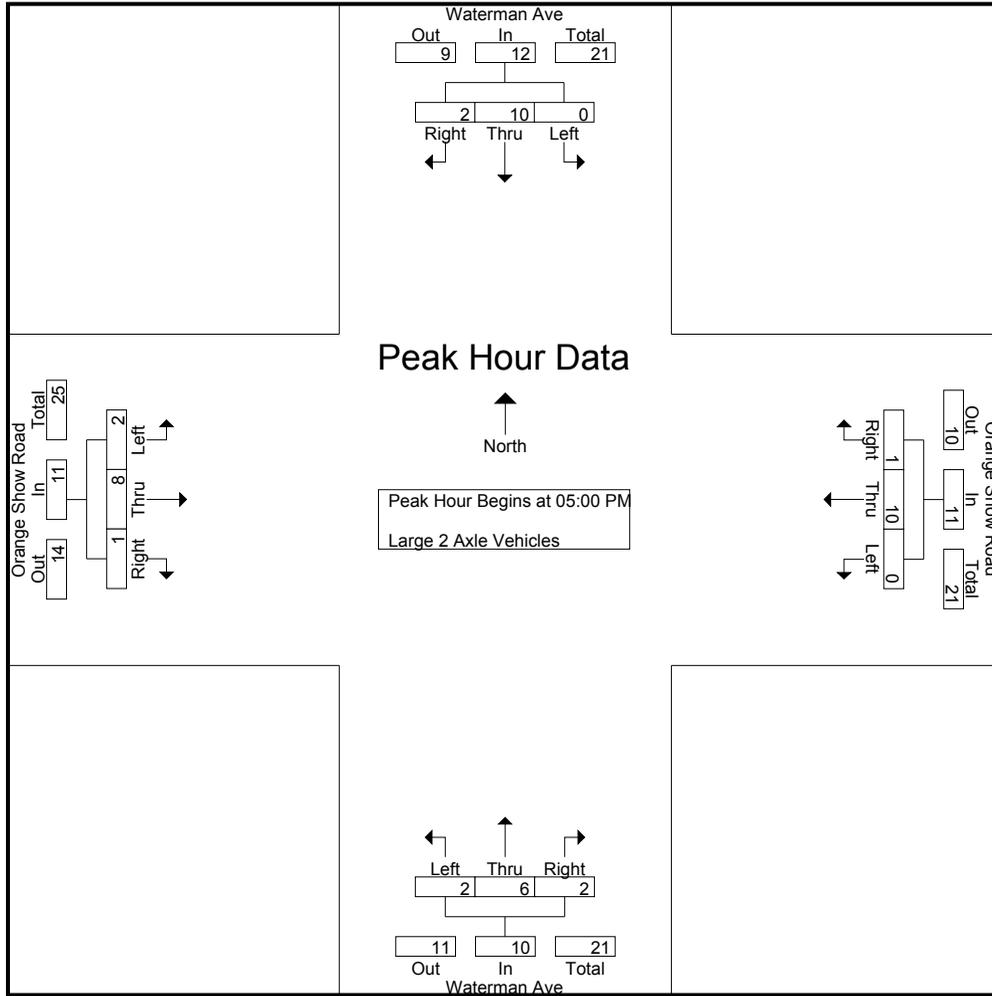
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 6     | 7          | 0                          | 5    | 0     | 5          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 21         |
| 04:15 PM    | 1                       | 3    | 1     | 5          | 0                          | 7    | 0     | 7          | 1                       | 4    | 0     | 5          | 0                          | 3    | 0     | 3          | 20         |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                          | 5    | 0     | 5          | 0                       | 4    | 0     | 4          | 0                          | 0    | 2     | 2          | 14         |
| 04:45 PM    | 0                       | 5    | 1     | 6          | 0                          | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 0                          | 2    | 1     | 3          | 15         |
| Total       | 1                       | 12   | 8     | 21         | 0                          | 21   | 0     | 21         | 1                       | 15   | 0     | 16         | 2                          | 7    | 3     | 12         | 70         |
| 05:00 PM    | 0                       | 5    | 2     | 7          | 0                          | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 2                          | 1    | 1     | 4          | 14         |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 1                       | 1    | 0     | 2          | 0                          | 2    | 0     | 2          | 7          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                          | 4    | 1     | 5          | 1                       | 2    | 1     | 4          | 0                          | 2    | 0     | 2          | 13         |
| 05:45 PM    | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| Total       | 0                       | 10   | 2     | 12         | 0                          | 10   | 1     | 11         | 2                       | 6    | 2     | 10         | 2                          | 8    | 1     | 11         | 44         |
| Grand Total | 1                       | 22   | 10    | 33         | 0                          | 31   | 1     | 32         | 3                       | 21   | 2     | 26         | 4                          | 15   | 4     | 23         | 114        |
| Apprch %    | 3                       | 66.7 | 30.3  |            | 0                          | 96.9 | 3.1   |            | 11.5                    | 80.8 | 7.7   |            | 17.4                       | 65.2 | 17.4  |            |            |
| Total %     | 0.9                     | 19.3 | 8.8   | 28.9       | 0                          | 27.2 | 0.9   | 28.1       | 2.6                     | 18.4 | 1.8   | 22.8       | 3.5                        | 13.2 | 3.5   | 20.2       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 5    | 2     | 7          | 0                          | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 2                          | 1    | 1     | 4          | 14         |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 1                       | 1    | 0     | 2          | 0                          | 2    | 0     | 2          | 7          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                          | 4    | 1     | 5          | 1                       | 2    | 1     | 4          | 0                          | 2    | 0     | 2          | 13         |
| 05:45 PM   | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| Total Volume   | 0                       | 10   | 2     | 12         | 0                          | 10   | 1     | 11         | 2                       | 6    | 2     | 10         | 2                          | 8    | 1     | 11         | 44         |
| % App. Total   | 0                       | 83.3 | 16.7  |            | 0                          | 90.9 | 9.1   |            | 20                      | 60   | 20    |            | 18.2                       | 72.7 | 9.1   |            |            |
| PHF  | .000                    | .500 | .250  | .429       | .000                       | .625 | .250  | .550       | .500                    | .750 | .500  | .625       | .250                       | .667 | .250  | .688       | .786       |

City of San Bernardino  
 N/S: Waterman Ave  
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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 2    | 7    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    | 2        | 1    | 1    | 4    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    | 1        | 1    | 0    | 2    | 0        | 2    | 0    | 2    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 4    | 1    | 5    | 1        | 2    | 1    | 4    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 3    | 0    | 3    | 0        | 1    | 1    | 2    | 0        | 3    | 0    | 3    |
| Total Volume | 0        | 10   | 2    | 12   | 0        | 10   | 1    | 11   | 2        | 6    | 2    | 10   | 2        | 8    | 1    | 11   |
| % App. Total | 0        | 83.3 | 16.7 |      | 0        | 90.9 | 9.1  |      | 20       | 60   | 20   |      | 18.2     | 72.7 | 9.1  |      |
| PHF          | .000     | .500 | .250 | .429 | .000     | .625 | .250 | .550 | .500     | .750 | .500 | .625 | .250     | .667 | .250 | .688 |

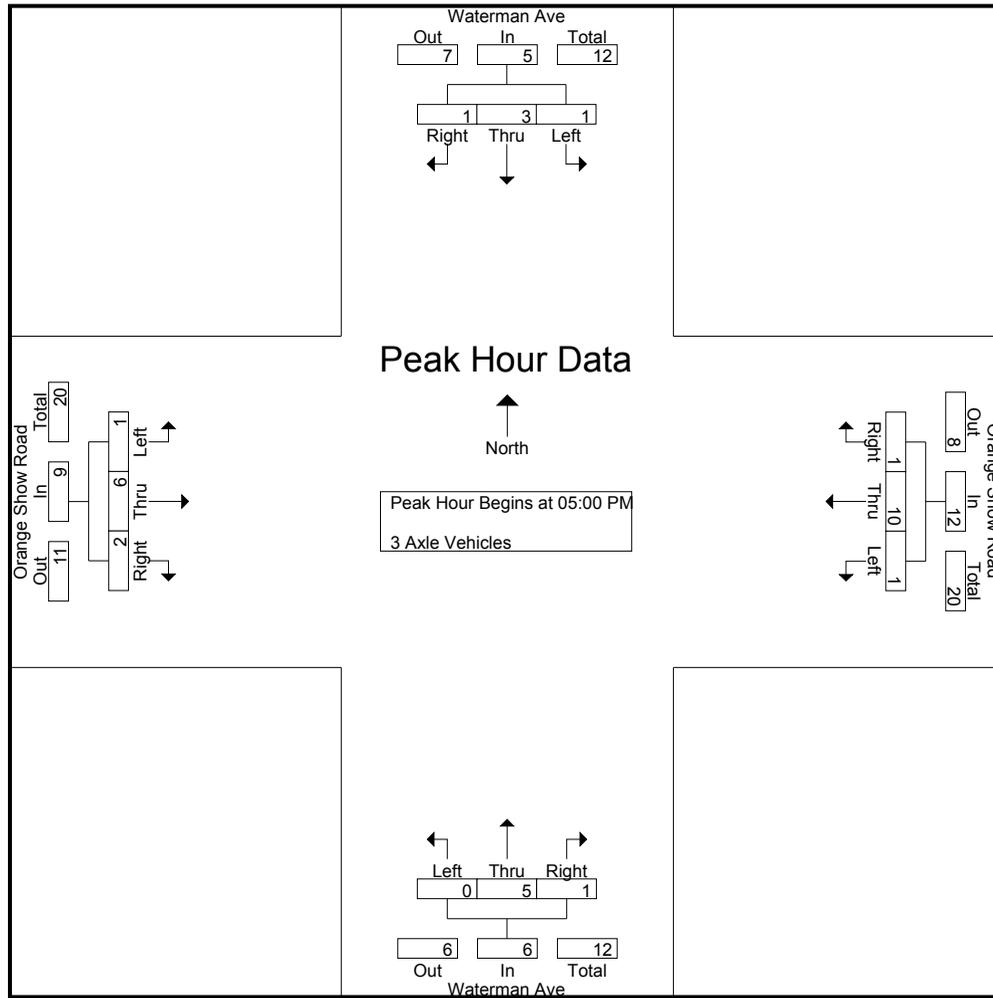
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 1                          | 1    | 0     | 2          | 6          |
| 04:15 PM    | 1                       | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 0                          | 1    | 1     | 2          | 6          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                          | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 04:45 PM    | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                          | 2    | 1     | 3          | 3          |
| Total       | 1                       | 0    | 1     | 2          | 0                          | 6    | 2     | 8          | 0                       | 2    | 0     | 2          | 1                          | 5    | 2     | 8          | 20         |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 05:15 PM    | 1                       | 1    | 0     | 2          | 1                          | 2    | 0     | 3          | 0                       | 2    | 1     | 3          | 0                          | 2    | 1     | 3          | 11         |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                          | 1    | 1     | 2          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM    | 0                       | 0    | 1     | 1          | 0                          | 3    | 0     | 3          | 0                       | 2    | 0     | 2          | 1                          | 1    | 1     | 3          | 9          |
| Total       | 1                       | 3    | 1     | 5          | 1                          | 10   | 1     | 12         | 0                       | 5    | 1     | 6          | 1                          | 6    | 2     | 9          | 32         |
| Grand Total | 2                       | 3    | 2     | 7          | 1                          | 16   | 3     | 20         | 0                       | 7    | 1     | 8          | 2                          | 11   | 4     | 17         | 52         |
| Apprch %    | 28.6                    | 42.9 | 28.6  |            | 5                          | 80   | 15    |            | 0                       | 87.5 | 12.5  |            | 11.8                       | 64.7 | 23.5  |            |            |
| Total %     | 3.8                     | 5.8  | 3.8   | 13.5       | 1.9                        | 30.8 | 5.8   | 38.5       | 0                       | 13.5 | 1.9   | 15.4       | 3.8                        | 21.2 | 7.7   | 32.7       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 05:15 PM   | 1                       | 1    | 0     | 2          | 1                          | 2    | 0     | 3          | 0                       | 2    | 1     | 3          | 0                          | 2    | 1     | 3          | 11         |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                          | 1    | 1     | 2          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM   | 0                       | 0    | 1     | 1          | 0                          | 3    | 0     | 3          | 0                       | 2    | 0     | 2          | 1                          | 1    | 1     | 3          | 9          |
| Total Volume   | 1                       | 3    | 1     | 5          | 1                          | 10   | 1     | 12         | 0                       | 5    | 1     | 6          | 1                          | 6    | 2     | 9          | 32         |
| % App. Total   | 20                      | 60   | 20    |            | 8.3                        | 83.3 | 8.3   |            | 0                       | 83.3 | 16.7  |            | 11.1                       | 66.7 | 22.2  |            |            |
| PHF  | .250                    | .375 | .250  | .625       | .250                       | .625 | .250  | .750       | .000                    | .625 | .250  | .500       | .250                       | .750 | .500  | .750       | .727       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 1        | 1    | 0    | 2    | 1        | 2    | 0    | 3    | 0        | 2    | 1    | 3    | 0        | 2    | 1    | 3    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 0    | 1    | 1    | 0        | 3    | 0    | 3    | 0        | 2    | 0    | 2    | 1        | 1    | 1    | 3    |
| Total Volume | 1        | 3    | 1    | 5    | 1        | 10   | 1    | 12   | 0        | 5    | 1    | 6    | 1        | 6    | 2    | 9    |
| % App. Total | 20       | 60   | 20   |      | 8.3      | 83.3 | 8.3  |      | 0        | 83.3 | 16.7 |      | 11.1     | 66.7 | 22.2 |      |
| PHF          | .250     | .375 | .250 | .625 | .250     | .625 | .250 | .750 | .000     | .625 | .250 | .500 | .250     | .750 | .500 | .750 |

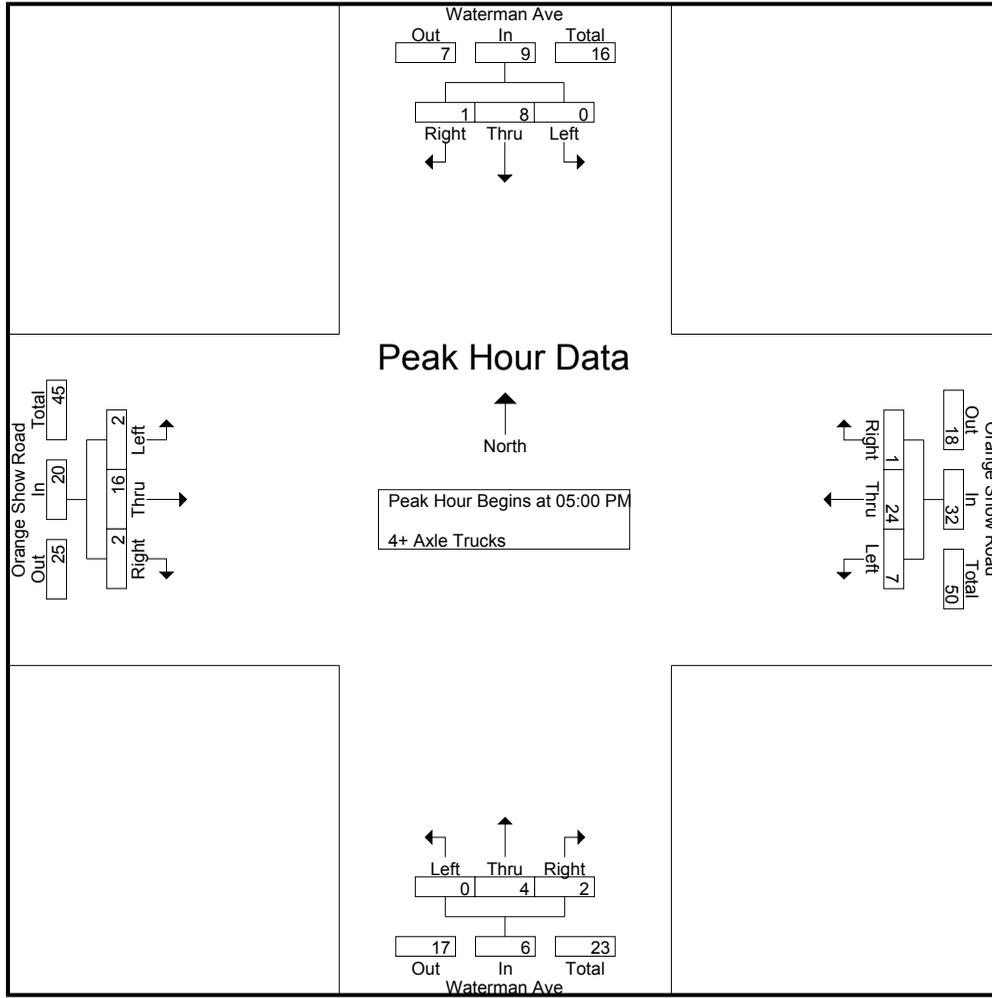
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 3    | 1     | 4          | 1                          | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 2                          | 1    | 0     | 3          | 12         |
| 04:15 PM    | 0                       | 5    | 1     | 6          | 1                          | 3    | 0     | 4          | 0                       | 2    | 0     | 2          | 3                          | 4    | 0     | 7          | 19         |
| 04:30 PM    | 0                       | 4    | 1     | 5          | 0                          | 4    | 2     | 6          | 0                       | 3    | 0     | 3          | 1                          | 10   | 0     | 11         | 25         |
| 04:45 PM    | 1                       | 5    | 0     | 6          | 1                          | 0    | 0     | 1          | 0                       | 2    | 0     | 2          | 0                          | 4    | 0     | 4          | 13         |
| Total       | 1                       | 17   | 3     | 21         | 3                          | 7    | 2     | 12         | 0                       | 11   | 0     | 11         | 6                          | 19   | 0     | 25         | 69         |
| 05:00 PM    | 0                       | 2    | 0     | 2          | 0                          | 5    | 0     | 5          | 0                       | 2    | 1     | 3          | 2                          | 2    | 1     | 5          | 15         |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                          | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| 05:30 PM    | 0                       | 3    | 0     | 3          | 4                          | 4    | 1     | 9          | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 17         |
| 05:45 PM    | 0                       | 2    | 1     | 3          | 3                          | 7    | 0     | 10         | 0                       | 0    | 1     | 1          | 0                          | 5    | 1     | 6          | 20         |
| Total       | 0                       | 8    | 1     | 9          | 7                          | 24   | 1     | 32         | 0                       | 4    | 2     | 6          | 2                          | 16   | 2     | 20         | 67         |
| Grand Total | 1                       | 25   | 4     | 30         | 10                         | 31   | 3     | 44         | 0                       | 15   | 2     | 17         | 8                          | 35   | 2     | 45         | 136        |
| Apprch %    | 3.3                     | 83.3 | 13.3  |            | 22.7                       | 70.5 | 6.8   |            | 0                       | 88.2 | 11.8  |            | 17.8                       | 77.8 | 4.4   |            |            |
| Total %     | 0.7                     | 18.4 | 2.9   | 22.1       | 7.4                        | 22.8 | 2.2   | 32.4       | 0                       | 11   | 1.5   | 12.5       | 5.9                        | 25.7 | 1.5   | 33.1       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 2    | 0     | 2          | 0                          | 5    | 0     | 5          | 0                       | 2    | 1     | 3          | 2                          | 2    | 1     | 5          | 15         |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                          | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| 05:30 PM   | 0                       | 3    | 0     | 3          | 4                          | 4    | 1     | 9          | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 17         |
| 05:45 PM   | 0                       | 2    | 1     | 3          | 3                          | 7    | 0     | 10         | 0                       | 0    | 1     | 1          | 0                          | 5    | 1     | 6          | 20         |
| Total Volume   | 0                       | 8    | 1     | 9          | 7                          | 24   | 1     | 32         | 0                       | 4    | 2     | 6          | 2                          | 16   | 2     | 20         | 67         |
| % App. Total   | 0                       | 88.9 | 11.1  |            | 21.9                       | 75   | 3.1   |            | 0                       | 66.7 | 33.3  |            | 10                         | 80   | 10    |            |            |
| PHF  | .000                    | .667 | .250  | .750       | .438                       | .750 | .250  | .800       | .000                    | .500 | .500  | .500       | .250                       | .667 | .500  | .833       | .838       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 5    | 0    | 5    | 0        | 2    | 1    | 3    | 2        | 2    | 1    | 5    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +30 mins.    | 0        | 3    | 0    | 3    | 4        | 4    | 1    | 9    | 0        | 2    | 0    | 2    | 0        | 3    | 0    | 3    |
| +45 mins.    | 0        | 2    | 1    | 3    | 3        | 7    | 0    | 10   | 0        | 0    | 1    | 1    | 0        | 5    | 1    | 6    |
| Total Volume | 0        | 8    | 1    | 9    | 7        | 24   | 1    | 32   | 0        | 4    | 2    | 6    | 2        | 16   | 2    | 20   |
| % App. Total | 0        | 88.9 | 11.1 |      | 21.9     | 75   | 3.1  |      | 0        | 66.7 | 33.3 |      | 10       | 80   | 10   |      |
| PHF          | .000     | .667 | .250 | .750 | .438     | .750 | .250 | .800 | .000     | .500 | .500 | .500 | .250     | .667 | .500 | .833 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

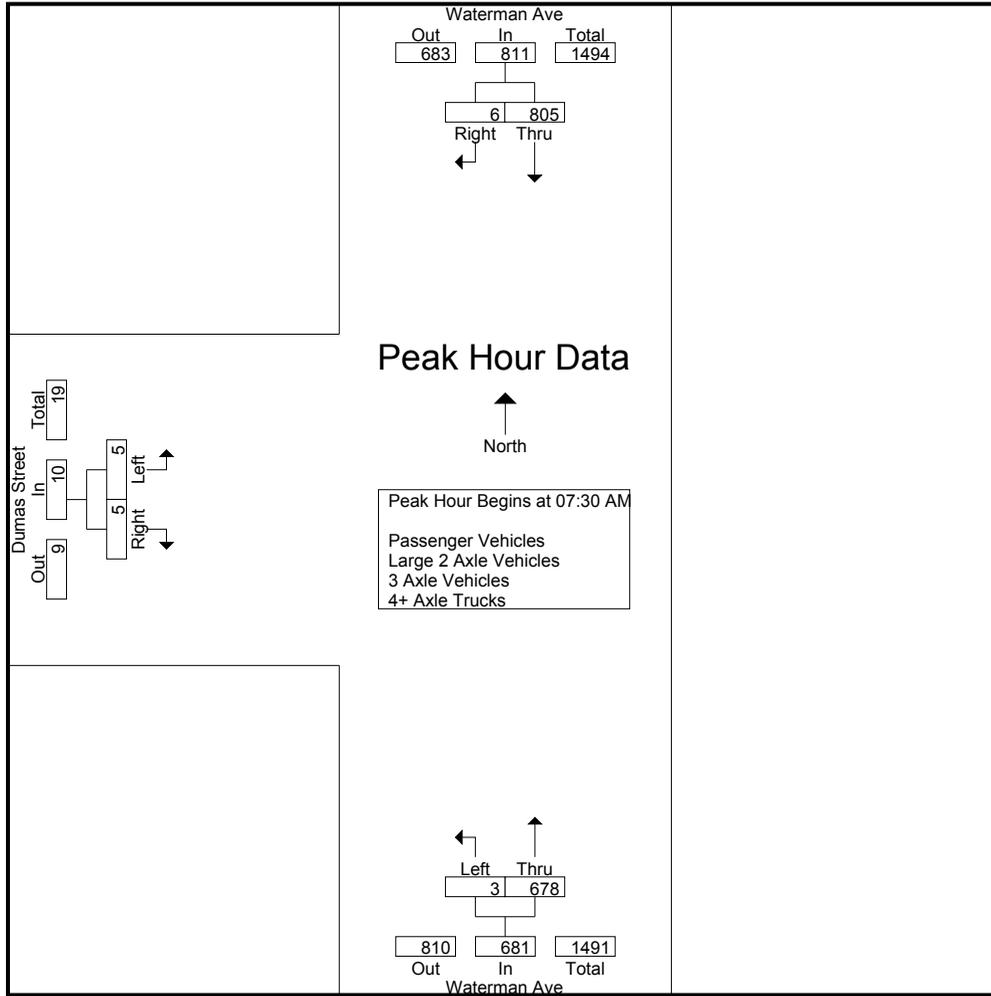
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|                         | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM                | 126                     | 0     | 126        | 0                       | 145  | 145        | 0                      | 0     | 0          | 271        |
| 07:15 AM                | 169                     | 1     | 170        | 1                       | 145  | 146        | 1                      | 0     | 1          | 317        |
| 07:30 AM                | 188                     | 5     | 193        | 1                       | 157  | 158        | 2                      | 0     | 2          | 353        |
| 07:45 AM                | 245                     | 1     | 246        | 0                       | 187  | 187        | 0                      | 4     | 4          | 437        |
| Total                   | 728                     | 7     | 735        | 2                       | 634  | 636        | 3                      | 4     | 7          | 1378       |
| 08:00 AM                | 197                     | 0     | 197        | 1                       | 178  | 179        | 3                      | 0     | 3          | 379        |
| 08:15 AM                | 175                     | 0     | 175        | 1                       | 156  | 157        | 0                      | 1     | 1          | 333        |
| 08:30 AM                | 160                     | 1     | 161        | 1                       | 161  | 162        | 0                      | 0     | 0          | 323        |
| 08:45 AM                | 152                     | 1     | 153        | 2                       | 123  | 125        | 1                      | 2     | 3          | 281        |
| Total                   | 684                     | 2     | 686        | 5                       | 618  | 623        | 4                      | 3     | 7          | 1316       |
| Grand Total             | 1412                    | 9     | 1421       | 7                       | 1252 | 1259       | 7                      | 7     | 14         | 2694       |
| Apprch %                | 99.4                    | 0.6   |            | 0.6                     | 99.4 |            | 50                     | 50    |            |            |
| Total %                 | 52.4                    | 0.3   | 52.7       | 0.3                     | 46.5 | 46.7       | 0.3                    | 0.3   | 0.5        |            |
| Passenger Vehicles      | 1343                    | 6     | 1349       | 7                       | 1184 | 1191       | 7                      | 6     | 13         | 2553       |
| % Passenger Vehicles    | 95.1                    | 66.7  | 94.9       | 100                     | 94.6 | 94.6       | 100                    | 85.7  | 92.9       | 94.8       |
| Large 2 Axle Vehicles   | 35                      | 3     | 38         | 0                       | 27   | 27         | 0                      | 1     | 1          | 66         |
| % Large 2 Axle Vehicles |                         |       |            |                         |      |            |                        |       |            |            |
| 3 Axle Vehicles         | 9                       | 0     | 9          | 0                       | 5    | 5          | 0                      | 0     | 0          | 14         |
| % 3 Axle Vehicles       | 0.6                     | 0     | 0.6        | 0                       | 0.4  | 0.4        | 0                      | 0     | 0          | 0.5        |
| 4+ Axle Trucks          | 25                      | 0     | 25         | 0                       | 36   | 36         | 0                      | 0     | 0          | 61         |
| % 4+ Axle Trucks        | 1.8                     | 0     | 1.8        | 0                       | 2.9  | 2.9        | 0                      | 0     | 0          | 2.3        |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 188                     | 5     | 193        | 1                       | 157  | 158        | 2                      | 0     | 2          | 353        |
| 07:45 AM   | 245                     | 1     | 246        | 0                       | 187  | 187        | 0                      | 4     | 4          | 437        |
| 08:00 AM   | 197                     | 0     | 197        | 1                       | 178  | 179        | 3                      | 0     | 3          | 379        |
| 08:15 AM   | 175                     | 0     | 175        | 1                       | 156  | 157        | 0                      | 1     | 1          | 333        |
| Total Volume   | 805                     | 6     | 811        | 3                       | 678  | 681        | 5                      | 5     | 10         | 1502       |
| % App. Total   | 99.3                    | 0.7   |            | 0.4                     | 99.6 |            | 50                     | 50    |            |            |
| PHF  | .821                    | .300  | .824       | .750                    | .906 | .910       | .417                   | .313  | .625       | .859       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM   |      |            | 07:45 AM |            |            | 07:15 AM |          |          |
|--------------|------------|------|------------|----------|------------|------------|----------|----------|----------|
| +0 mins.     | 188        | 5    | 193        | 0        | <b>187</b> | <b>187</b> | 1        | 0        | 1        |
| +15 mins.    | <b>245</b> | 1    | <b>246</b> | 1        | 178        | 179        | 2        | 0        | 2        |
| +30 mins.    | 197        | 0    | 197        | 1        | 156        | 157        | 0        | <b>4</b> | <b>4</b> |
| +45 mins.    | 175        | 0    | 175        | 1        | 161        | 162        | <b>3</b> | 0        | 3        |
| Total Volume | 805        | 6    | 811        | 3        | 682        | 685        | 6        | 4        | 10       |
| % App. Total | 99.3       | 0.7  |            | 0.4      | 99.6       |            | 60       | 40       |          |
| PHF          | .821       | .300 | .824       | .750     | .912       | .916       | .500     | .250     | .625     |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

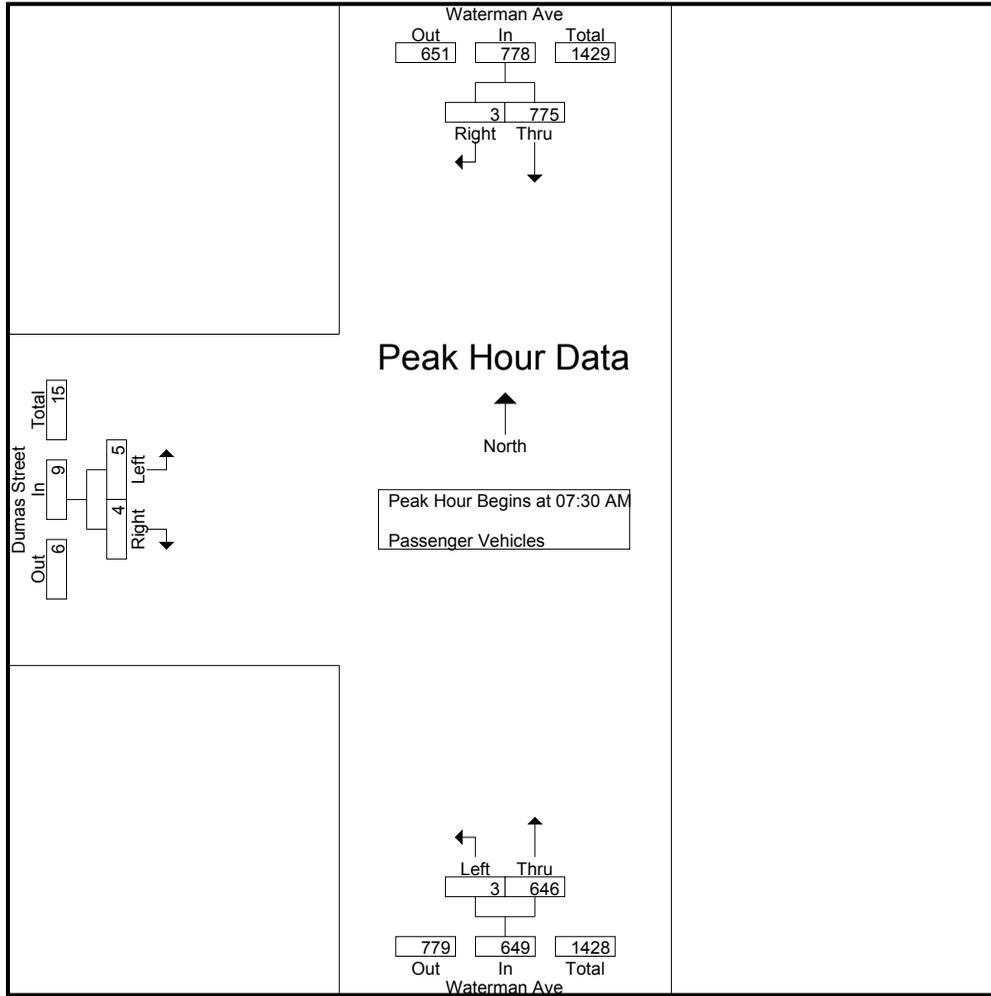
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 116                     | 0     | 116        | 0                       | 138  | 138        | 0                      | 0     | 0          | 254        |
| 07:15 AM    | 155                     | 1     | 156        | 1                       | 137  | 138        | 1                      | 0     | 1          | 295        |
| 07:30 AM    | 184                     | 2     | 186        | 1                       | 154  | 155        | 2                      | 0     | 2          | 343        |
| 07:45 AM    | 237                     | 1     | 238        | 0                       | 177  | 177        | 0                      | 3     | 3          | 418        |
| Total       | 692                     | 4     | 696        | 2                       | 606  | 608        | 3                      | 3     | 6          | 1310       |
| 08:00 AM    | 188                     | 0     | 188        | 1                       | 169  | 170        | 3                      | 0     | 3          | 361        |
| 08:15 AM    | 166                     | 0     | 166        | 1                       | 146  | 147        | 0                      | 1     | 1          | 314        |
| 08:30 AM    | 154                     | 1     | 155        | 1                       | 152  | 153        | 0                      | 0     | 0          | 308        |
| 08:45 AM    | 143                     | 1     | 144        | 2                       | 111  | 113        | 1                      | 2     | 3          | 260        |
| Total       | 651                     | 2     | 653        | 5                       | 578  | 583        | 4                      | 3     | 7          | 1243       |
| Grand Total | 1343                    | 6     | 1349       | 7                       | 1184 | 1191       | 7                      | 6     | 13         | 2553       |
| Apprch %    | 99.6                    | 0.4   |            | 0.6                     | 99.4 |            | 53.8                   | 46.2  |            |            |
| Total %     | 52.6                    | 0.2   | 52.8       | 0.3                     | 46.4 | 46.7       | 0.3                    | 0.2   | 0.5        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 184                     | 2     | 186        | 1                       | 154  | 155        | 2                      | 0     | 2          | 343        |
| 07:45 AM   | 237                     | 1     | 238        | 0                       | 177  | 177        | 0                      | 3     | 3          | 418        |
| 08:00 AM   | 188                     | 0     | 188        | 1                       | 169  | 170        | 3                      | 0     | 3          | 361        |
| 08:15 AM   | 166                     | 0     | 166        | 1                       | 146  | 147        | 0                      | 1     | 1          | 314        |
| Total Volume   | 775                     | 3     | 778        | 3                       | 646  | 649        | 5                      | 4     | 9          | 1436       |
| % App. Total   | 99.6                    | 0.4   |            | 0.5                     | 99.5 |            | 55.6                   | 44.4  |            |            |
| PHF  | .818                    | .375  | .817       | .750                    | .912 | .917       | .417                   | .333  | .750       | .859       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 184      | 2    | 186  | 1        | 154  | 155  | 2        | 0    | 2    |
| +15 mins.    | 237      | 1    | 238  | 0        | 177  | 177  | 0        | 3    | 3    |
| +30 mins.    | 188      | 0    | 188  | 1        | 169  | 170  | 3        | 0    | 3    |
| +45 mins.    | 166      | 0    | 166  | 1        | 146  | 147  | 0        | 1    | 1    |
| Total Volume | 775      | 3    | 778  | 3        | 646  | 649  | 5        | 4    | 9    |
| % App. Total | 99.6     | 0.4  |      | 0.5      | 99.5 |      | 55.6     | 44.4 |      |
| PHF          | .818     | .375 | .817 | .750     | .912 | .917 | .417     | .333 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

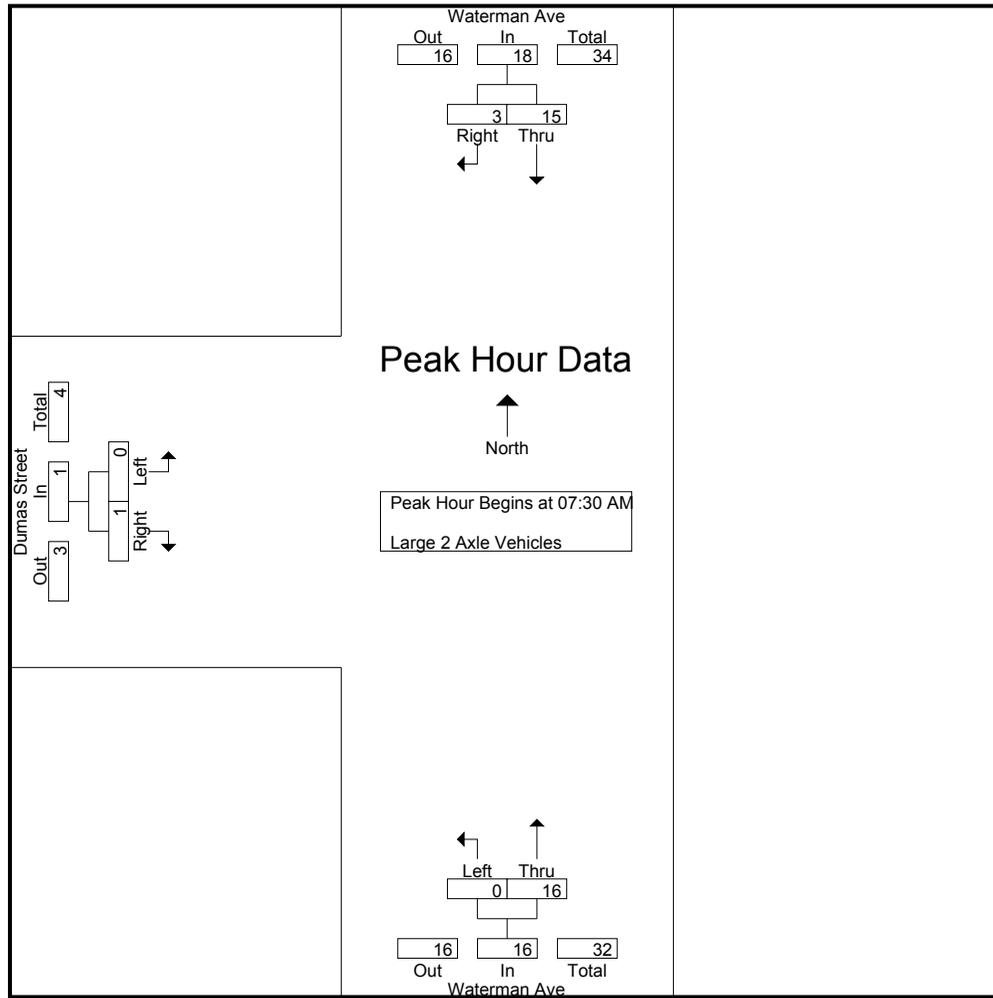
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 4                       | 0     | 4          | 0                       | 1    | 1          | 0                      | 0     | 0          | 5          |
| 07:15 AM    | 9                       | 0     | 9          | 0                       | 3    | 3          | 0                      | 0     | 0          | 12         |
| 07:30 AM    | 2                       | 3     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 07:45 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 1     | 1          | 9          |
| Total       | 19                      | 3     | 22         | 0                       | 10   | 10         | 0                      | 1     | 1          | 33         |
| 08:00 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 08:15 AM    | 5                       | 0     | 5          | 0                       | 6    | 6          | 0                      | 0     | 0          | 11         |
| 08:30 AM    | 3                       | 0     | 3          | 0                       | 3    | 3          | 0                      | 0     | 0          | 6          |
| 08:45 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| Total       | 16                      | 0     | 16         | 0                       | 17   | 17         | 0                      | 0     | 0          | 33         |
| Grand Total | 35                      | 3     | 38         | 0                       | 27   | 27         | 0                      | 1     | 1          | 66         |
| Apprch %    | 92.1                    | 7.9   |            | 0                       | 100  |            | 0                      | 100   |            |            |
| Total %     | 53                      | 4.5   | 57.6       | 0                       | 40.9 | 40.9       | 0                      | 1.5   | 1.5        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 2                       | 3     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 07:45 AM   | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 1     | 1          | 9          |
| 08:00 AM   | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 08:15 AM   | 5                       | 0     | 5          | 0                       | 6    | 6          | 0                      | 0     | 0          | 11         |
| Total Volume   | 15                      | 3     | 18         | 0                       | 16   | 16         | 0                      | 1     | 1          | 35         |
| % App. Total   | 83.3                    | 16.7  |            | 0                       | 100  |            | 0                      | 100   |            |            |
| PHF  | .750                    | .250  | .900       | .000                    | .667 | .667       | .000                   | .250  | .250       | .795       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 3    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 4        | 0    | 4    | 0        | 4    | 4    | 0        | 1    | 1    |
| +30 mins.    | 4        | 0    | 4    | 0        | 4    | 4    | 0        | 0    | 0    |
| +45 mins.    | 5        | 0    | 5    | 0        | 6    | 6    | 0        | 0    | 0    |
| Total Volume | 15       | 3    | 18   | 0        | 16   | 16   | 0        | 1    | 1    |
| % App. Total | 83.3     | 16.7 |      | 0        | 100  |      | 0        | 100  |      |
| PHF          | .750     | .250 | .900 | .000     | .667 | .667 | .000     | .250 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

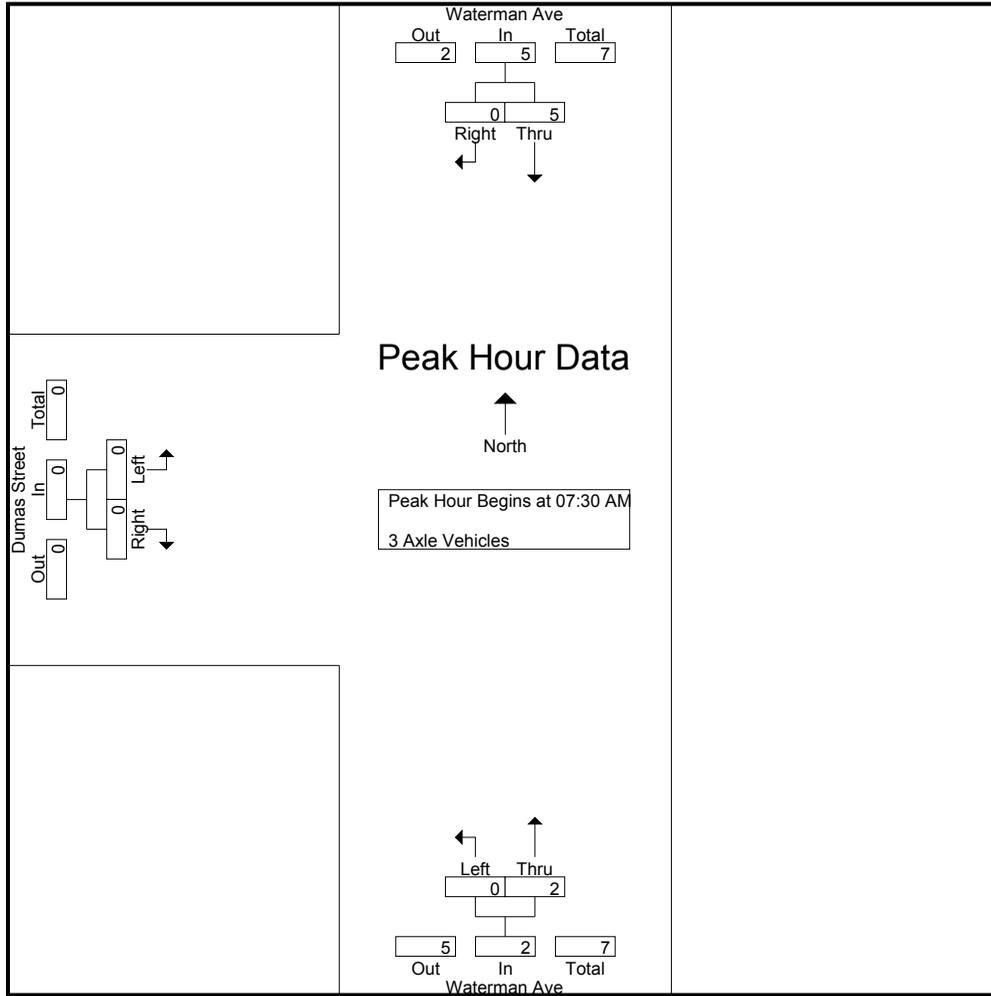
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 07:15 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 07:30 AM    | 2                       | 0     | 2          | 0                       | 0    | 0          | 0                      | 0     | 0          | 2          |
| 07:45 AM    | 1                       | 0     | 1          | 0                       | 2    | 2          | 0                      | 0     | 0          | 3          |
| Total       | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| 08:00 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:15 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:30 AM    | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 08:45 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total       | 3                       | 0     | 3          | 0                       | 1    | 1          | 0                      | 0     | 0          | 4          |
| Grand Total | 9                       | 0     | 9          | 0                       | 5    | 5          | 0                      | 0     | 0          | 14         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 64.3                    | 0     | 64.3       | 0                       | 35.7 | 35.7       | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 2                       | 0     | 2          | 0                       | 0    | 0          | 0                      | 0     | 0          | 2          |
| 07:45 AM   | 1                       | 0     | 1          | 0                       | 2    | 2          | 0                      | 0     | 0          | 3          |
| 08:00 AM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:15 AM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total Volume   | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .625                    | .000  | .625       | .000                    | .250 | .250       | .000                   | .000  | .000       | .583       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 0    | 2    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 5        | 0    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .625     | .000 | .625 | .000     | .250 | .250 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

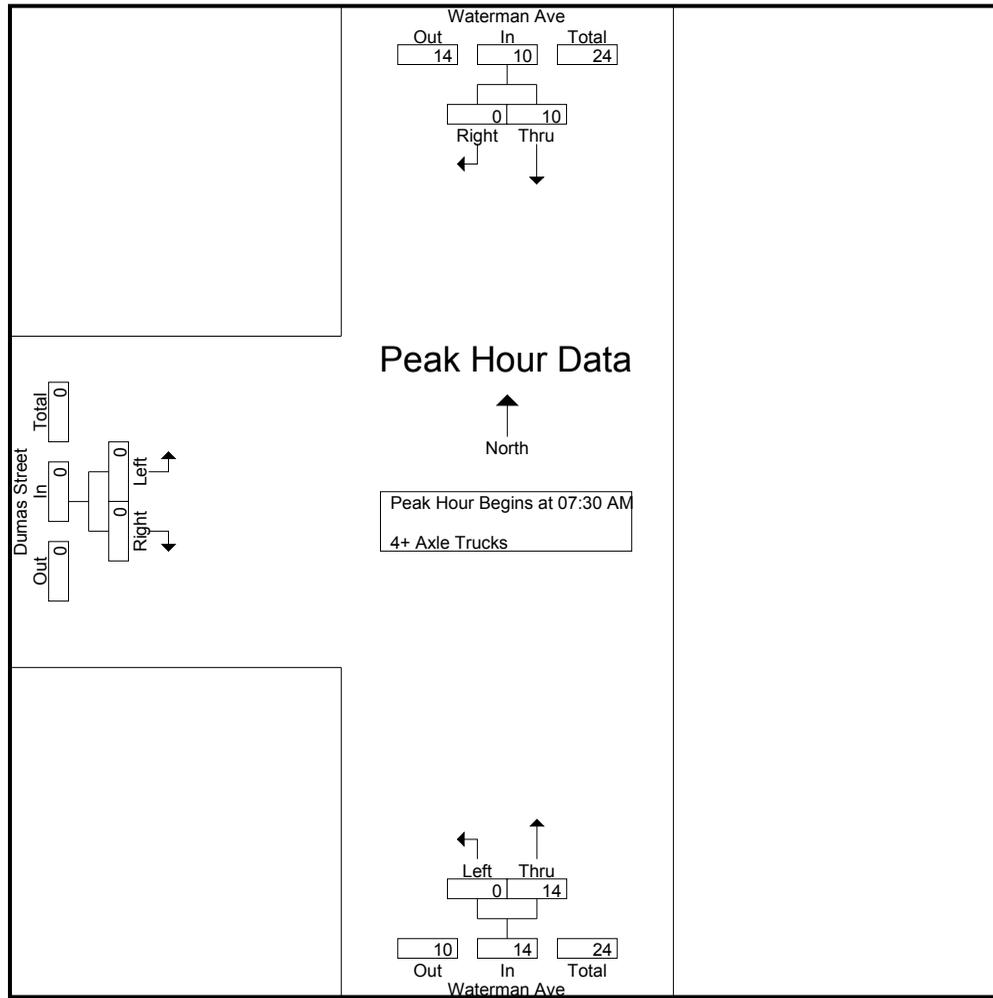
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 07:15 AM    | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 07:30 AM    | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 07:45 AM    | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| Total       | 11                      | 0     | 11         | 0                       | 14   | 14         | 0                      | 0     | 0          | 25         |
| 08:00 AM    | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 08:15 AM    | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| 08:30 AM    | 3                       | 0     | 3          | 0                       | 5    | 5          | 0                      | 0     | 0          | 8          |
| 08:45 AM    | 4                       | 0     | 4          | 0                       | 8    | 8          | 0                      | 0     | 0          | 12         |
| Total       | 14                      | 0     | 14         | 0                       | 22   | 22         | 0                      | 0     | 0          | 36         |
| Grand Total | 25                      | 0     | 25         | 0                       | 36   | 36         | 0                      | 0     | 0          | 61         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 41                      | 0     | 41         | 0                       | 59   | 59         | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 07:45 AM   | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| 08:00 AM   | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 08:15 AM   | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| Total Volume   | 10                      | 0     | 10         | 0                       | 14   | 14         | 0                      | 0     | 0          | 24         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .625                    | .000  | .625       | .000                    | .700 | .700       | .000                   | .000  | .000       | .667       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 1    | 1    | 0        | 0    | 0    |
| +15 mins.    | 3        | 0    | 3    | 0        | 4    | 4    | 0        | 0    | 0    |
| +30 mins.    | 4        | 0    | 4    | 0        | 5    | 5    | 0        | 0    | 0    |
| +45 mins.    | 3        | 0    | 3    | 0        | 4    | 4    | 0        | 0    | 0    |
| Total Volume | 10       | 0    | 10   | 0        | 14   | 14   | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .625     | .000 | .625 | .000     | .700 | .700 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

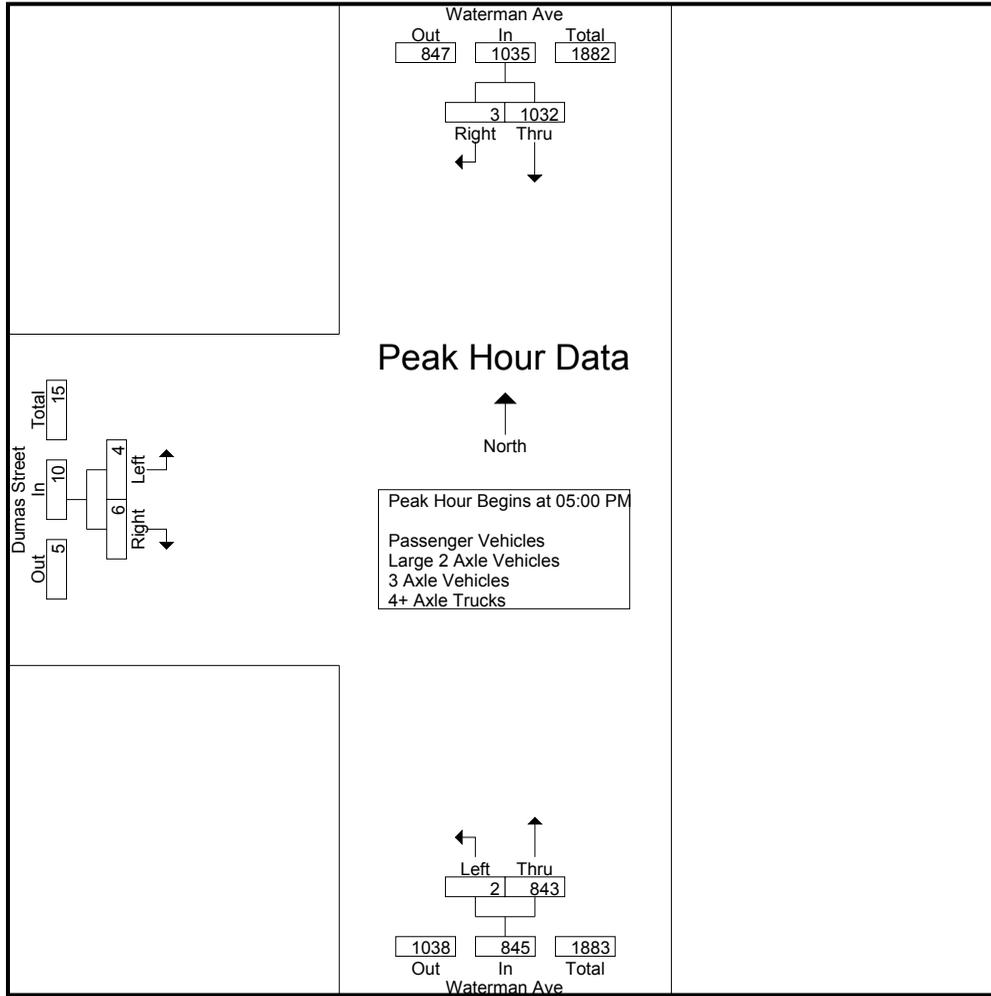
| Start Time              | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|                         | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM                | 172                     | 2     | 174        | 2                       | 195  | 197        | 0                      | 0     | 0          | 371        |
| 04:15 PM                | 217                     | 1     | 218        | 0                       | 168  | 168        | 1                      | 1     | 2          | 388        |
| 04:30 PM                | 274                     | 1     | 275        | 1                       | 182  | 183        | 0                      | 2     | 2          | 460        |
| 04:45 PM                | 254                     | 4     | 258        | 2                       | 139  | 141        | 1                      | 2     | 3          | 402        |
| Total                   | 917                     | 8     | 925        | 5                       | 684  | 689        | 2                      | 5     | 7          | 1621       |
| 05:00 PM                | 257                     | 1     | 258        | 1                       | 251  | 252        | 0                      | 1     | 1          | 511        |
| 05:15 PM                | 295                     | 0     | 295        | 0                       | 202  | 202        | 1                      | 1     | 2          | 499        |
| 05:30 PM                | 239                     | 1     | 240        | 0                       | 201  | 201        | 1                      | 2     | 3          | 444        |
| 05:45 PM                | 241                     | 1     | 242        | 1                       | 189  | 190        | 2                      | 2     | 4          | 436        |
| Total                   | 1032                    | 3     | 1035       | 2                       | 843  | 845        | 4                      | 6     | 10         | 1890       |
| Grand Total             | 1949                    | 11    | 1960       | 7                       | 1527 | 1534       | 6                      | 11    | 17         | 3511       |
| Apprch %                | 99.4                    | 0.6   |            | 0.5                     | 99.5 |            | 35.3                   | 64.7  |            |            |
| Total %                 | 55.5                    | 0.3   | 55.8       | 0.2                     | 43.5 | 43.7       | 0.2                    | 0.3   | 0.5        |            |
| Passenger Vehicles      | 1877                    | 9     | 1886       | 6                       | 1476 | 1482       | 6                      | 9     | 15         | 3383       |
| % Passenger Vehicles    | 96.3                    | 81.8  | 96.2       | 85.7                    | 96.7 | 96.6       | 100                    | 81.8  | 88.2       | 96.4       |
| Large 2 Axle Vehicles   | 27                      | 0     | 27         | 1                       | 26   | 27         | 0                      | 1     | 1          | 55         |
| % Large 2 Axle Vehicles |                         |       |            |                         |      |            |                        |       |            |            |
| 3 Axle Vehicles         | 9                       | 0     | 9          | 0                       | 6    | 6          | 0                      | 0     | 0          | 15         |
| % 3 Axle Vehicles       | 0.5                     | 0     | 0.5        | 0                       | 0.4  | 0.4        | 0                      | 0     | 0          | 0.4        |
| 4+ Axle Trucks          | 36                      | 2     | 38         | 0                       | 19   | 19         | 0                      | 1     | 1          | 58         |
| % 4+ Axle Trucks        | 1.8                     | 18.2  | 1.9        | 0                       | 1.2  | 1.2        | 0                      | 9.1   | 5.9        | 1.7        |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|              | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 05:00 PM     | 257                     | 1     | 258        | 1                       | 251  | 252        | 0                      | 1     | 1          | 511        |
| 05:15 PM     | 295                     | 0     | 295        | 0                       | 202  | 202        | 1                      | 1     | 2          | 499        |
| 05:30 PM     | 239                     | 1     | 240        | 0                       | 201  | 201        | 1                      | 2     | 3          | 444        |
| 05:45 PM     | 241                     | 1     | 242        | 1                       | 189  | 190        | 2                      | 2     | 4          | 436        |
| Total Volume | 1032                    | 3     | 1035       | 2                       | 843  | 845        | 4                      | 6     | 10         | 1890       |
| % App. Total | 99.7                    | 0.3   |            | 0.2                     | 99.8 |            | 40                     | 60    |            |            |
| PHF          | .875                    | .750  | .877       | .500                    | .840 | .838       | .500                   | .750  | .625       | .925       |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 05:00 PM

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 274      | 1    | 275  | 1        | 251  | 252  | 0        | 1    | 1    |
| +15 mins.    | 254      | 4    | 258  | 0        | 202  | 202  | 1        | 1    | 2    |
| +30 mins.    | 257      | 1    | 258  | 0        | 201  | 201  | 1        | 2    | 3    |
| +45 mins.    | 295      | 0    | 295  | 1        | 189  | 190  | 2        | 2    | 4    |
| Total Volume | 1080     | 6    | 1086 | 2        | 843  | 845  | 4        | 6    | 10   |
| % App. Total | 99.4     | 0.6  |      | 0.2      | 99.8 |      | 40       | 60   |      |
| PHF          | .915     | .375 | .920 | .500     | .840 | .838 | .500     | .750 | .625 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

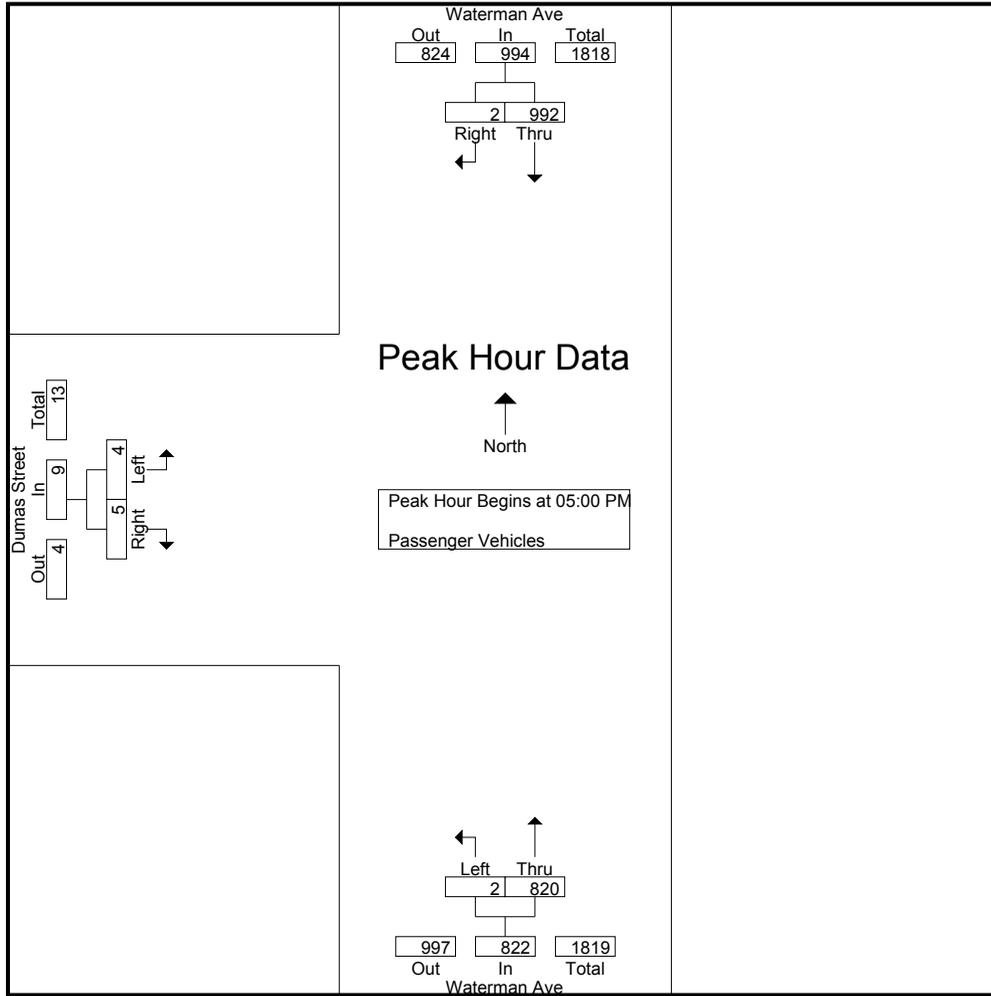
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 166                     | 1     | 167        | 2                       | 186  | 188        | 0                      | 0     | 0          | 355        |
| 04:15 PM    | 210                     | 1     | 211        | 0                       | 160  | 160        | 1                      | 0     | 1          | 372        |
| 04:30 PM    | 263                     | 1     | 264        | 1                       | 174  | 175        | 0                      | 2     | 2          | 441        |
| 04:45 PM    | 246                     | 4     | 250        | 1                       | 136  | 137        | 1                      | 2     | 3          | 390        |
| Total       | 885                     | 7     | 892        | 4                       | 656  | 660        | 2                      | 4     | 6          | 1558       |
| 05:00 PM    | 245                     | 0     | 245        | 1                       | 245  | 246        | 0                      | 1     | 1          | 492        |
| 05:15 PM    | 286                     | 0     | 286        | 0                       | 198  | 198        | 1                      | 1     | 2          | 486        |
| 05:30 PM    | 228                     | 1     | 229        | 0                       | 194  | 194        | 1                      | 2     | 3          | 426        |
| 05:45 PM    | 233                     | 1     | 234        | 1                       | 183  | 184        | 2                      | 1     | 3          | 421        |
| Total       | 992                     | 2     | 994        | 2                       | 820  | 822        | 4                      | 5     | 9          | 1825       |
| Grand Total | 1877                    | 9     | 1886       | 6                       | 1476 | 1482       | 6                      | 9     | 15         | 3383       |
| Apprch %    | 99.5                    | 0.5   |            | 0.4                     | 99.6 |            | 40                     | 60    |            |            |
| Total %     | 55.5                    | 0.3   | 55.7       | 0.2                     | 43.6 | 43.8       | 0.2                    | 0.3   | 0.4        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 245                     | 0     | 245        | 1                       | 245  | 246        | 0                      | 1     | 1          | 492        |
| 05:15 PM   | 286                     | 0     | 286        | 0                       | 198  | 198        | 1                      | 1     | 2          | 486        |
| 05:30 PM   | 228                     | 1     | 229        | 0                       | 194  | 194        | 1                      | 2     | 3          | 426        |
| 05:45 PM   | 233                     | 1     | 234        | 1                       | 183  | 184        | 2                      | 1     | 3          | 421        |
| Total Volume   | 992                     | 2     | 994        | 2                       | 820  | 822        | 4                      | 5     | 9          | 1825       |
| % App. Total   | 99.8                    | 0.2   |            | 0.2                     | 99.8 |            | 44.4                   | 55.6  |            |            |
| PHF  | .867                    | .500  | .869       | .500                    | .837 | .835       | .500                   | .625  | .750       | .927       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 245      | 0    | 245  | 1        | 245  | 246  | 0        | 1    | 1    |
| +15 mins.    | 286      | 0    | 286  | 0        | 198  | 198  | 1        | 1    | 2    |
| +30 mins.    | 228      | 1    | 229  | 0        | 194  | 194  | 1        | 2    | 3    |
| +45 mins.    | 233      | 1    | 234  | 1        | 183  | 184  | 2        | 1    | 3    |
| Total Volume | 992      | 2    | 994  | 2        | 820  | 822  | 4        | 5    | 9    |
| % App. Total | 99.8     | 0.2  | 99.8 | 0.2      | 99.8 | 99.8 | 44.4     | 55.6 |      |
| PHF          | .867     | .500 | .869 | .500     | .837 | .835 | .500     | .625 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

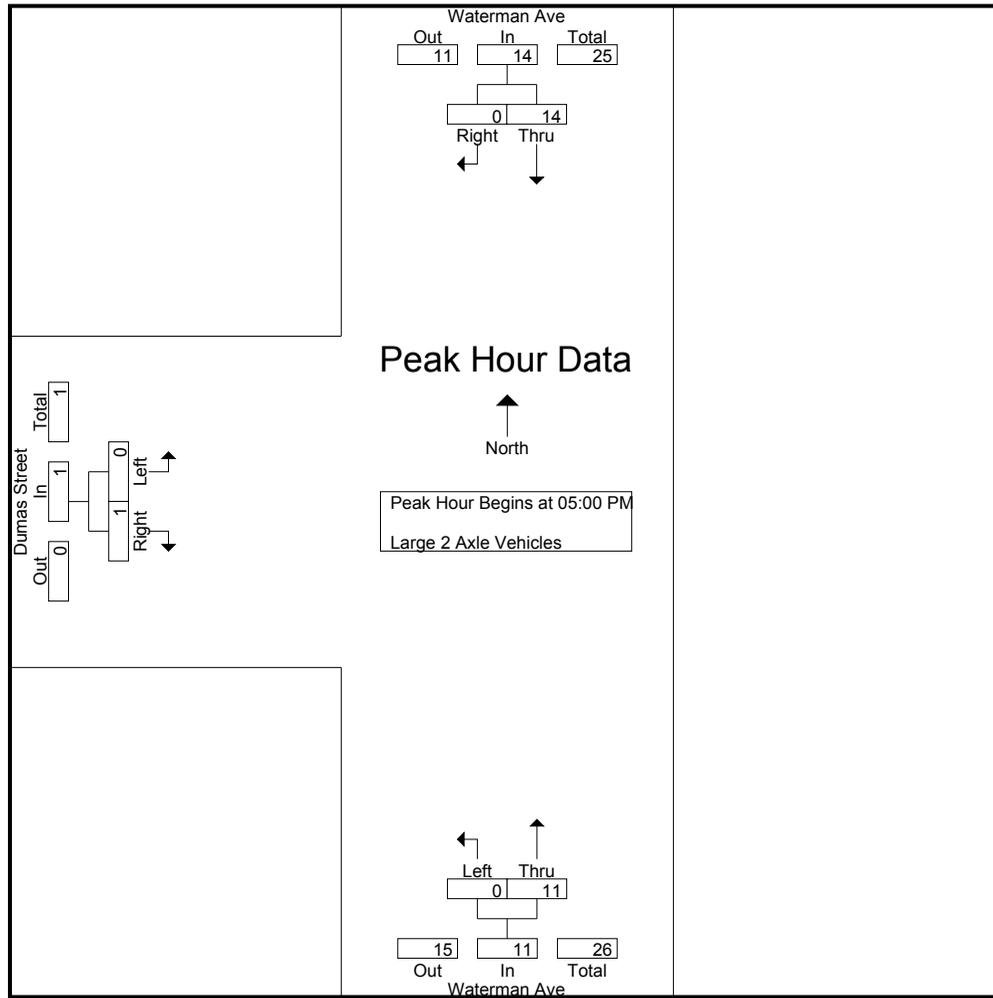
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 1                       | 0     | 1          | 0                       | 4    | 4          | 0                      | 0     | 0          | 5          |
| 04:15 PM    | 1                       | 0     | 1          | 0                       | 5    | 5          | 0                      | 0     | 0          | 6          |
| 04:30 PM    | 6                       | 0     | 6          | 0                       | 5    | 5          | 0                      | 0     | 0          | 11         |
| 04:45 PM    | 5                       | 0     | 5          | 1                       | 1    | 2          | 0                      | 0     | 0          | 7          |
| Total       | 13                      | 0     | 13         | 1                       | 15   | 16         | 0                      | 0     | 0          | 29         |
| 05:00 PM    | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 05:15 PM    | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| 05:30 PM    | 2                       | 0     | 2          | 0                       | 4    | 4          | 0                      | 0     | 0          | 6          |
| 05:45 PM    | 1                       | 0     | 1          | 0                       | 3    | 3          | 0                      | 1     | 1          | 5          |
| Total       | 14                      | 0     | 14         | 0                       | 11   | 11         | 0                      | 1     | 1          | 26         |
| Grand Total | 27                      | 0     | 27         | 1                       | 26   | 27         | 0                      | 1     | 1          | 55         |
| Apprch %    | 100                     | 0     |            | 3.7                     | 96.3 |            | 0                      | 100   |            |            |
| Total %     | 49.1                    | 0     | 49.1       | 1.8                     | 47.3 | 49.1       | 0                      | 1.8   | 1.8        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 05:15 PM   | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| 05:30 PM   | 2                       | 0     | 2          | 0                       | 4    | 4          | 0                      | 0     | 0          | 6          |
| 05:45 PM   | 1                       | 0     | 1          | 0                       | 3    | 3          | 0                      | 1     | 1          | 5          |
| Total Volume   | 14                      | 0     | 14         | 0                       | 11   | 11         | 0                      | 1     | 1          | 26         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 100   |            |            |
| PHF  | .583                    | .000  | .583       | .000                    | .688 | .688       | .000                   | .250  | .250       | .813       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 5        | 0    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 6        | 0    | 6    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 2        | 0    | 2    | 0        | 4    | 4    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 3    | 3    | 0        | 1    | 1    |
| Total Volume | 14       | 0    | 14   | 0        | 11   | 11   | 0        | 1    | 1    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 100  |      |
| PHF          | .583     | .000 | .583 | .000     | .688 | .688 | .000     | .250 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

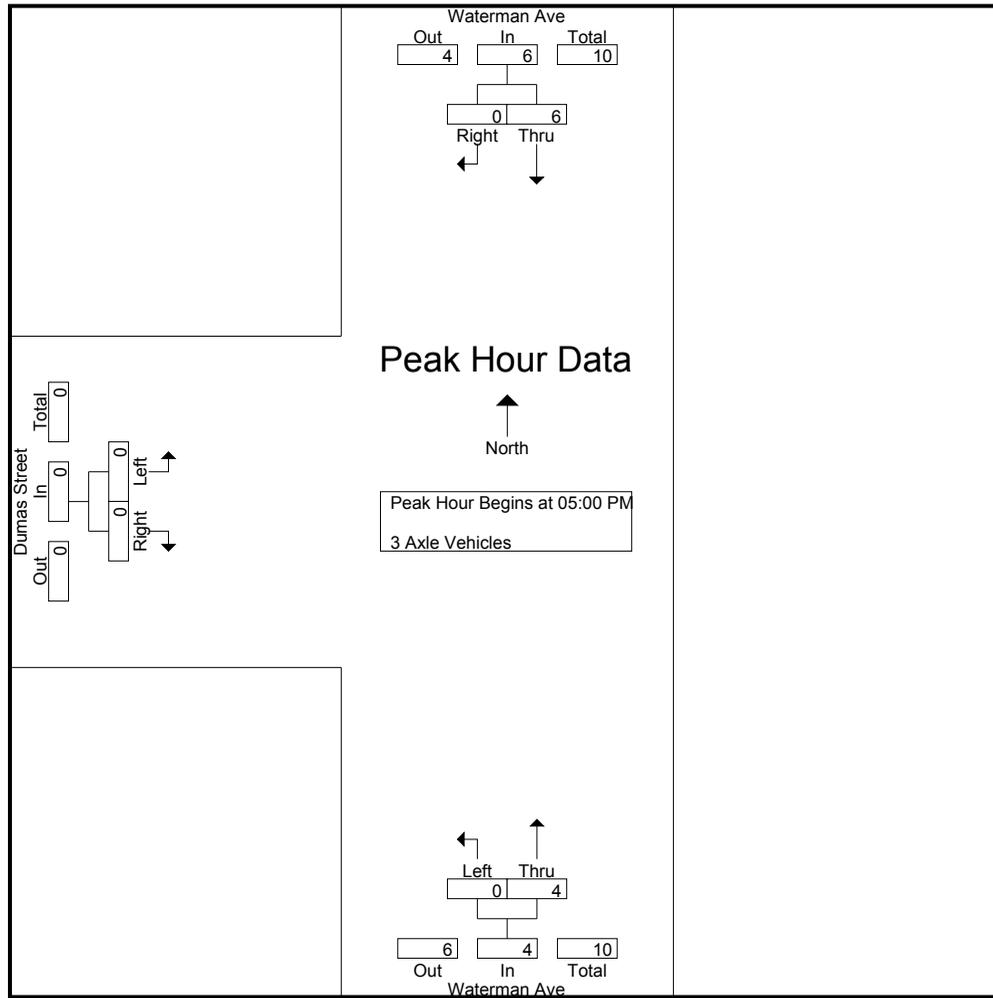
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| 04:15 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0     | 0          | 0                       | 0    | 0          | 0                      | 0     | 0          | 0          |
| 04:45 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total       | 3                       | 0     | 3          | 0                       | 2    | 2          | 0                      | 0     | 0          | 5          |
| 05:00 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:15 PM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 05:30 PM    | 2                       | 0     | 2          | 0                       | 1    | 1          | 0                      | 0     | 0          | 3          |
| 05:45 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| Total       | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| Grand Total | 9                       | 0     | 9          | 0                       | 6    | 6          | 0                      | 0     | 0          | 15         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 60                      | 0     | 60         | 0                       | 40   | 40         | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:15 PM   | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 05:30 PM   | 2                       | 0     | 2          | 0                       | 1    | 1          | 0                      | 0     | 0          | 3          |
| 05:45 PM   | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| Total Volume   | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .750                    | .000  | .750       | .000                    | .500 | .500       | .000                   | .000  | .000       | .625       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 2        | 0    | 2    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 2        | 0    | 2    | 0        | 1    | 1    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 1    | 1    | 0        | 0    | 0    |
| Total Volume | 6        | 0    | 6    | 0        | 4    | 4    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .750     | .000 | .750 | .000     | .500 | .500 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

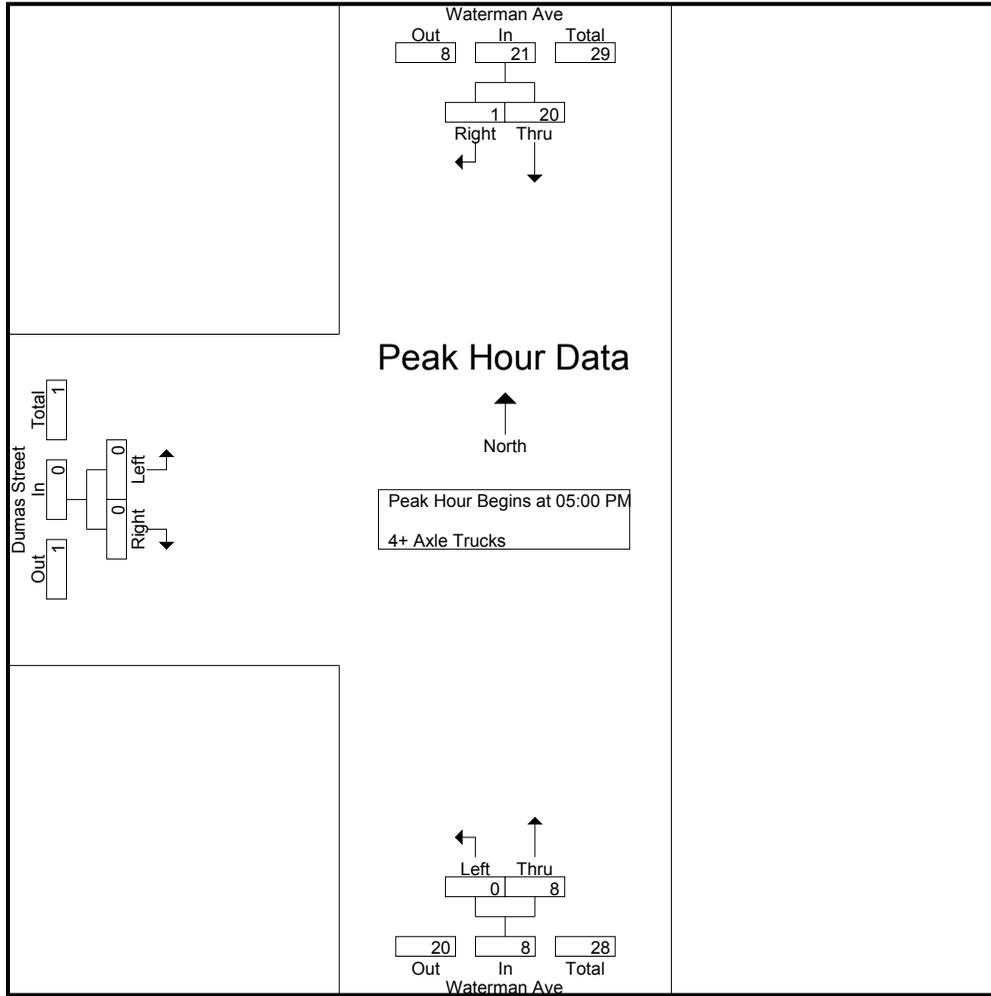
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 4                       | 1     | 5          | 0                       | 4    | 4          | 0                      | 0     | 0          | 9          |
| 04:15 PM    | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 1     | 1          | 8          |
| 04:30 PM    | 5                       | 0     | 5          | 0                       | 3    | 3          | 0                      | 0     | 0          | 8          |
| 04:45 PM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| Total       | 16                      | 1     | 17         | 0                       | 11   | 11         | 0                      | 1     | 1          | 29         |
| 05:00 PM    | 6                       | 1     | 7          | 0                       | 4    | 4          | 0                      | 0     | 0          | 11         |
| 05:15 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:30 PM    | 7                       | 0     | 7          | 0                       | 2    | 2          | 0                      | 0     | 0          | 9          |
| 05:45 PM    | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| Total       | 20                      | 1     | 21         | 0                       | 8    | 8          | 0                      | 0     | 0          | 29         |
| Grand Total | 36                      | 2     | 38         | 0                       | 19   | 19         | 0                      | 1     | 1          | 58         |
| Apprch %    | 94.7                    | 5.3   |            | 0                       | 100  |            | 0                      | 100   |            |            |
| Total %     | 62.1                    | 3.4   | 65.5       | 0                       | 32.8 | 32.8       | 0                      | 1.7   | 1.7        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 6                       | 1     | 7          | 0                       | 4    | 4          | 0                      | 0     | 0          | 11         |
| 05:15 PM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:30 PM   | 7                       | 0     | 7          | 0                       | 2    | 2          | 0                      | 0     | 0          | 9          |
| 05:45 PM   | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| Total Volume   | 20                      | 1     | 21         | 0                       | 8    | 8          | 0                      | 0     | 0          | 29         |
| % App. Total   | 95.2                    | 4.8   |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .714                    | .250  | .750       | .000                    | .500 | .500       | .000                   | .000  | .000       | .659       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 6        | 1    | 7    | 0        | 4    | 4    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 7        | 0    | 7    | 0        | 2    | 2    | 0        | 0    | 0    |
| +45 mins.    | 6        | 0    | 6    | 0        | 2    | 2    | 0        | 0    | 0    |
| Total Volume | 20       | 1    | 21   | 0        | 8    | 8    | 0        | 0    | 0    |
| % App. Total | 95.2     | 4.8  |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .714     | .250 | .750 | .000     | .500 | .500 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

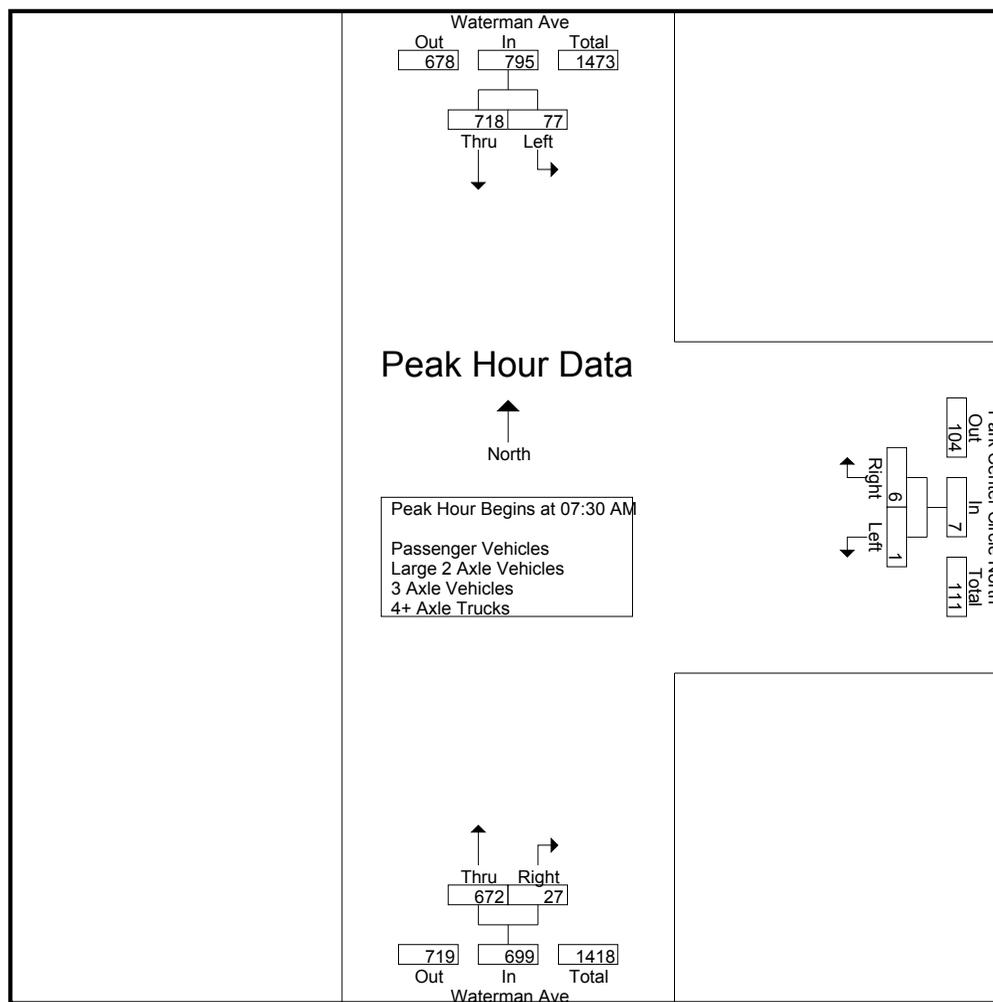
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|                         | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM                | 11                      | 114  | 125        | 1                                  | 0     | 1          | 139                     | 5     | 144        | 270        |
| 07:15 AM                | 23                      | 143  | 166        | 1                                  | 2     | 3          | 150                     | 8     | 158        | 327        |
| 07:30 AM                | 29                      | 152  | 181        | 0                                  | 0     | 0          | 158                     | 9     | 167        | 348        |
| 07:45 AM                | 23                      | 219  | 242        | 1                                  | 1     | 2          | 188                     | 5     | 193        | 437        |
| Total                   | 86                      | 628  | 714        | 3                                  | 3     | 6          | 635                     | 27    | 662        | 1382       |
| 08:00 AM                | 17                      | 180  | 197        | 0                                  | 5     | 5          | 175                     | 8     | 183        | 385        |
| 08:15 AM                | 8                       | 167  | 175        | 0                                  | 0     | 0          | 151                     | 5     | 156        | 331        |
| 08:30 AM                | 13                      | 152  | 165        | 2                                  | 2     | 4          | 158                     | 3     | 161        | 330        |
| 08:45 AM                | 4                       | 162  | 166        | 2                                  | 3     | 5          | 125                     | 7     | 132        | 303        |
| Total                   | 42                      | 661  | 703        | 4                                  | 10    | 14         | 609                     | 23    | 632        | 1349       |
| Grand Total             | 128                     | 1289 | 1417       | 7                                  | 13    | 20         | 1244                    | 50    | 1294       | 2731       |
| Apprch %                | 9                       | 91   |            | 35                                 | 65    |            | 96.1                    | 3.9   |            |            |
| Total %                 | 4.7                     | 47.2 | 51.9       | 0.3                                | 0.5   | 0.7        | 45.6                    | 1.8   | 47.4       |            |
| Passenger Vehicles      | 128                     | 1222 | 1350       | 4                                  | 10    | 14         | 1182                    | 50    | 1232       | 2596       |
| % Passenger Vehicles    | 100                     | 94.8 | 95.3       | 57.1                               | 76.9  | 70         | 95                      | 100   | 95.2       | 95.1       |
| Large 2 Axle Vehicles   | 0                       | 32   | 32         | 2                                  | 3     | 5          | 20                      | 0     | 20         | 57         |
| % Large 2 Axle Vehicles | 0                       | 2.5  | 2.3        | 28.6                               | 23.1  | 25         | 1.6                     | 0     | 1.5        | 2.1        |
| 3 Axle Vehicles         | 0                       | 9    | 9          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 13         |
| % 3 Axle Vehicles       | 0                       | 0.7  | 0.6        | 0                                  | 0     | 0          | 0.3                     | 0     | 0.3        | 0.5        |
| 4+ Axle Trucks          | 0                       | 26   | 26         | 1                                  | 0     | 1          | 38                      | 0     | 38         | 65         |
| % 4+ Axle Trucks        | 0                       | 2    | 1.8        | 14.3                               | 0     | 5          | 3.1                     | 0     | 2.9        | 2.4        |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 29                      | 152  | 181        | 0                                  | 0     | 0          | 158                     | 9     | 167        | 348        |
| 07:45 AM     | 23                      | 219  | 242        | 1                                  | 1     | 2          | 188                     | 5     | 193        | 437        |
| 08:00 AM     | 17                      | 180  | 197        | 0                                  | 5     | 5          | 175                     | 8     | 183        | 385        |
| 08:15 AM     | 8                       | 167  | 175        | 0                                  | 0     | 0          | 151                     | 5     | 156        | 331        |
| Total Volume | 77                      | 718  | 795        | 1                                  | 6     | 7          | 672                     | 27    | 699        | 1501       |
| % App. Total | 9.7                     | 90.3 |            | 14.3                               | 85.7  |            | 96.1                    | 3.9   |            |            |
| PHF          | .664                    | .820 | .821       | .250                               | .300  | .350       | .894                    | .750  | .905       | .859       |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 08:00 AM |      |      | 07:15 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 29       | 152  | 181  | 0        | 5    | 5    | 150      | 8    | 158  |
| +15 mins.    | 23       | 219  | 242  | 0        | 0    | 0    | 158      | 9    | 167  |
| +30 mins.    | 17       | 180  | 197  | 2        | 2    | 4    | 188      | 5    | 193  |
| +45 mins.    | 8        | 167  | 175  | 2        | 3    | 5    | 175      | 8    | 183  |
| Total Volume | 77       | 718  | 795  | 4        | 10   | 14   | 671      | 30   | 701  |
| % App. Total | 9.7      | 90.3 |      | 28.6     | 71.4 |      | 95.7     | 4.3  |      |
| PHF          | .664     | .820 | .821 | .500     | .500 | .700 | .892     | .833 | .908 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

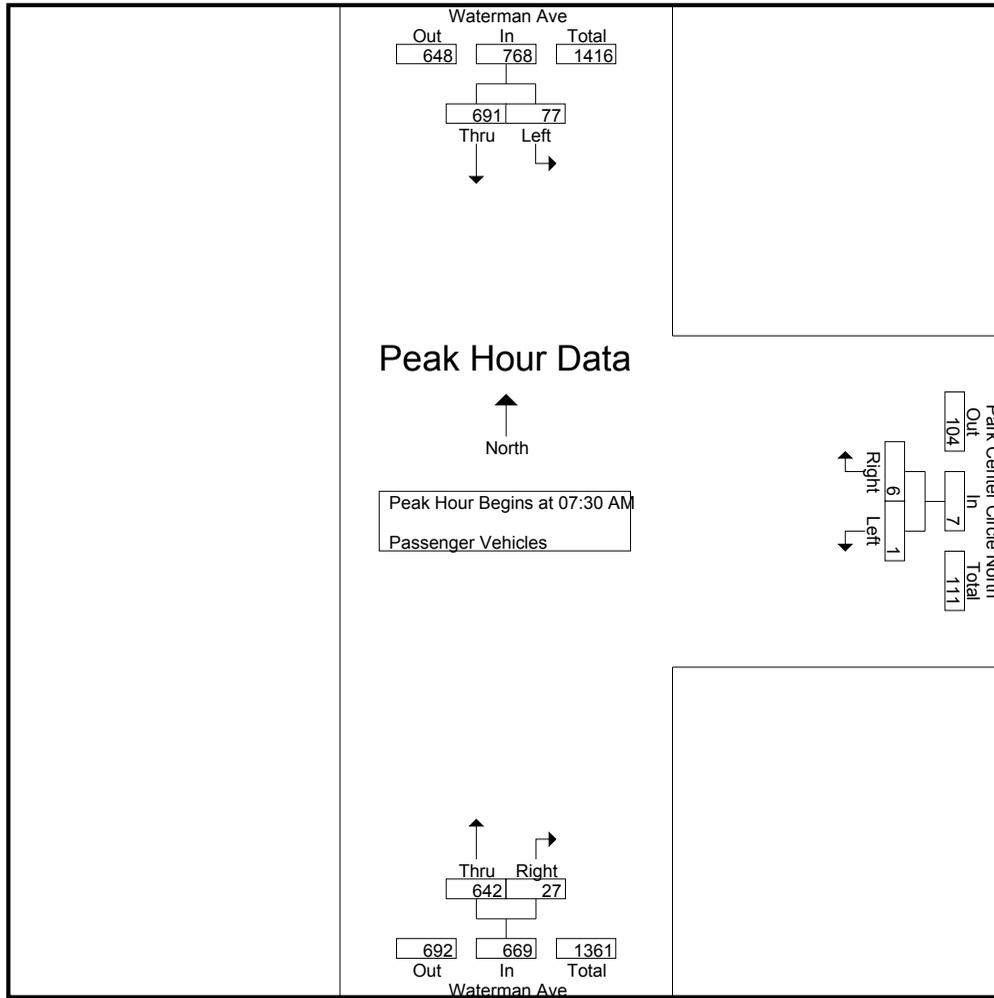
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 11                      | 105  | 116        | 0                                  | 0     | 0          | 133                     | 5     | 138        | 254        |
| 07:15 AM    | 23                      | 128  | 151        | 0                                  | 1     | 1          | 143                     | 8     | 151        | 303        |
| 07:30 AM    | 29                      | 149  | 178        | 0                                  | 0     | 0          | 155                     | 9     | 164        | 342        |
| 07:45 AM    | 23                      | 211  | 234        | 1                                  | 1     | 2          | 179                     | 5     | 184        | 420        |
| Total       | 86                      | 593  | 679        | 1                                  | 2     | 3          | 610                     | 27    | 637        | 1319       |
| 08:00 AM    | 17                      | 173  | 190        | 0                                  | 5     | 5          | 167                     | 8     | 175        | 370        |
| 08:15 AM    | 8                       | 158  | 166        | 0                                  | 0     | 0          | 141                     | 5     | 146        | 312        |
| 08:30 AM    | 13                      | 145  | 158        | 2                                  | 1     | 3          | 150                     | 3     | 153        | 314        |
| 08:45 AM    | 4                       | 153  | 157        | 1                                  | 2     | 3          | 114                     | 7     | 121        | 281        |
| Total       | 42                      | 629  | 671        | 3                                  | 8     | 11         | 572                     | 23    | 595        | 1277       |
| Grand Total | 128                     | 1222 | 1350       | 4                                  | 10    | 14         | 1182                    | 50    | 1232       | 2596       |
| Apprch %    | 9.5                     | 90.5 |            | 28.6                               | 71.4  |            | 95.9                    | 4.1   |            |            |
| Total %     | 4.9                     | 47.1 | 52         | 0.2                                | 0.4   | 0.5        | 45.5                    | 1.9   | 47.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 29                      | 149  | 178        | 0                                  | 0     | 0          | 155                     | 9     | 164        | 342        |
| 07:45 AM     | 23                      | 211  | 234        | 1                                  | 1     | 2          | 179                     | 5     | 184        | 420        |
| 08:00 AM     | 17                      | 173  | 190        | 0                                  | 5     | 5          | 167                     | 8     | 175        | 370        |
| 08:15 AM     | 8                       | 158  | 166        | 0                                  | 0     | 0          | 141                     | 5     | 146        | 312        |
| Total Volume | 77                      | 691  | 768        | 1                                  | 6     | 7          | 642                     | 27    | 669        | 1444       |
| % App. Total | 10                      | 90   |            | 14.3                               | 85.7  |            | 96                      | 4     |            |            |
| PHF          | .664                    | .819 | .821       | .250                               | .300  | .350       | .897                    | .750  | .909       | .860       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 29       | 149  | 178  | 0        | 0    | 0    | 155      | 9    | 164  |
| +15 mins.    | 23       | 211  | 234  | 1        | 1    | 2    | 179      | 5    | 184  |
| +30 mins.    | 17       | 173  | 190  | 0        | 5    | 5    | 167      | 8    | 175  |
| +45 mins.    | 8        | 158  | 166  | 0        | 0    | 0    | 141      | 5    | 146  |
| Total Volume | 77       | 691  | 768  | 1        | 6    | 7    | 642      | 27   | 669  |
| % App. Total | 10       | 90   |      | 14.3     | 85.7 |      | 96       | 4    |      |
| PHF          | .664     | .819 | .821 | .250     | .300 | .350 | .897     | .750 | .909 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

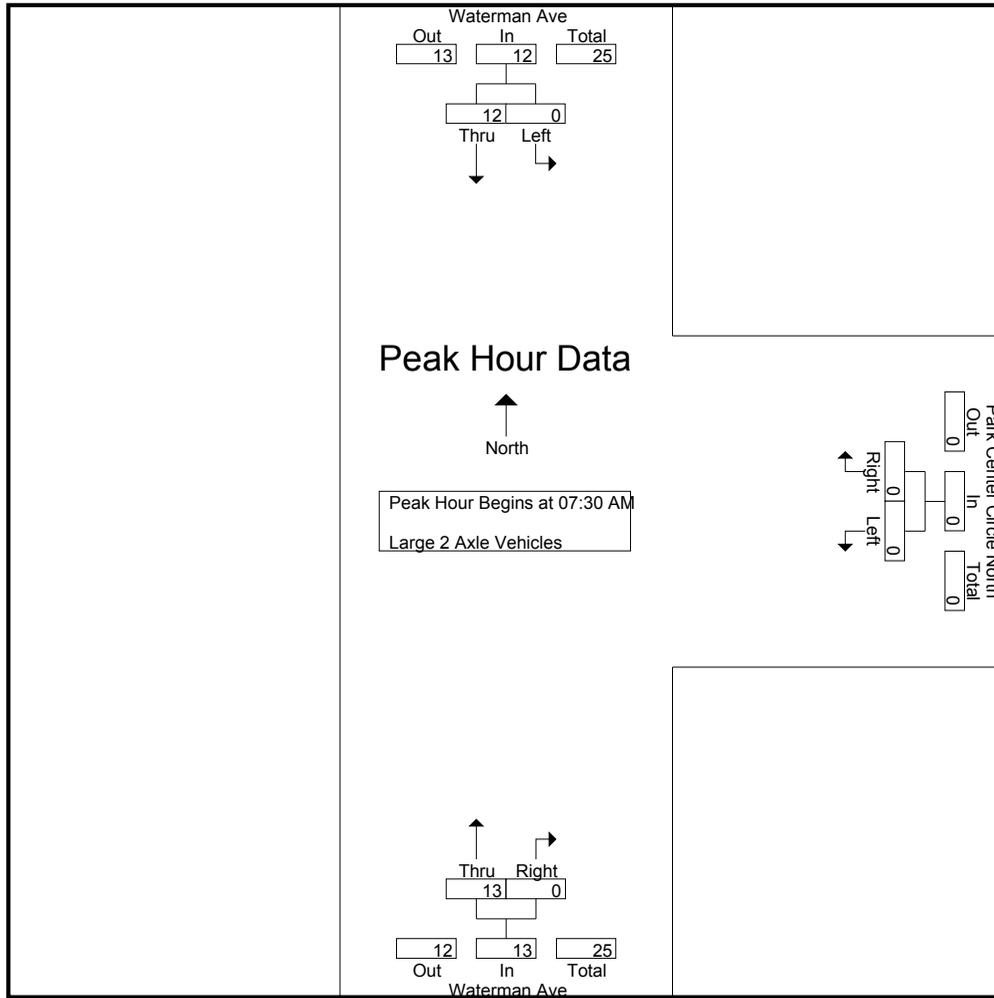
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 4          |
| 07:15 AM    | 0                       | 10   | 10         | 1                                  | 1     | 2          | 1                       | 0     | 1          | 13         |
| 07:30 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 3          |
| 07:45 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 7          |
| Total       | 0                       | 18   | 18         | 1                                  | 1     | 2          | 7                       | 0     | 7          | 27         |
| 08:00 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 4          |
| 08:15 AM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 11         |
| 08:30 AM    | 0                       | 3    | 3          | 0                                  | 1     | 1          | 2                       | 0     | 2          | 6          |
| 08:45 AM    | 0                       | 4    | 4          | 1                                  | 1     | 2          | 3                       | 0     | 3          | 9          |
| Total       | 0                       | 14   | 14         | 1                                  | 2     | 3          | 13                      | 0     | 13         | 30         |
| Grand Total | 0                       | 32   | 32         | 2                                  | 3     | 5          | 20                      | 0     | 20         | 57         |
| Apprch %    | 0                       | 100  |            | 40                                 | 60    |            | 100                     | 0     |            |            |
| Total %     | 0                       | 56.1 | 56.1       | 3.5                                | 5.3   | 8.8        | 35.1                    | 0     | 35.1       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 3          |
| 07:45 AM     | 0                       | 4    | 4          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 7          |
| 08:00 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 4          |
| 08:15 AM     | 0                       | 6    | 6          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 11         |
| Total Volume | 0                       | 12   | 12         | 0                                  | 0     | 0          | 13                      | 0     | 13         | 25         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .500 | .500       | .000                               | .000  | .000       | .650                    | .000  | .650       | .568       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 1    | 1    | 0        | 0    | 0    | 2        | 0    | 2    |
| +15 mins.    | 0        | 4    | 4    | 0        | 0    | 0    | 3        | 0    | 3    |
| +30 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 3        | 0    | 3    |
| +45 mins.    | 0        | 6    | 6    | 0        | 0    | 0    | 5        | 0    | 5    |
| Total Volume | 0        | 12   | 12   | 0        | 0    | 0    | 13       | 0    | 13   |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .500 | .500 | .000     | .000 | .000 | .650     | .000 | .650 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

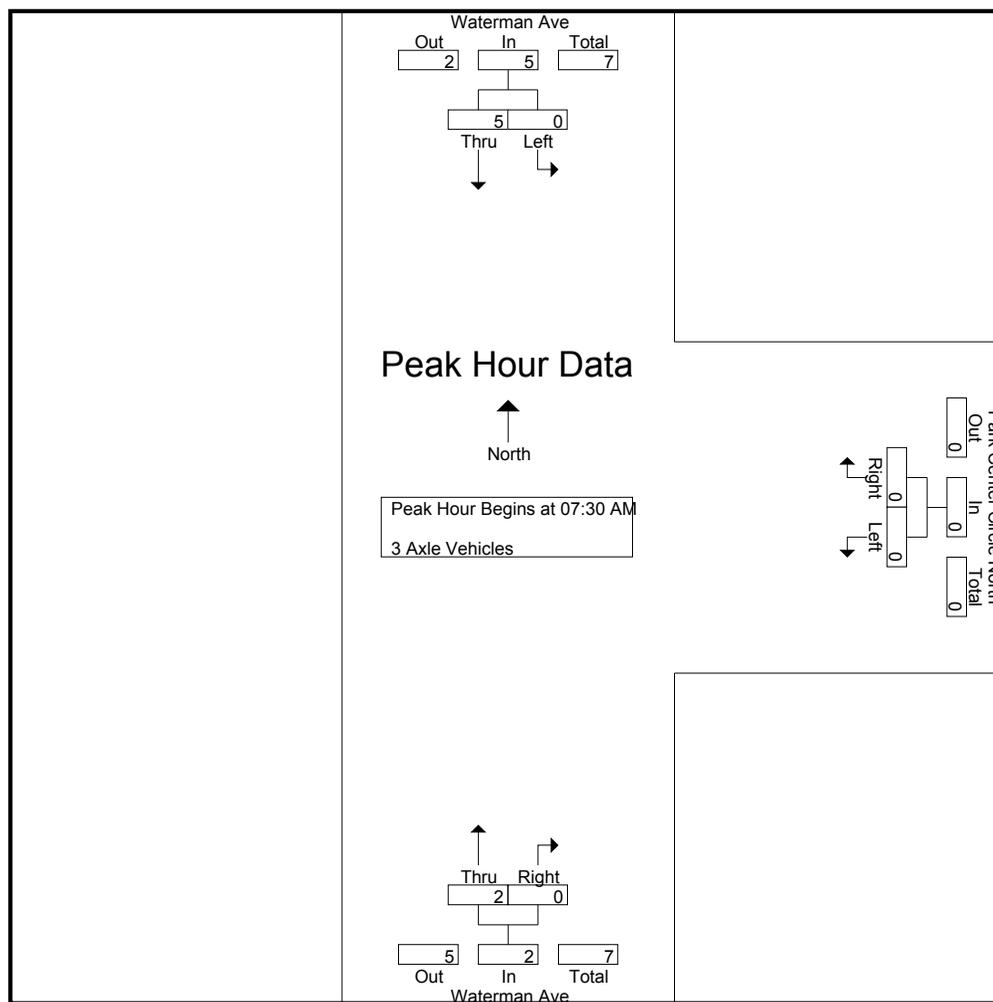
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 3          |
| 07:15 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 07:30 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 2          |
| 07:45 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total       | 0                       | 6    | 6          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 8          |
| 08:00 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 08:15 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 08:30 AM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 08:45 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total       | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| Grand Total | 0                       | 9    | 9          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 13         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 69.2 | 69.2       | 0                                  | 0     | 0          | 30.8                    | 0     | 30.8       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 2          |
| 07:45 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 08:00 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 08:15 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total Volume | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .625 | .625       | .000                               | .000  | .000       | .500                    | .000  | .500       | .875       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 2    | 2    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 1        | 0    | 1    |
| +30 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 1        | 0    | 1    |
| Total Volume | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .625 | .625 | .000     | .000 | .000 | .500     | .000 | .500 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

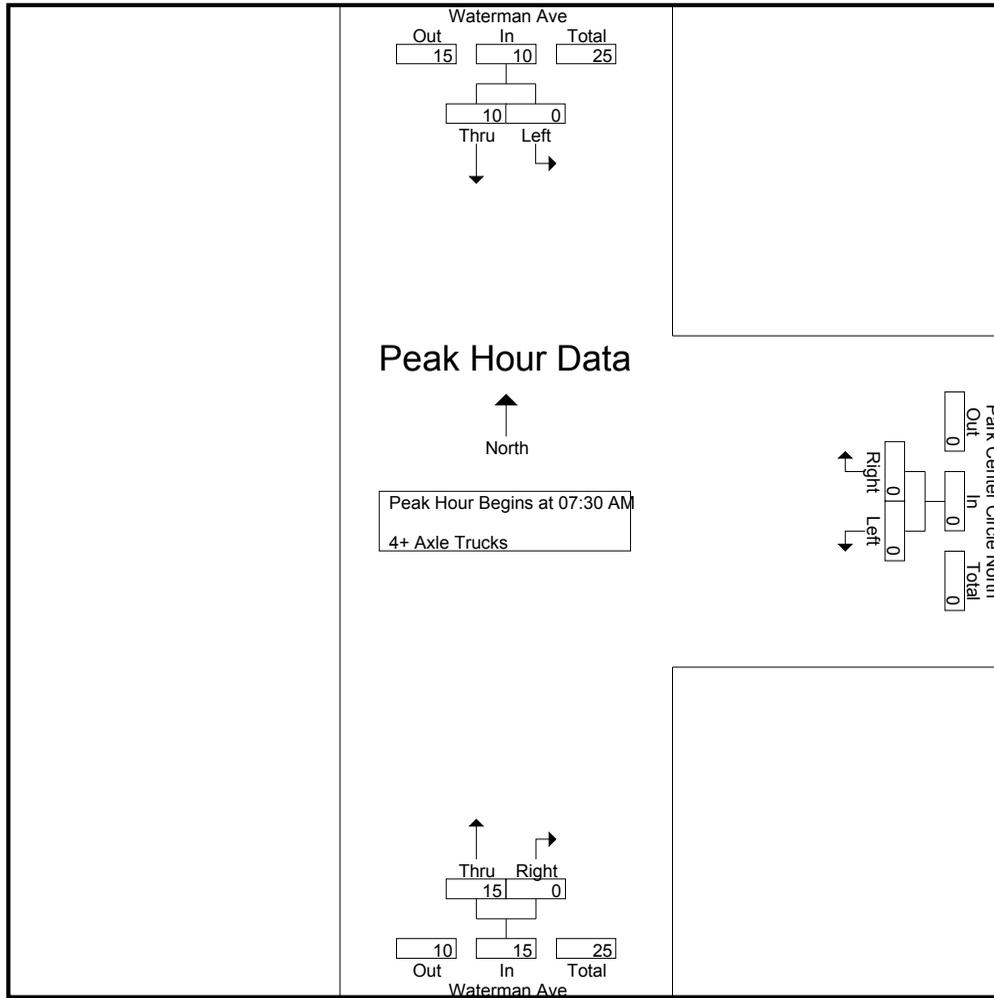
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 4    | 4          | 1                                  | 0     | 1          | 4                       | 0     | 4          | 9          |
| 07:15 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 6                       | 0     | 6          | 10         |
| 07:30 AM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 07:45 AM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 8          |
| Total       | 0                       | 11   | 11         | 1                                  | 0     | 1          | 16                      | 0     | 16         | 28         |
| 08:00 AM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 10         |
| 08:15 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 6          |
| 08:30 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 08:45 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 8                       | 0     | 8          | 12         |
| Total       | 0                       | 15   | 15         | 0                                  | 0     | 0          | 22                      | 0     | 22         | 37         |
| Grand Total | 0                       | 26   | 26         | 1                                  | 0     | 1          | 38                      | 0     | 38         | 65         |
| Apprch %    | 0                       | 100  |            | 100                                | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 40   | 40         | 1.5                                | 0     | 1.5        | 58.5                    | 0     | 58.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 07:45 AM     | 0                       | 3    | 3          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 8          |
| 08:00 AM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 10         |
| 08:15 AM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 6          |
| Total Volume | 0                       | 10   | 10         | 0                                  | 0     | 0          | 15                      | 0     | 15         | 25         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .500 | .500       | .000                               | .000  | .000       | .750                    | .000  | .750       | .625       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 0    | 0    | 1        | 0    | 1    |
| +15 mins.    | 0        | 3    | 3    | 0        | 0    | 0    | 5        | 0    | 5    |
| +30 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 5        | 0    | 5    |
| +45 mins.    | 0        | 2    | 2    | 0        | 0    | 0    | 4        | 0    | 4    |
| Total Volume | 0        | 10   | 10   | 0        | 0    | 0    | 15       | 0    | 15   |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .500 | .500 | .000     | .000 | .000 | .750     | .000 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

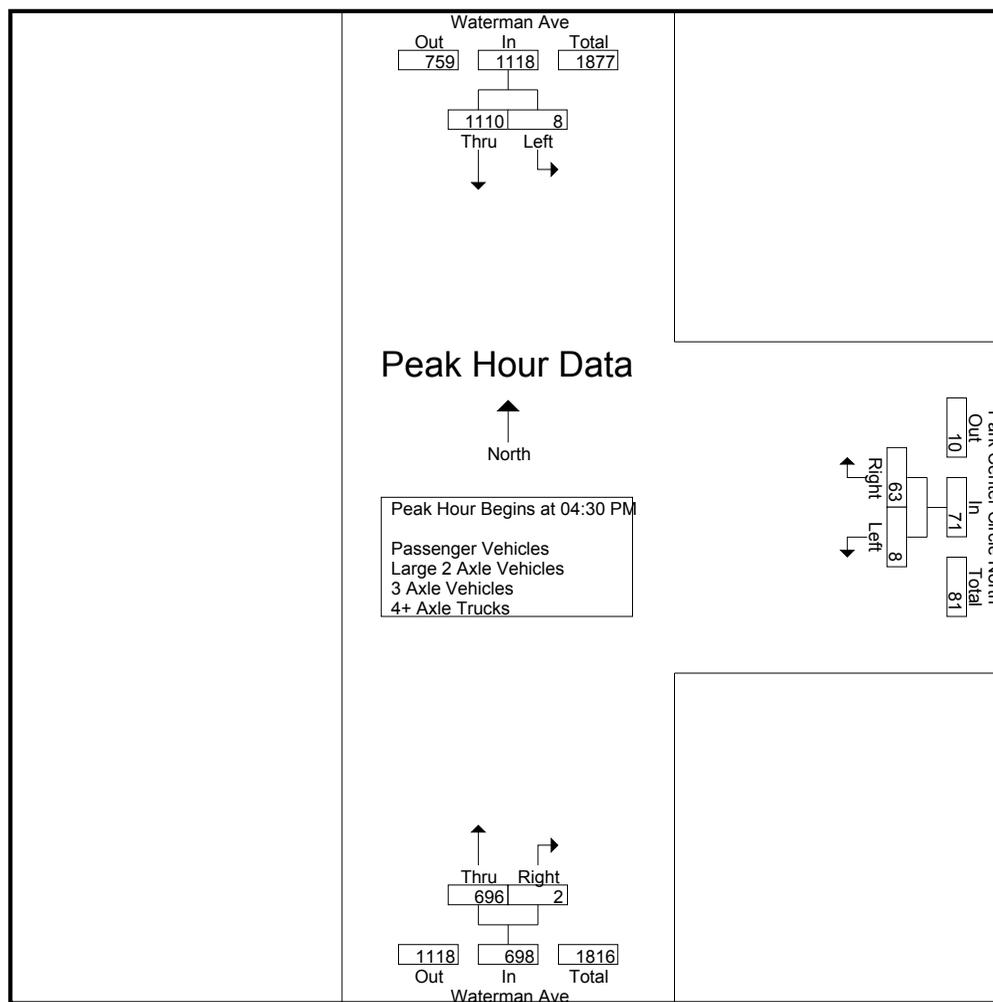
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|                         | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM                | 1                       | 176  | 177        | 4                                  | 7     | 11         | 192                     | 3     | 195        | 383        |
| 04:15 PM                | 2                       | 228  | 230        | 1                                  | 5     | 6          | 163                     | 1     | 164        | 400        |
| 04:30 PM                | 2                       | 283  | 285        | 1                                  | 10    | 11         | 165                     | 0     | 165        | 461        |
| 04:45 PM                | 2                       | 282  | 284        | 1                                  | 9     | 10         | 142                     | 2     | 144        | 438        |
| Total                   | 7                       | 969  | 976        | 7                                  | 31    | 38         | 662                     | 6     | 668        | 1682       |
| 05:00 PM                | 3                       | 258  | 261        | 4                                  | 38    | 42         | 202                     | 0     | 202        | 505        |
| 05:15 PM                | 1                       | 287  | 288        | 2                                  | 6     | 8          | 187                     | 0     | 187        | 483        |
| 05:30 PM                | 0                       | 247  | 247        | 3                                  | 22    | 25         | 182                     | 0     | 182        | 454        |
| 05:45 PM                | 0                       | 250  | 250        | 0                                  | 8     | 8          | 177                     | 0     | 177        | 435        |
| Total                   | 4                       | 1042 | 1046       | 9                                  | 74    | 83         | 748                     | 0     | 748        | 1877       |
| Grand Total             | 11                      | 2011 | 2022       | 16                                 | 105   | 121        | 1410                    | 6     | 1416       | 3559       |
| Apprch %                | 0.5                     | 99.5 |            | 13.2                               | 86.8  |            | 99.6                    | 0.4   |            |            |
| Total %                 | 0.3                     | 56.5 | 56.8       | 0.4                                | 3     | 3.4        | 39.6                    | 0.2   | 39.8       |            |
| Passenger Vehicles      | 9                       | 1940 | 1949       | 16                                 | 104   | 120        | 1362                    | 6     | 1368       | 3437       |
| % Passenger Vehicles    | 81.8                    | 96.5 | 96.4       | 100                                | 99    | 99.2       | 96.6                    | 100   | 96.6       | 96.6       |
| Large 2 Axle Vehicles   | 2                       | 25   | 27         | 0                                  | 1     | 1          | 24                      | 0     | 24         | 52         |
| % Large 2 Axle Vehicles | 18.2                    | 1.2  | 1.3        | 0                                  | 1     | 0.8        | 1.7                     | 0     | 1.7        | 1.5        |
| 3 Axle Vehicles         | 0                       | 8    | 8          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 13         |
| % 3 Axle Vehicles       | 0                       | 0.4  | 0.4        | 0                                  | 0     | 0          | 0.4                     | 0     | 0.4        | 0.4        |
| 4+ Axle Trucks          | 0                       | 38   | 38         | 0                                  | 0     | 0          | 19                      | 0     | 19         | 57         |
| % 4+ Axle Trucks        | 0                       | 1.9  | 1.9        | 0                                  | 0     | 0          | 1.3                     | 0     | 1.3        | 1.6        |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 2                       | 283  | 285        | 1                                  | 10    | 11         | 165                     | 0     | 165        | 461        |
| 04:45 PM     | 2                       | 282  | 284        | 1                                  | 9     | 10         | 142                     | 2     | 144        | 438        |
| 05:00 PM     | 3                       | 258  | 261        | 4                                  | 38    | 42         | 202                     | 0     | 202        | 505        |
| 05:15 PM     | 1                       | 287  | 288        | 2                                  | 6     | 8          | 187                     | 0     | 187        | 483        |
| Total Volume | 8                       | 1110 | 1118       | 8                                  | 63    | 71         | 696                     | 2     | 698        | 1887       |
| % App. Total | 0.7                     | 99.3 |            | 11.3                               | 88.7  |            | 99.7                    | 0.3   |            |            |
| PHF          | .667                    | .967 | .970       | .500                               | .414  | .423       | .861                    | .250  | .864       | .934       |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:45 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 283  | 285  | 1        | 9    | 10   | 202      | 0    | 202  |
| +15 mins.    | 2        | 282  | 284  | 4        | 38   | 42   | 187      | 0    | 187  |
| +30 mins.    | 3        | 258  | 261  | 2        | 6    | 8    | 182      | 0    | 182  |
| +45 mins.    | 1        | 287  | 288  | 3        | 22   | 25   | 177      | 0    | 177  |
| Total Volume | 8        | 1110 | 1118 | 10       | 75   | 85   | 748      | 0    | 748  |
| % App. Total | 0.7      | 99.3 |      | 11.8     | 88.2 |      | 100      | 0    |      |
| PHF          | .667     | .967 | .970 | .625     | .493 | .506 | .926     | .000 | .926 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

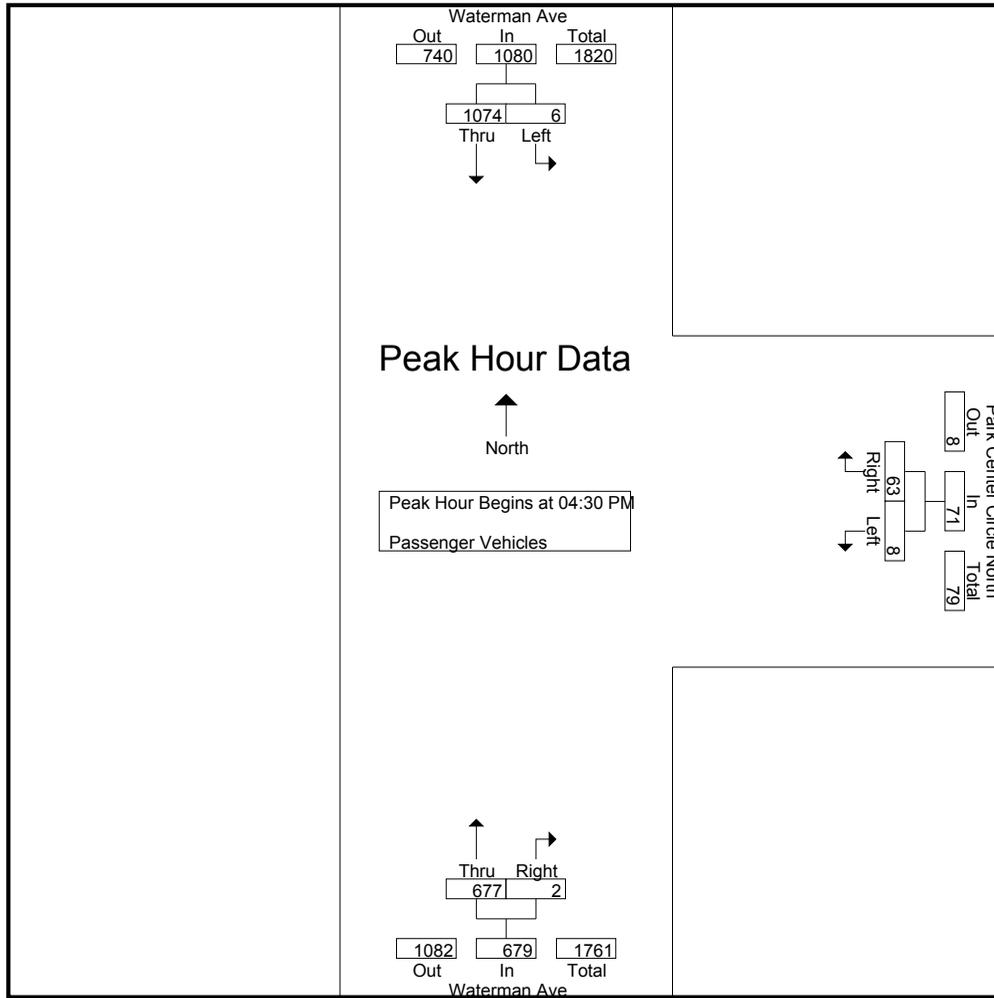
| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 1                       | 169  | 170        | 4                                  | 6     | 10         | 184                     | 3     | 187        | 367        |
| 04:15 PM    | 2                       | 220  | 222        | 1                                  | 5     | 6          | 155                     | 1     | 156        | 384        |
| 04:30 PM    | 1                       | 275  | 276        | 1                                  | 10    | 11         | 157                     | 0     | 157        | 444        |
| 04:45 PM    | 1                       | 270  | 271        | 1                                  | 9     | 10         | 139                     | 2     | 141        | 422        |
| Total       | 5                       | 934  | 939        | 7                                  | 30    | 37         | 635                     | 6     | 641        | 1617       |
| 05:00 PM    | 3                       | 250  | 253        | 4                                  | 38    | 42         | 198                     | 0     | 198        | 493        |
| 05:15 PM    | 1                       | 279  | 280        | 2                                  | 6     | 8          | 183                     | 0     | 183        | 471        |
| 05:30 PM    | 0                       | 236  | 236        | 3                                  | 22    | 25         | 176                     | 0     | 176        | 437        |
| 05:45 PM    | 0                       | 241  | 241        | 0                                  | 8     | 8          | 170                     | 0     | 170        | 419        |
| Total       | 4                       | 1006 | 1010       | 9                                  | 74    | 83         | 727                     | 0     | 727        | 1820       |
| Grand Total | 9                       | 1940 | 1949       | 16                                 | 104   | 120        | 1362                    | 6     | 1368       | 3437       |
| Apprch %    | 0.5                     | 99.5 |            | 13.3                               | 86.7  |            | 99.6                    | 0.4   |            |            |
| Total %     | 0.3                     | 56.4 | 56.7       | 0.5                                | 3     | 3.5        | 39.6                    | 0.2   | 39.8       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 1                       | 275  | 276        | 1                                  | 10    | 11         | 157                     | 0     | 157        | 444        |
| 04:45 PM     | 1                       | 270  | 271        | 1                                  | 9     | 10         | 139                     | 2     | 141        | 422        |
| 05:00 PM     | 3                       | 250  | 253        | 4                                  | 38    | 42         | 198                     | 0     | 198        | 493        |
| 05:15 PM     | 1                       | 279  | 280        | 2                                  | 6     | 8          | 183                     | 0     | 183        | 471        |
| Total Volume | 6                       | 1074 | 1080       | 8                                  | 63    | 71         | 677                     | 2     | 679        | 1830       |
| % App. Total | 0.6                     | 99.4 |            | 11.3                               | 88.7  |            | 99.7                    | 0.3   |            |            |
| PHF          | .500                    | .962 | .964       | .500                               | .414  | .423       | .855                    | .250  | .857       | .928       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 275  | 276  | 1        | 10   | 11   | 157      | 0    | 157  |
| +15 mins.    | 1        | 270  | 271  | 1        | 9    | 10   | 139      | 2    | 141  |
| +30 mins.    | 3        | 250  | 253  | 4        | 38   | 42   | 198      | 0    | 198  |
| +45 mins.    | 1        | 279  | 280  | 2        | 6    | 8    | 183      | 0    | 183  |
| Total Volume | 6        | 1074 | 1080 | 8        | 63   | 71   | 677      | 2    | 679  |
| % App. Total | 0.6      | 99.4 |      | 11.3     | 88.7 |      | 99.7     | 0.3  |      |
| PHF          | .500     | .962 | .964 | .500     | .414 | .423 | .855     | .250 | .857 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

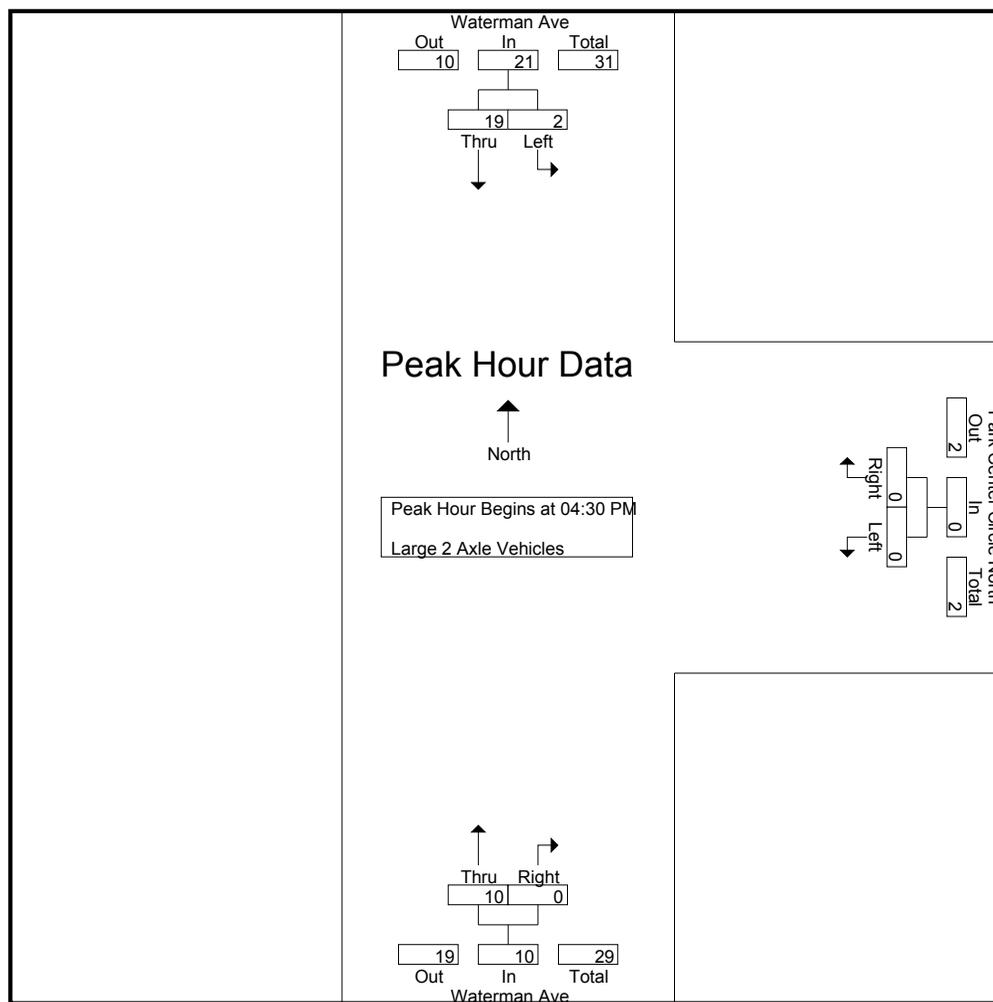
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 1          | 0                                  | 1     | 1          | 4                       | 0     | 4          | 6          |
| 04:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 6          |
| 04:30 PM    | 1                       | 3    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 04:45 PM    | 1                       | 6    | 7          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 8          |
| Total       | 2                       | 11   | 13         | 0                                  | 1     | 1          | 15                      | 0     | 15         | 29         |
| 05:00 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:15 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:30 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 5          |
| 05:45 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| Total       | 0                       | 14   | 14         | 0                                  | 0     | 0          | 9                       | 0     | 9          | 23         |
| Grand Total | 2                       | 25   | 27         | 0                                  | 1     | 1          | 24                      | 0     | 24         | 52         |
| Apprch %    | 7.4                     | 92.6 |            | 0                                  | 100   |            | 100                     | 0     |            |            |
| Total %     | 3.8                     | 48.1 | 51.9       | 0                                  | 1.9   | 1.9        | 46.2                    | 0     | 46.2       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 1                       | 3    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 04:45 PM     | 1                       | 6    | 7          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 8          |
| 05:00 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:15 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| Total Volume | 2                       | 19   | 21         | 0                                  | 0     | 0          | 10                      | 0     | 10         | 31         |
| % App. Total | 9.5                     | 90.5 |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .500                    | .792 | .750       | .000                               | .000  | .000       | .500                    | .000  | .500       | .861       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 3    | 4    | 0        | 0    | 0    | 5        | 0    | 5    |
| +15 mins.    | 1        | 6    | 7    | 0        | 0    | 0    | 1        | 0    | 1    |
| +30 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| +45 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| Total Volume | 2        | 19   | 21   | 0        | 0    | 0    | 10       | 0    | 10   |
| % App. Total | 9.5      | 90.5 |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .500     | .792 | .750 | .000     | .000 | .000 | .500     | .000 | .500 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

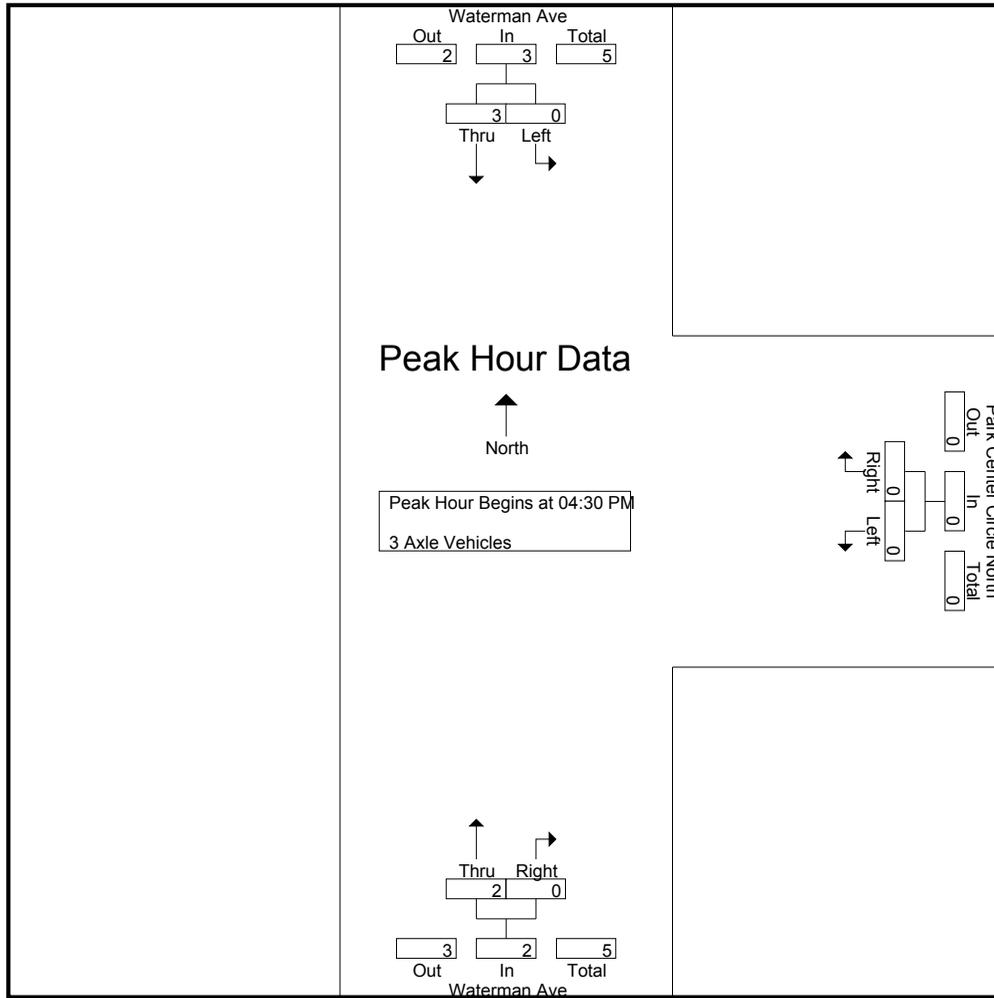
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 04:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 04:30 PM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 04:45 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total       | 0                       | 3    | 3          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 4          |
| 05:00 PM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| 05:30 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 3          |
| 05:45 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total       | 0                       | 5    | 5          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 9          |
| Grand Total | 0                       | 8    | 8          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 13         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 61.5 | 61.5       | 0                                  | 0     | 0          | 38.5                    | 0     | 38.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 04:45 PM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 05:00 PM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 05:15 PM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| Total Volume | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .375 | .375       | .000                               | .000  | .000       | .250                    | .000  | .250       | .313       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 0        | 2    | 2    | 0        | 0    | 0    | 2        | 0    | 2    |
| Total Volume | 0        | 3    | 3    | 0        | 0    | 0    | 2        | 0    | 2    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .375 | .375 | .000     | .000 | .000 | .250     | .000 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

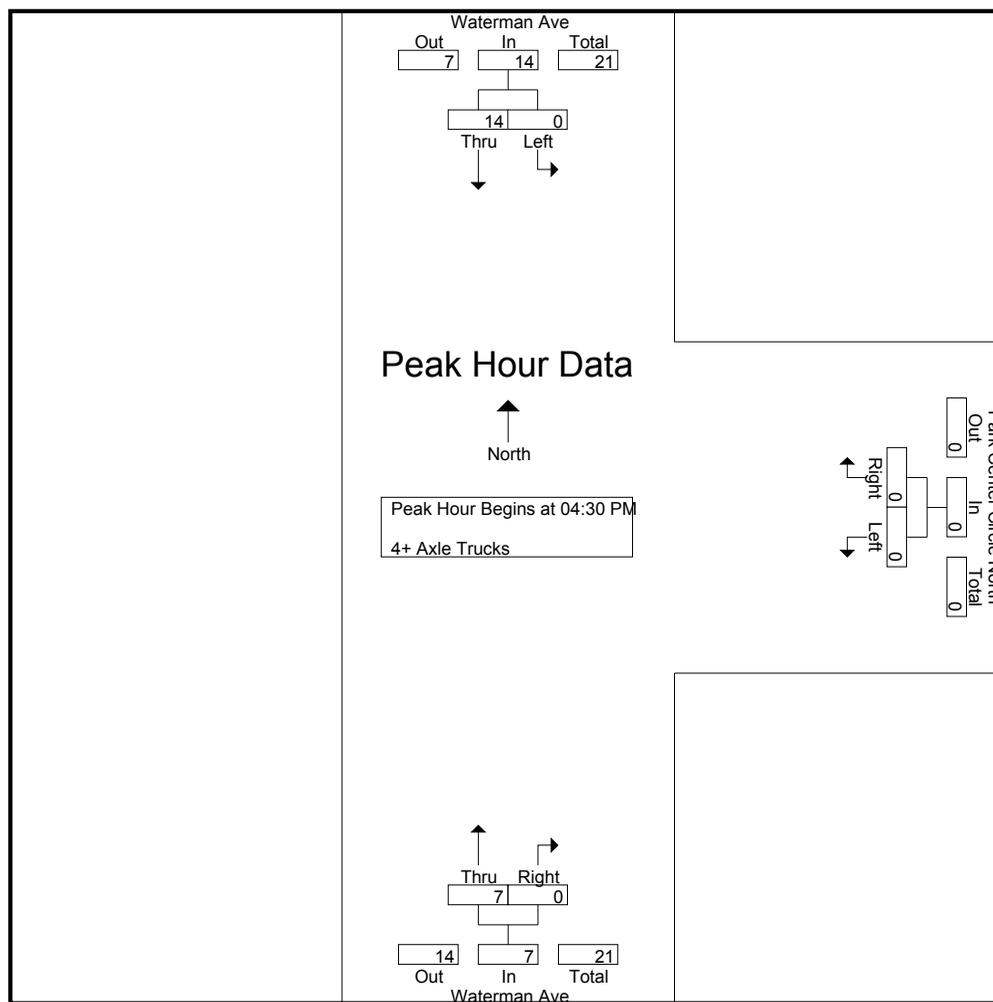
| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 9          |
| 04:15 PM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 8          |
| 04:30 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 8          |
| 04:45 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| Total       | 0                       | 21   | 21         | 0                                  | 0     | 0          | 11                      | 0     | 11         | 32         |
| 05:00 PM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| 05:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 05:30 PM    | 0                       | 7    | 7          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 9          |
| 05:45 PM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 10         |
| Total       | 0                       | 17   | 17         | 0                                  | 0     | 0          | 8                       | 0     | 8          | 25         |
| Grand Total | 0                       | 38   | 38         | 0                                  | 0     | 0          | 19                      | 0     | 19         | 57         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 66.7 | 66.7       | 0                                  | 0     | 0          | 33.3                    | 0     | 33.3       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 8          |
| 04:45 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:00 PM     | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| 05:15 PM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total Volume | 0                       | 14   | 14         | 0                                  | 0     | 0          | 7                       | 0     | 7          | 21         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .700 | .700       | .000                               | .000  | .000       | .583                    | .000  | .583       | .656       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 5    | 5    | 0        | 0    | 0    | 3        | 0    | 3    |
| +15 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| +30 mins.    | 0        | 3    | 3    | 0        | 0    | 0    | 2        | 0    | 2    |
| +45 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 0        | 14   | 14   | 0        | 0    | 0    | 7        | 0    | 7    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .700 | .700 | .000     | .000 | .000 | .583     | .000 | .583 |

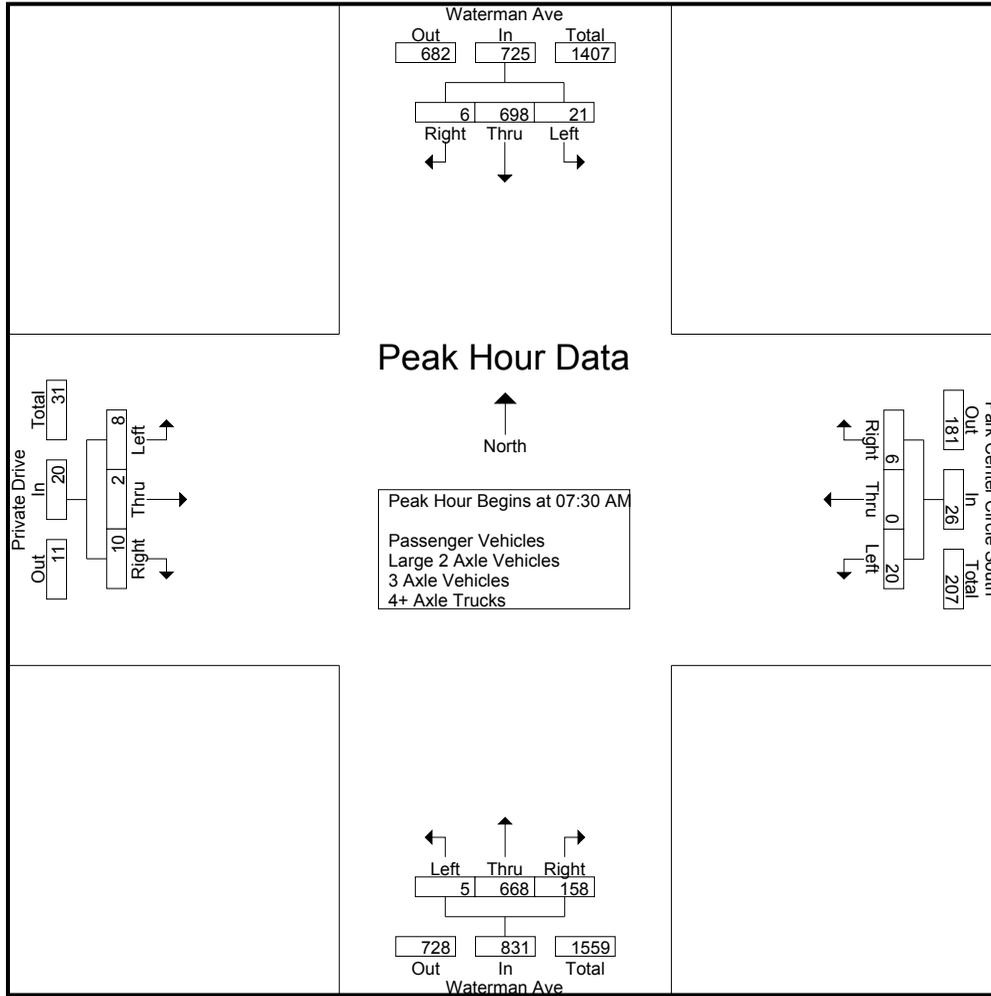
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM                | 6                       | 109  | 4     | 119        | 2                                  | 0    | 3     | 5          | 14                      | 143  | 15    | 172        | 0                       | 0    | 0     | 0          | 296        |
| 07:15 AM                | 3                       | 138  | 0     | 141        | 5                                  | 0    | 1     | 6          | 3                       | 151  | 28    | 182        | 1                       | 0    | 1     | 2          | 331        |
| 07:30 AM                | 5                       | 151  | 1     | 157        | 5                                  | 0    | 0     | 5          | 1                       | 166  | 63    | 230        | 0                       | 0    | 1     | 1          | 393        |
| 07:45 AM                | 9                       | 212  | 2     | 223        | 5                                  | 0    | 1     | 6          | 2                       | 188  | 28    | 218        | 0                       | 0    | 0     | 0          | 447        |
| Total                   | 23                      | 610  | 7     | 640        | 17                                 | 0    | 5     | 22         | 20                      | 648  | 134   | 802        | 1                       | 0    | 2     | 3          | 1467       |
| 08:00 AM                | 5                       | 170  | 3     | 178        | 6                                  | 0    | 2     | 8          | 2                       | 169  | 37    | 208        | 2                       | 2    | 2     | 6          | 400        |
| 08:15 AM                | 2                       | 165  | 0     | 167        | 4                                  | 0    | 3     | 7          | 0                       | 145  | 30    | 175        | 6                       | 0    | 7     | 13         | 362        |
| 08:30 AM                | 4                       | 159  | 0     | 163        | 9                                  | 0    | 2     | 11         | 2                       | 156  | 13    | 171        | 1                       | 0    | 6     | 7          | 352        |
| 08:45 AM                | 6                       | 148  | 2     | 156        | 6                                  | 0    | 2     | 8          | 5                       | 126  | 11    | 142        | 0                       | 0    | 0     | 0          | 306        |
| Total                   | 17                      | 642  | 5     | 664        | 25                                 | 0    | 9     | 34         | 9                       | 596  | 91    | 696        | 9                       | 2    | 15    | 26         | 1420       |
| Grand Total             | 40                      | 1252 | 12    | 1304       | 42                                 | 0    | 14    | 56         | 29                      | 1244 | 225   | 1498       | 10                      | 2    | 17    | 29         | 2887       |
| Apprch %                | 3.1                     | 96   | 0.9   |            | 75                                 | 0    | 25    |            | 1.9                     | 83   | 15    |            | 34.5                    | 6.9  | 58.6  |            |            |
| Total %                 | 1.4                     | 43.4 | 0.4   | 45.2       | 1.5                                | 0    | 0.5   | 1.9        | 1                       | 43.1 | 7.8   | 51.9       | 0.3                     | 0.1  | 0.6   | 1          |            |
| Passenger Vehicles      | 38                      | 1183 | 10    | 1231       | 37                                 | 0    | 13    | 50         | 29                      | 1184 | 218   | 1431       | 10                      | 0    | 16    | 26         | 2738       |
| % Passenger Vehicles    | 95                      | 94.5 | 83.3  | 94.4       | 88.1                               | 0    | 92.9  | 89.3       | 100                     | 95.2 | 96.9  | 95.5       | 100                     | 0    | 94.1  | 89.7       | 94.8       |
| Large 2 Axle Vehicles   | 1                       | 36   | 2     | 39         | 3                                  | 0    | 1     | 4          | 0                       | 20   | 4     | 24         | 0                       | 0    | 1     | 1          | 68         |
| % Large 2 Axle Vehicles | 2.5                     | 2.9  | 16.7  | 3          | 7.1                                | 0    | 7.1   | 7.1        | 0                       | 1.6  | 1.8   | 1.6        | 0                       | 0    | 5.9   | 3.4        | 2.4        |
| 3 Axle Vehicles         | 0                       | 7    | 0     | 7          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 14         |
| % 3 Axle Vehicles       | 0                       | 0.6  | 0     | 0.5        | 2.4                                | 0    | 0     | 1.8        | 0                       | 0.3  | 0     | 0.3        | 0                       | 100  | 0     | 6.9        | 0.5        |
| 4+ Axle Trucks          | 1                       | 26   | 0     | 27         | 1                                  | 0    | 0     | 1          | 0                       | 36   | 3     | 39         | 0                       | 0    | 0     | 0          | 67         |
| % 4+ Axle Trucks        | 2.5                     | 2.1  | 0     | 2.1        | 2.4                                | 0    | 0     | 1.8        | 0                       | 2.9  | 1.3   | 2.6        | 0                       | 0    | 0     | 0          | 2.3        |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |           |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-----------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right     | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |           |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |           |            |                         |      |       |            |            |
| 07:30 AM   | 5                       | 151  | 1     | 157        | 5                                  | 0    | 0     | 5          | 1                       | 166  | <b>63</b> | <b>230</b> | 0                       | 0    | 1     | 1          | 393        |
| 07:45 AM   | 9                       | 212  | 2     | 223        | 5                                  | 0    | 1     | 6          | 2                       | 188  | 28        | 218        | 0                       | 0    | 0     | 0          | 447        |
| 08:00 AM   | 5                       | 170  | 3     | 178        | 6                                  | 0    | 2     | 8          | 2                       | 169  | 37        | 208        | 2                       | 2    | 2     | 6          | 400        |
| 08:15 AM   | 2                       | 165  | 0     | 167        | 4                                  | 0    | 3     | 7          | 0                       | 145  | 30        | 175        | 6                       | 0    | 7     | 13         | 362        |
| Total Volume   | 21                      | 698  | 6     | 725        | 20                                 | 0    | 6     | 26         | 5                       | 668  | 158       | 831        | 8                       | 2    | 10    | 20         | 1602       |
| % App. Total   | 2.9                     | 96.3 | 0.8   |            | 76.9                               | 0    | 23.1  |            | 0.6                     | 80.4 | 19        |            | 40                      | 10   | 50    |            |            |
| PHF  | .583                    | .823 | .500  | .813       | .833                               | .000 | .500  | .813       | .625                    | .888 | .627      | .903       | .333                    | .250 | .357  | .385       | .896       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM |            |          |            | 08:00 AM |      |      |           | 07:15 AM |            |           |            | 07:45 AM |          |          |           |
|--------------|----------|------------|----------|------------|----------|------|------|-----------|----------|------------|-----------|------------|----------|----------|----------|-----------|
| +0 mins.     | <b>9</b> | <b>212</b> | <b>2</b> | <b>223</b> | 6        | 0    | 2    | 8         | <b>3</b> | 151        | 28        | 182        | 0        | 0        | 0        | 0         |
| +15 mins.    | 5        | 170        | 3        | 178        | 4        | 0    | 3    | 7         | 1        | 166        | <b>63</b> | <b>230</b> | 2        | <b>2</b> | 2        | 6         |
| +30 mins.    | 2        | 165        | 0        | 167        | <b>9</b> | 0    | 2    | <b>11</b> | 2        | <b>188</b> | 28        | 218        | <b>6</b> | 0        | <b>7</b> | <b>13</b> |
| +45 mins.    | 4        | 159        | 0        | 163        | 6        | 0    | 2    | 8         | 2        | 169        | 37        | 208        | 1        | 0        | 6        | 7         |
| Total Volume | 20       | 706        | 5        | 731        | 25       | 0    | 9    | 34        | 8        | 674        | 156       | 838        | 9        | 2        | 15       | 26        |
| % App. Total | 2.7      | 96.6       | 0.7      |            | 73.5     | 0    | 26.5 |           | 1        | 80.4       | 18.6      |            | 34.6     | 7.7      | 57.7     |           |
| PHF          | .556     | .833       | .417     | .820       | .694     | .000 | .750 | .773      | .667     | .896       | .619      | .911       | .375     | .250     | .536     | .500      |

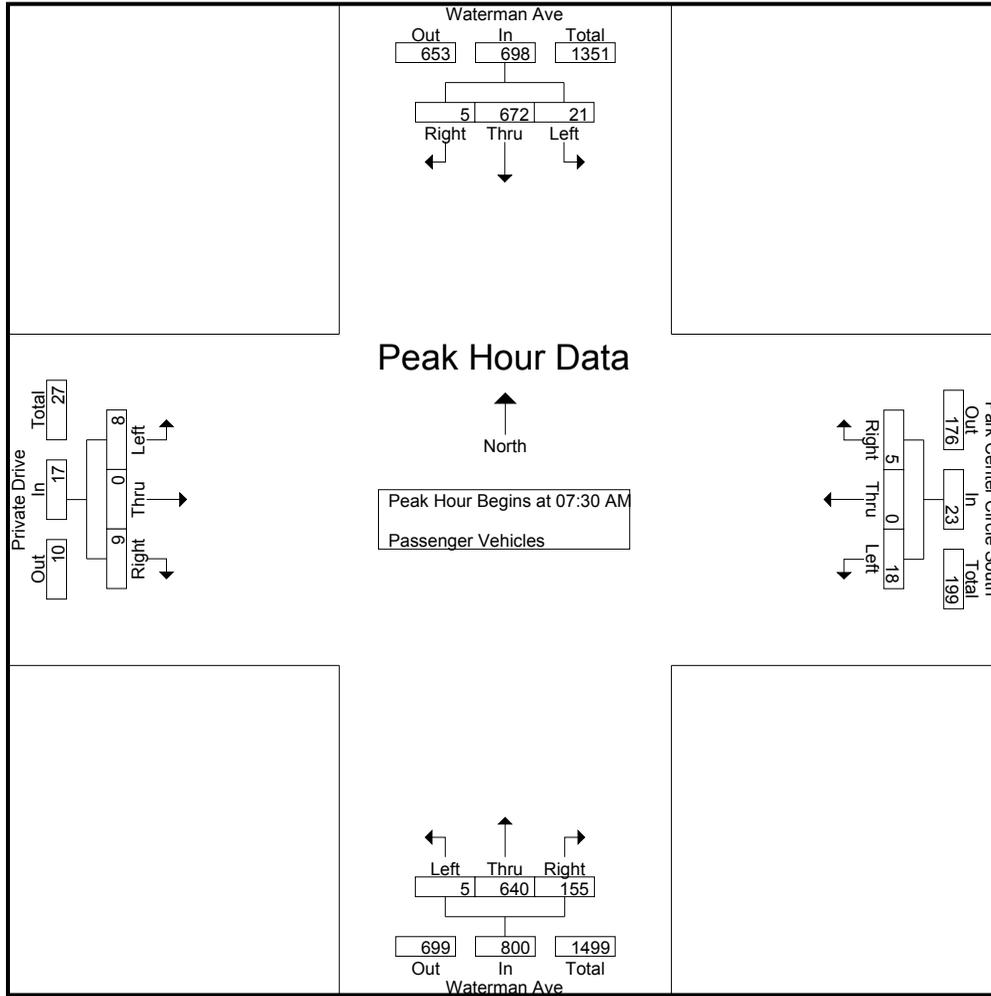
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 5                       | 98   | 4     | 107        | 0                                  | 0    | 3     | 3          | 14                      | 137  | 13    | 164        | 0                       | 0    | 0     | 0          | 274        |
| 07:15 AM    | 3                       | 123  | 0     | 126        | 4                                  | 0    | 1     | 5          | 3                       | 143  | 28    | 174        | 1                       | 0    | 1     | 2          | 307        |
| 07:30 AM    | 5                       | 147  | 1     | 153        | 4                                  | 0    | 0     | 4          | 1                       | 163  | 62    | 226        | 0                       | 0    | 1     | 1          | 384        |
| 07:45 AM    | 9                       | 206  | 1     | 216        | 5                                  | 0    | 1     | 6          | 2                       | 179  | 28    | 209        | 0                       | 0    | 0     | 0          | 431        |
| Total       | 22                      | 574  | 6     | 602        | 13                                 | 0    | 5     | 18         | 20                      | 622  | 131   | 773        | 1                       | 0    | 2     | 3          | 1396       |
| 08:00 AM    | 5                       | 163  | 3     | 171        | 6                                  | 0    | 2     | 8          | 2                       | 162  | 37    | 201        | 2                       | 0    | 1     | 3          | 383        |
| 08:15 AM    | 2                       | 156  | 0     | 158        | 3                                  | 0    | 2     | 5          | 0                       | 136  | 28    | 164        | 6                       | 0    | 7     | 13         | 340        |
| 08:30 AM    | 4                       | 151  | 0     | 155        | 9                                  | 0    | 2     | 11         | 2                       | 148  | 12    | 162        | 1                       | 0    | 6     | 7          | 335        |
| 08:45 AM    | 5                       | 139  | 1     | 145        | 6                                  | 0    | 2     | 8          | 5                       | 116  | 10    | 131        | 0                       | 0    | 0     | 0          | 284        |
| Total       | 16                      | 609  | 4     | 629        | 24                                 | 0    | 8     | 32         | 9                       | 562  | 87    | 658        | 9                       | 0    | 14    | 23         | 1342       |
| Grand Total | 38                      | 1183 | 10    | 1231       | 37                                 | 0    | 13    | 50         | 29                      | 1184 | 218   | 1431       | 10                      | 0    | 16    | 26         | 2738       |
| Apprch %    | 3.1                     | 96.1 | 0.8   |            | 74                                 | 0    | 26    |            | 2                       | 82.7 | 15.2  |            | 38.5                    | 0    | 61.5  |            |            |
| Total %     | 1.4                     | 43.2 | 0.4   | 45         | 1.4                                | 0    | 0.5   | 1.8        | 1.1                     | 43.2 | 8     | 52.3       | 0.4                     | 0    | 0.6   | 0.9        |            |

| Start Time   | Waterman Ave Southbound |            |          |            | Park Center Circle South Westbound |      |          |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |      |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|------------------------------------|------|----------|------------|-------------------------|------------|-----------|------------|-------------------------|------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                               | Thru | Right    | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru | Right    | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |            |          |            |                                    |      |          |            |                         |            |           |            |                         |      |          |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |            |          |            |                                    |      |          |            |                         |            |           |            |                         |      |          |            |            |
| 07:30 AM   | 5                       | 147        | 1        | 153        | 4                                  | 0    | 0        | 4          | 1                       | 163        | <b>62</b> | <b>226</b> | 0                       | 0    | 1        | 1          | 384        |
| 07:45 AM   | <b>9</b>                | <b>206</b> | 1        | <b>216</b> | 5                                  | 0    | 1        | 6          | <b>2</b>                | <b>179</b> | 28        | 209        | 0                       | 0    | 0        | 0          | <b>431</b> |
| 08:00 AM   | 5                       | 163        | <b>3</b> | 171        | <b>6</b>                           | 0    | <b>2</b> | <b>8</b>   | 2                       | 162        | 37        | 201        | 2                       | 0    | 1        | 3          | 383        |
| 08:15 AM   | 2                       | 156        | 0        | 158        | 3                                  | 0    | 2        | 5          | 0                       | 136        | 28        | 164        | <b>6</b>                | 0    | <b>7</b> | <b>13</b>  | 340        |
| Total Volume   | 21                      | 672        | 5        | 698        | 18                                 | 0    | 5        | 23         | 5                       | 640        | 155       | 800        | 8                       | 0    | 9        | 17         | 1538       |
| % App. Total   | 3                       | 96.3       | 0.7      |            | 78.3                               | 0    | 21.7     |            | 0.6                     | 80         | 19.4      |            | 47.1                    | 0    | 52.9     |            |            |
| PHF  | .583                    | .816       | .417     | .808       | .750                               | .000 | .625     | .719       | .625                    | .894       | .625      | .885       | .333                    | .000 | .321     | .327       | .892       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 5        | 147  | 1    | 153  | 4        | 0    | 0    | 4    | 1        | 163  | 62   | 226  | 0        | 0    | 1    | 1    |
| +15 mins.    | 9        | 206  | 1    | 216  | 5        | 0    | 1    | 6    | 2        | 179  | 28   | 209  | 0        | 0    | 0    | 0    |
| +30 mins.    | 5        | 163  | 3    | 171  | 6        | 0    | 2    | 8    | 2        | 162  | 37   | 201  | 2        | 0    | 1    | 3    |
| +45 mins.    | 2        | 156  | 0    | 158  | 3        | 0    | 2    | 5    | 0        | 136  | 28   | 164  | 6        | 0    | 7    | 13   |
| Total Volume | 21       | 672  | 5    | 698  | 18       | 0    | 5    | 23   | 5        | 640  | 155  | 800  | 8        | 0    | 9    | 17   |
| % App. Total | 3        | 96.3 | 0.7  |      | 78.3     | 0    | 21.7 |      | 0.6      | 80   | 19.4 |      | 47.1     | 0    | 52.9 |      |
| PHF          | .583     | .816 | .417 | .808 | .750     | .000 | .625 | .719 | .625     | .894 | .625 | .885 | .333     | .000 | .321 | .327 |

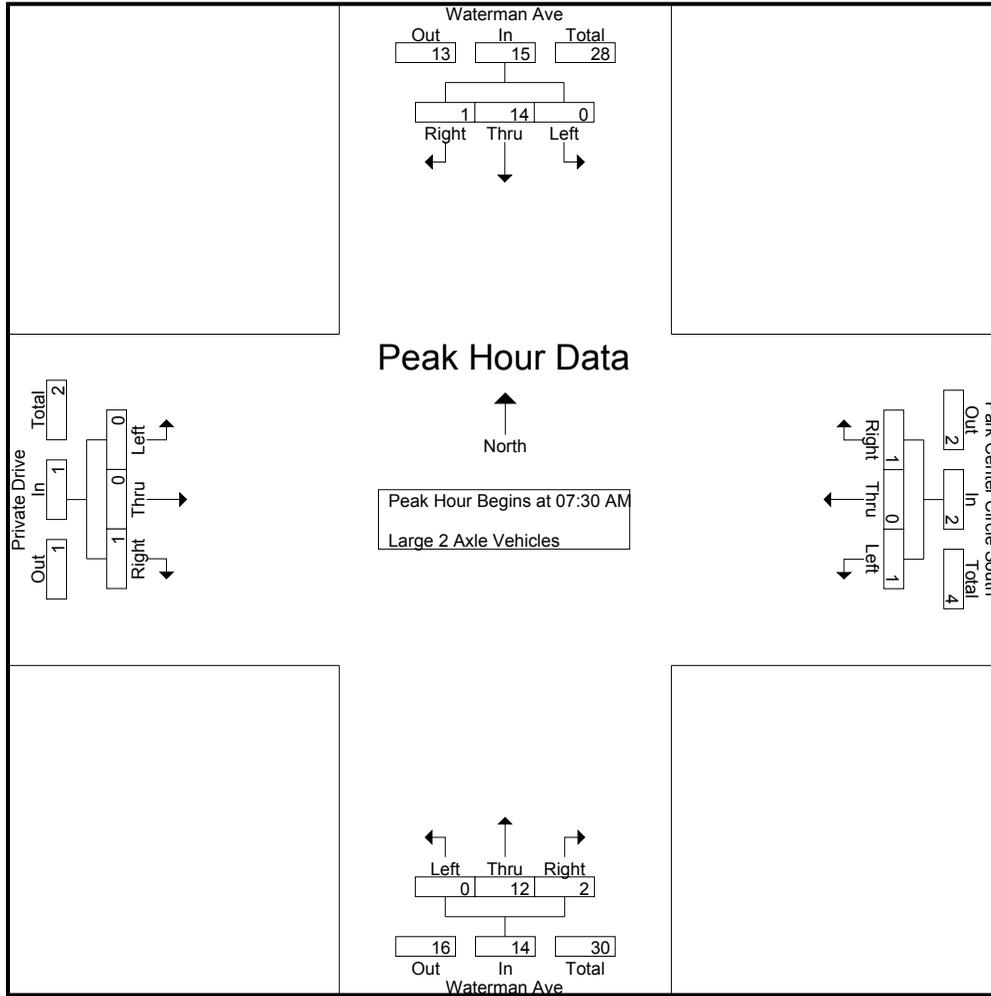
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 5    | 0     | 5          | 2                                  | 0    | 0     | 2          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 8          |
| 07:15 AM    | 0                       | 10   | 0     | 10         | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 13         |
| 07:30 AM    | 0                       | 3    | 0     | 3          | 1                                  | 0    | 0     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 07:45 AM    | 0                       | 3    | 1     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 21   | 1     | 22         | 3                                  | 0    | 0     | 3          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 35         |
| 08:00 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 1     | 1          | 4          |
| 08:15 AM    | 0                       | 7    | 0     | 7          | 0                                  | 0    | 1     | 1          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 14         |
| 08:30 AM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 5          |
| 08:45 AM    | 1                       | 4    | 1     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 1                       | 15   | 1     | 17         | 0                                  | 0    | 1     | 1          | 0                       | 11   | 3     | 14         | 0                       | 0    | 1     | 1          | 33         |
| Grand Total | 1                       | 36   | 2     | 39         | 3                                  | 0    | 1     | 4          | 0                       | 20   | 4     | 24         | 0                       | 0    | 1     | 1          | 68         |
| Apprch %    | 2.6                     | 92.3 | 5.1   |            | 75                                 | 0    | 25    |            | 0                       | 83.3 | 16.7  |            | 0                       | 0    | 100   |            |            |
| Total %     | 1.5                     | 52.9 | 2.9   | 57.4       | 4.4                                | 0    | 1.5   | 5.9        | 0                       | 29.4 | 5.9   | 35.3       | 0                       | 0    | 1.5   | 1.5        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 3    | 0     | 3          | 1                                  | 0    | 0     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 07:45 AM   | 0                       | 3    | 1     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 1     | 1          | 4          |
| 08:15 AM   | 0                       | 7    | 0     | 7          | 0                                  | 0    | 1     | 1          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 14         |
| Total Volume   | 0                       | 14   | 1     | 15         | 1                                  | 0    | 1     | 2          | 0                       | 12   | 2     | 14         | 0                       | 0    | 1     | 1          | 32         |
| % App. Total   | 0                       | 93.3 | 6.7   |            | 50                                 | 0    | 50    |            | 0                       | 85.7 | 14.3  |            | 0                       | 0    | 100   |            |            |
| PHF  | .000                    | .500 | .250  | .536       | .250                               | .000 | .250  | .500       | .000                    | .600 | .500  | .583       | .000                    | .000 | .250  | .250       | .571       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 3    | 0    | 3    | 1        | 0    | 0    | 1    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 1    | 4    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 1    | 1    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 1    | 1    | 0        | 5    | 1    | 6    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 14   | 1    | 15   | 1        | 0    | 1    | 2    | 0        | 12   | 2    | 14   | 0        | 0    | 1    | 1    |
| % App. Total | 0        | 93.3 | 6.7  |      | 50       | 0    | 50   |      | 0        | 85.7 | 14.3 |      | 0        | 0    | 100  |      |
| PHF          | .000     | .500 | .250 | .536 | .250     | .000 | .250 | .500 | .000     | .600 | .500 | .583 | .000     | .000 | .250 | .250 |

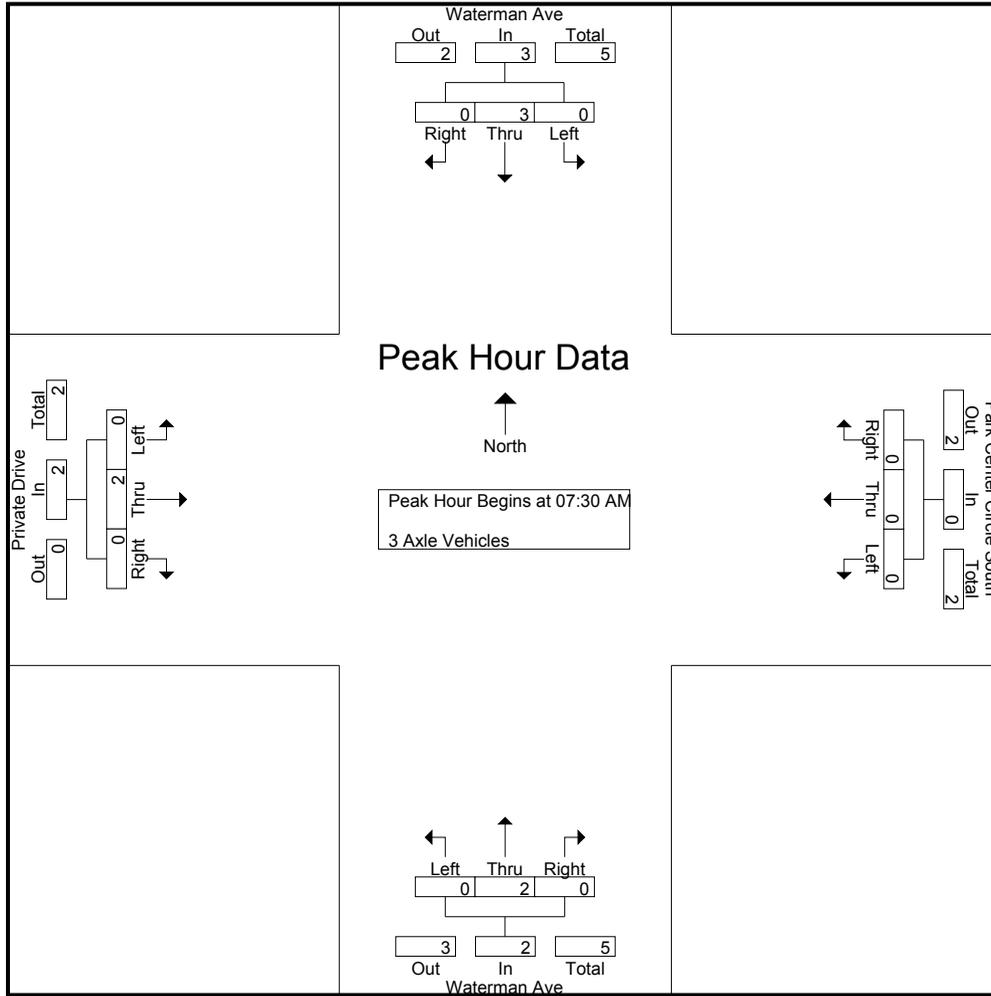
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 07:15 AM    | 0                       | 1    | 0     | 1          | 1                                  | 0    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 2          |
| 07:30 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| Total       | 0                       | 4    | 0     | 4          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 08:00 AM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 4          |
| 08:15 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 08:30 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 08:45 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 6          |
| Grand Total | 0                       | 7    | 0     | 7          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 14         |
| Apprch %    | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 100  | 0     |            |            |
| Total %     | 0                       | 50   | 0     | 50         | 7.1                                | 0    | 0     | 7.1        | 0                       | 28.6 | 0     | 28.6       | 0                       | 14.3 | 0     | 14.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| 08:00 AM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 4          |
| 08:15 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total Volume   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 7          |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 100  | 0     |            |            |
| PHF  | .000                    | .375 | .000  | .375       | .000                               | .000 | .000  | .000       | .000                    | .250 | .000  | .250       | .000                    | .250 | .000  | .250       | .438       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 2    | 0    | 2    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 100  | 0    | 0    |
| PHF          | .000     | .375 | .000 | .375 | .000     | .000 | .000 | .000 | .000     | .250 | .000 | .250 | .000     | .250 | .000 | .250 |

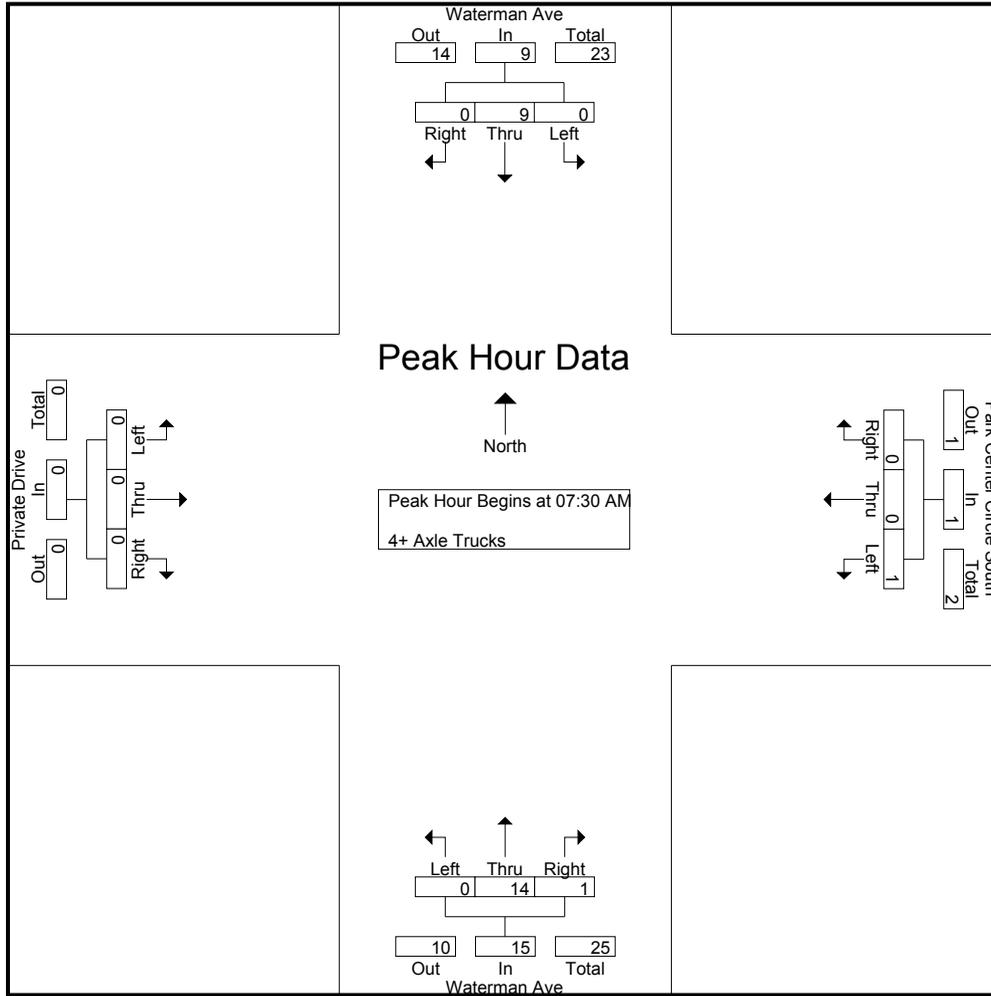
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 1                       | 4    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 2     | 6          | 0                       | 0    | 0     | 0          | 11         |
| 07:15 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 1                       | 11   | 0     | 12         | 0                                  | 0    | 0     | 0          | 0                       | 14   | 2     | 16         | 0                       | 0    | 0     | 0          | 28         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 08:15 AM    | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 08:30 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 10         |
| 08:45 AM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 7    | 0     | 7          | 0                       | 0    | 0     | 0          | 12         |
| Total       | 0                       | 15   | 0     | 15         | 1                                  | 0    | 0     | 1          | 0                       | 22   | 1     | 23         | 0                       | 0    | 0     | 0          | 39         |
| Grand Total | 1                       | 26   | 0     | 27         | 1                                  | 0    | 0     | 1          | 0                       | 36   | 3     | 39         | 0                       | 0    | 0     | 0          | 67         |
| Apprch %    | 3.7                     | 96.3 | 0     |            | 100                                | 0    | 0     |            | 0                       | 92.3 | 7.7   |            | 0                       | 0    | 0     |            |            |
| Total %     | 1.5                     | 38.8 | 0     | 40.3       | 1.5                                | 0    | 0     | 1.5        | 0                       | 53.7 | 4.5   | 58.2       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 08:15 AM   | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Total Volume   | 0                       | 9    | 0     | 9          | 1                                  | 0    | 0     | 1          | 0                       | 14   | 1     | 15         | 0                       | 0    | 0     | 0          | 25         |
| % App. Total   | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 93.3 | 6.7   |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .563 | .000  | .563       | .250                               | .000 | .000  | .250       | .000                    | .700 | .250  | .750       | .000                    | .000 | .000  | .000       | .694       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 1        | 0    | 0    | 1    | 0        | 4    | 1    | 5    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 9    | 0    | 9    | 1        | 0    | 0    | 1    | 0        | 14   | 1    | 15   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 100      | 0    | 0    | 0    | 0        | 93.3 | 6.7  | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .563 | .000 | .563 | .250     | .000 | .000 | .250 | .000     | .700 | .250 | .750 | .000     | .000 | .000 | .000 |

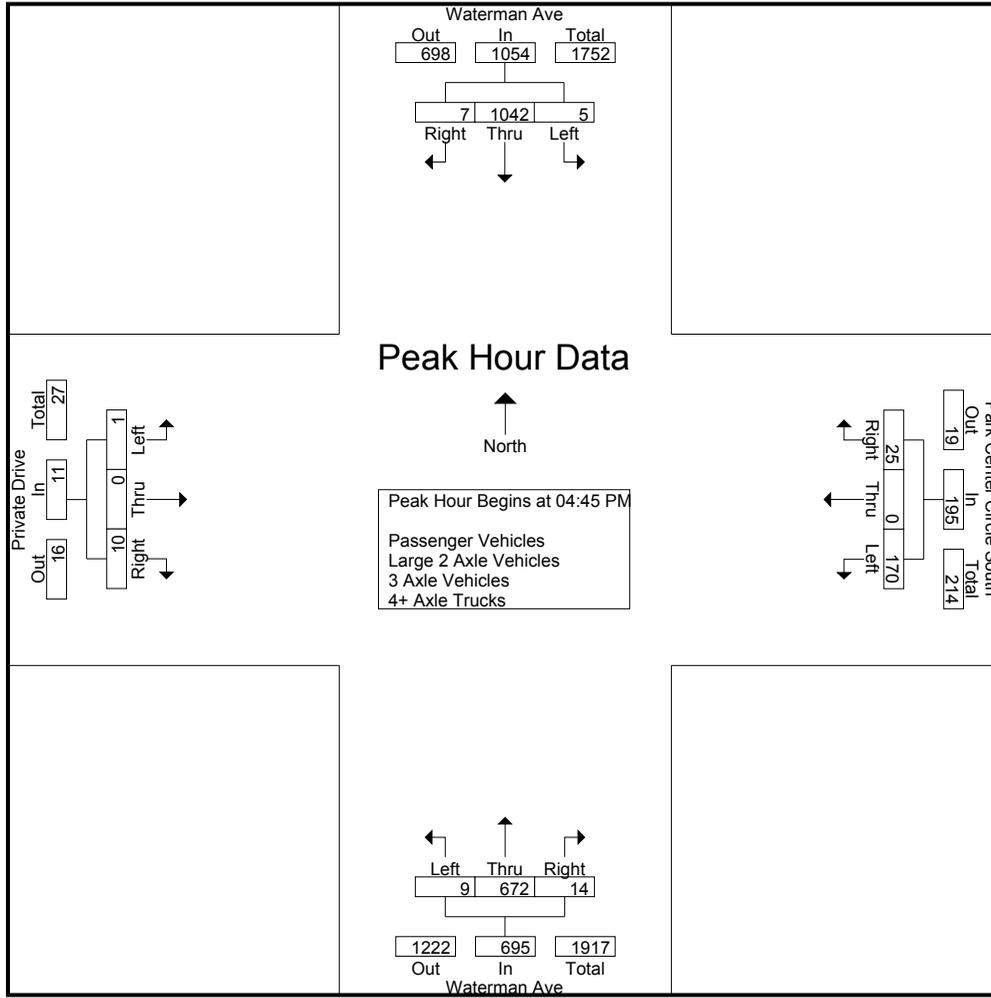
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |             |           |             | Park Center Circle South Westbound |          |           |            | Waterman Ave Northbound |             |           |             | Private Drive Eastbound |          |           |            | Int. Total  |
|-------------------------|-------------------------|-------------|-----------|-------------|------------------------------------|----------|-----------|------------|-------------------------|-------------|-----------|-------------|-------------------------|----------|-----------|------------|-------------|
|                         | Left                    | Thru        | Right     | App. Total  | Left                               | Thru     | Right     | App. Total | Left                    | Thru        | Right     | App. Total  | Left                    | Thru     | Right     | App. Total |             |
| 04:00 PM                | 1                       | 182         | 3         | 186         | 21                                 | 0        | 5         | 26         | 8                       | 183         | 5         | 196         | 2                       | 1        | 1         | 4          | 412         |
| 04:15 PM                | 2                       | 210         | 4         | 216         | 5                                  | 0        | 4         | 9          | 3                       | 153         | 3         | 159         | 3                       | 0        | 4         | 7          | 391         |
| 04:30 PM                | 5                       | 256         | 4         | 265         | 14                                 | 0        | 4         | 18         | 4                       | 153         | 0         | 157         | 1                       | 0        | 1         | 2          | 442         |
| 04:45 PM                | 2                       | 261         | 2         | 265         | 24                                 | 0        | 2         | 26         | 4                       | 141         | 6         | 151         | 0                       | 0        | 0         | 0          | 442         |
| <b>Total</b>            | <b>10</b>               | <b>909</b>  | <b>13</b> | <b>932</b>  | <b>64</b>                          | <b>0</b> | <b>15</b> | <b>79</b>  | <b>19</b>               | <b>630</b>  | <b>14</b> | <b>663</b>  | <b>6</b>                | <b>1</b> | <b>6</b>  | <b>13</b>  | <b>1687</b> |
| 05:00 PM                | 1                       | 240         | 2         | 243         | 55                                 | 0        | 12        | 67         | 1                       | 190         | 3         | 194         | 0                       | 0        | 3         | 3          | 507         |
| 05:15 PM                | 2                       | 287         | 2         | 291         | 23                                 | 0        | 5         | 28         | 0                       | 168         | 4         | 172         | 1                       | 0        | 4         | 5          | 496         |
| 05:30 PM                | 0                       | 254         | 1         | 255         | 68                                 | 0        | 6         | 74         | 4                       | 173         | 1         | 178         | 0                       | 0        | 3         | 3          | 510         |
| 05:45 PM                | 1                       | 239         | 2         | 242         | 19                                 | 0        | 1         | 20         | 13                      | 155         | 1         | 169         | 0                       | 0        | 2         | 2          | 433         |
| <b>Total</b>            | <b>4</b>                | <b>1020</b> | <b>7</b>  | <b>1031</b> | <b>165</b>                         | <b>0</b> | <b>24</b> | <b>189</b> | <b>18</b>               | <b>686</b>  | <b>9</b>  | <b>713</b>  | <b>1</b>                | <b>0</b> | <b>12</b> | <b>13</b>  | <b>1946</b> |
| <b>Grand Total</b>      | <b>14</b>               | <b>1929</b> | <b>20</b> | <b>1963</b> | <b>229</b>                         | <b>0</b> | <b>39</b> | <b>268</b> | <b>37</b>               | <b>1316</b> | <b>23</b> | <b>1376</b> | <b>7</b>                | <b>1</b> | <b>18</b> | <b>26</b>  | <b>3633</b> |
| Apprch %                | 0.7                     | 98.3        | 1         |             | 85.4                               | 0        | 14.6      |            | 2.7                     | 95.6        | 1.7       |             | 26.9                    | 3.8      | 69.2      |            |             |
| Total %                 | 0.4                     | 53.1        | 0.6       | 54          | 6.3                                | 0        | 1.1       | 7.4        | 1                       | 36.2        | 0.6       | 37.9        | 0.2                     | 0        | 0.5       | 0.7        |             |
| Passenger Vehicles      | 13                      | 1860        | 20        | 1893        | 227                                | 0        | 39        | 266        | 37                      | 1266        | 20        | 1323        | 7                       | 0        | 18        | 25         | 3507        |
| % Passenger Vehicles    | 92.9                    | 96.4        | 100       | 96.4        | 99.1                               | 0        | 100       | 99.3       | 100                     | 96.2        | 87        | 96.1        | 100                     | 0        | 100       | 96.2       | 96.5        |
| Large 2 Axle Vehicles   | 0                       | 23          | 0         | 23          | 2                                  | 0        | 0         | 2          | 0                       | 23          | 1         | 24          | 0                       | 1        | 0         | 1          | 50          |
| % Large 2 Axle Vehicles | 0                       | 1.2         | 0         | 1.2         | 0.9                                | 0        | 0         | 0.7        | 0                       | 1.7         | 4.3       | 1.7         | 0                       | 100      | 0         | 3.8        | 1.4         |
| 3 Axle Vehicles         | 1                       | 8           | 0         | 9           | 0                                  | 0        | 0         | 0          | 0                       | 6           | 1         | 7           | 0                       | 0        | 0         | 0          | 16          |
| % 3 Axle Vehicles       | 7.1                     | 0.4         | 0         | 0.5         | 0                                  | 0        | 0         | 0          | 0                       | 0.5         | 4.3       | 0.5         | 0                       | 0        | 0         | 0          | 0.4         |
| 4+ Axle Trucks          | 0                       | 38          | 0         | 38          | 0                                  | 0        | 0         | 0          | 0                       | 21          | 1         | 22          | 0                       | 0        | 0         | 0          | 60          |
| % 4+ Axle Trucks        | 0                       | 2           | 0         | 1.9         | 0                                  | 0        | 0         | 0          | 0                       | 1.6         | 4.3       | 1.6         | 0                       | 0        | 0         | 0          | 1.7         |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 2                       | 261  | 2     | 265        | 24                                 | 0    | 2     | 26         | 4                       | 141  | 6     | 151        | 0                       | 0    | 0     | 0          | 442        |
| 05:00 PM   | 1                       | 240  | 2     | 243        | 55                                 | 0    | 12    | 67         | 1                       | 190  | 3     | 194        | 0                       | 0    | 3     | 3          | 507        |
| 05:15 PM   | 2                       | 287  | 2     | 291        | 23                                 | 0    | 5     | 28         | 0                       | 168  | 4     | 172        | 1                       | 0    | 4     | 5          | 496        |
| 05:30 PM   | 0                       | 254  | 1     | 255        | 68                                 | 0    | 6     | 74         | 4                       | 173  | 1     | 178        | 0                       | 0    | 3     | 3          | 510        |
| Total Volume   | 5                       | 1042 | 7     | 1054       | 170                                | 0    | 25    | 195        | 9                       | 672  | 14    | 695        | 1                       | 0    | 10    | 11         | 1955       |
| % App. Total   | 0.5                     | 98.9 | 0.7   |            | 87.2                               | 0    | 12.8  |            | 1.3                     | 96.7 | 2     |            | 9.1                     | 0    | 90.9  |            |            |
| PHF  | .625                    | .908 | .875  | .905       | .625                               | .000 | .521  | .659       | .563                    | .884 | .583  | .896       | .250                    | .000 | .625  | .550       | .958       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 04:45 PM |      |      |      | 05:00 PM |      |      |      | 04:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 5        | 256  | 4    | 265  | 24       | 0    | 2    | 26   | 1        | 190  | 3    | 194  | 2        | 1    | 1    | 4    |
| +15 mins.    | 2        | 261  | 2    | 265  | 55       | 0    | 12   | 67   | 0        | 168  | 4    | 172  | 3        | 0    | 4    | 7    |
| +30 mins.    | 1        | 240  | 2    | 243  | 23       | 0    | 5    | 28   | 4        | 173  | 1    | 178  | 1        | 0    | 1    | 2    |
| +45 mins.    | 2        | 287  | 2    | 291  | 68       | 0    | 6    | 74   | 13       | 155  | 1    | 169  | 0        | 0    | 0    | 0    |
| Total Volume | 10       | 1044 | 10   | 1064 | 170      | 0    | 25   | 195  | 18       | 686  | 9    | 713  | 6        | 1    | 6    | 13   |
| % App. Total | 0.9      | 98.1 | 0.9  |      | 87.2     | 0    | 12.8 |      | 2.5      | 96.2 | 1.3  |      | 46.2     | 7.7  | 46.2 |      |
| PHF          | .500     | .909 | .625 | .914 | .625     | .000 | .521 | .659 | .346     | .903 | .563 | .919 | .500     | .250 | .375 | .464 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

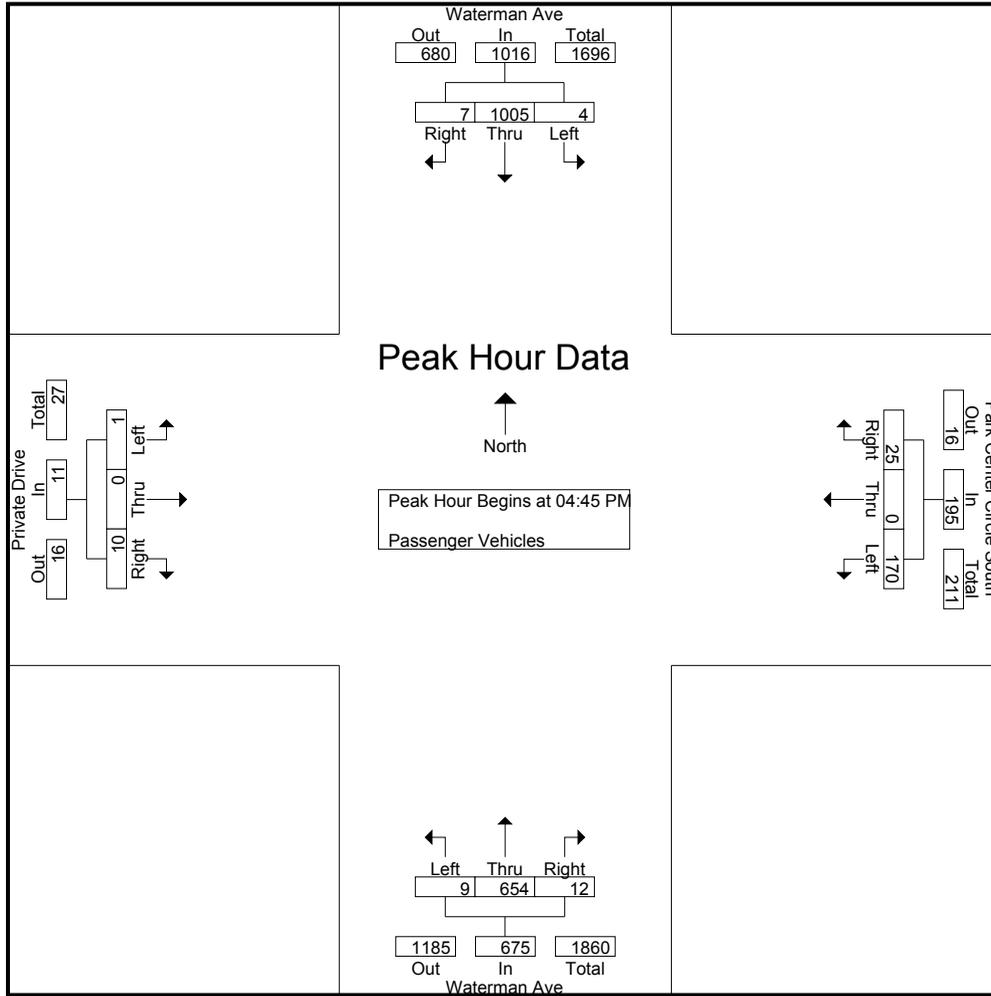
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 1                       | 175  | 3     | 179        | 20                                 | 0    | 5     | 25         | 8                       | 175  | 5     | 188        | 2                       | 0    | 1     | 3          | 395        |
| 04:15 PM    | 2                       | 202  | 4     | 208        | 5                                  | 0    | 4     | 9          | 3                       | 145  | 3     | 151        | 3                       | 0    | 4     | 7          | 375        |
| 04:30 PM    | 5                       | 248  | 4     | 257        | 14                                 | 0    | 4     | 18         | 4                       | 145  | 0     | 149        | 1                       | 0    | 1     | 2          | 426        |
| 04:45 PM    | 1                       | 250  | 2     | 253        | 24                                 | 0    | 2     | 26         | 4                       | 138  | 5     | 147        | 0                       | 0    | 0     | 0          | 426        |
| Total       | 9                       | 875  | 13    | 897        | 63                                 | 0    | 15    | 78         | 19                      | 603  | 13    | 635        | 6                       | 0    | 6     | 12         | 1622       |
| 05:00 PM    | 1                       | 233  | 2     | 236        | 55                                 | 0    | 12    | 67         | 1                       | 185  | 3     | 189        | 0                       | 0    | 3     | 3          | 495        |
| 05:15 PM    | 2                       | 279  | 2     | 283        | 23                                 | 0    | 5     | 28         | 0                       | 164  | 3     | 167        | 1                       | 0    | 4     | 5          | 483        |
| 05:30 PM    | 0                       | 243  | 1     | 244        | 68                                 | 0    | 6     | 74         | 4                       | 167  | 1     | 172        | 0                       | 0    | 3     | 3          | 493        |
| 05:45 PM    | 1                       | 230  | 2     | 233        | 18                                 | 0    | 1     | 19         | 13                      | 147  | 0     | 160        | 0                       | 0    | 2     | 2          | 414        |
| Total       | 4                       | 985  | 7     | 996        | 164                                | 0    | 24    | 188        | 18                      | 663  | 7     | 688        | 1                       | 0    | 12    | 13         | 1885       |
| Grand Total | 13                      | 1860 | 20    | 1893       | 227                                | 0    | 39    | 266        | 37                      | 1266 | 20    | 1323       | 7                       | 0    | 18    | 25         | 3507       |
| Apprch %    | 0.7                     | 98.3 | 1.1   |            | 85.3                               | 0    | 14.7  |            | 2.8                     | 95.7 | 1.5   |            | 28                      | 0    | 72    |            |            |
| Total %     | 0.4                     | 53   | 0.6   | 54         | 6.5                                | 0    | 1.1   | 7.6        | 1.1                     | 36.1 | 0.6   | 37.7       | 0.2                     | 0    | 0.5   | 0.7        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|              | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:45 PM     | 1                       | 250  | 2     | 253        | 24                                 | 0    | 2     | 26         | 4                       | 138  | 5     | 147        | 0                       | 0    | 0     | 0          | 426        |
| 05:00 PM     | 1                       | 233  | 2     | 236        | 55                                 | 0    | 12    | 67         | 1                       | 185  | 3     | 189        | 0                       | 0    | 3     | 3          | 495        |
| 05:15 PM     | 2                       | 279  | 2     | 283        | 23                                 | 0    | 5     | 28         | 0                       | 164  | 3     | 167        | 1                       | 0    | 4     | 5          | 483        |
| 05:30 PM     | 0                       | 243  | 1     | 244        | 68                                 | 0    | 6     | 74         | 4                       | 167  | 1     | 172        | 0                       | 0    | 3     | 3          | 493        |
| Total Volume | 4                       | 1005 | 7     | 1016       | 170                                | 0    | 25    | 195        | 9                       | 654  | 12    | 675        | 1                       | 0    | 10    | 11         | 1897       |
| % App. Total | 0.4                     | 98.9 | 0.7   |            | 87.2                               | 0    | 12.8  |            | 1.3                     | 96.9 | 1.8   |            | 9.1                     | 0    | 90.9  |            |            |
| PHF          | .500                    | .901 | .875  | .898       | .625                               | .000 | .521  | .659       | .563                    | .884 | .600  | .893       | .250                    | .000 | .625  | .550       | .958       |

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 250  | 2    | 253  | 24       | 0    | 2    | 26   | 4        | 138  | 5    | 147  | 0        | 0    | 0    | 0    |
| +15 mins.    | 1        | 233  | 2    | 236  | 55       | 0    | 12   | 67   | 1        | 185  | 3    | 189  | 0        | 0    | 0    | 3    |
| +30 mins.    | 2        | 279  | 2    | 283  | 23       | 0    | 5    | 28   | 0        | 164  | 3    | 167  | 1        | 0    | 4    | 5    |
| +45 mins.    | 0        | 243  | 1    | 244  | 68       | 0    | 6    | 74   | 4        | 167  | 1    | 172  | 0        | 0    | 3    | 3    |
| Total Volume | 4        | 1005 | 7    | 1016 | 170      | 0    | 25   | 195  | 9        | 654  | 12   | 675  | 1        | 0    | 10   | 11   |
| % App. Total | 0.4      | 98.9 | 0.7  |      | 87.2     | 0    | 12.8 |      | 1.3      | 96.9 | 1.8  |      | 9.1      | 0    | 90.9 |      |
| PHF          | .500     | .901 | .875 | .898 | .625     | .000 | .521 | .659 | .563     | .884 | .600 | .893 | .250     | .000 | .625 | .550 |

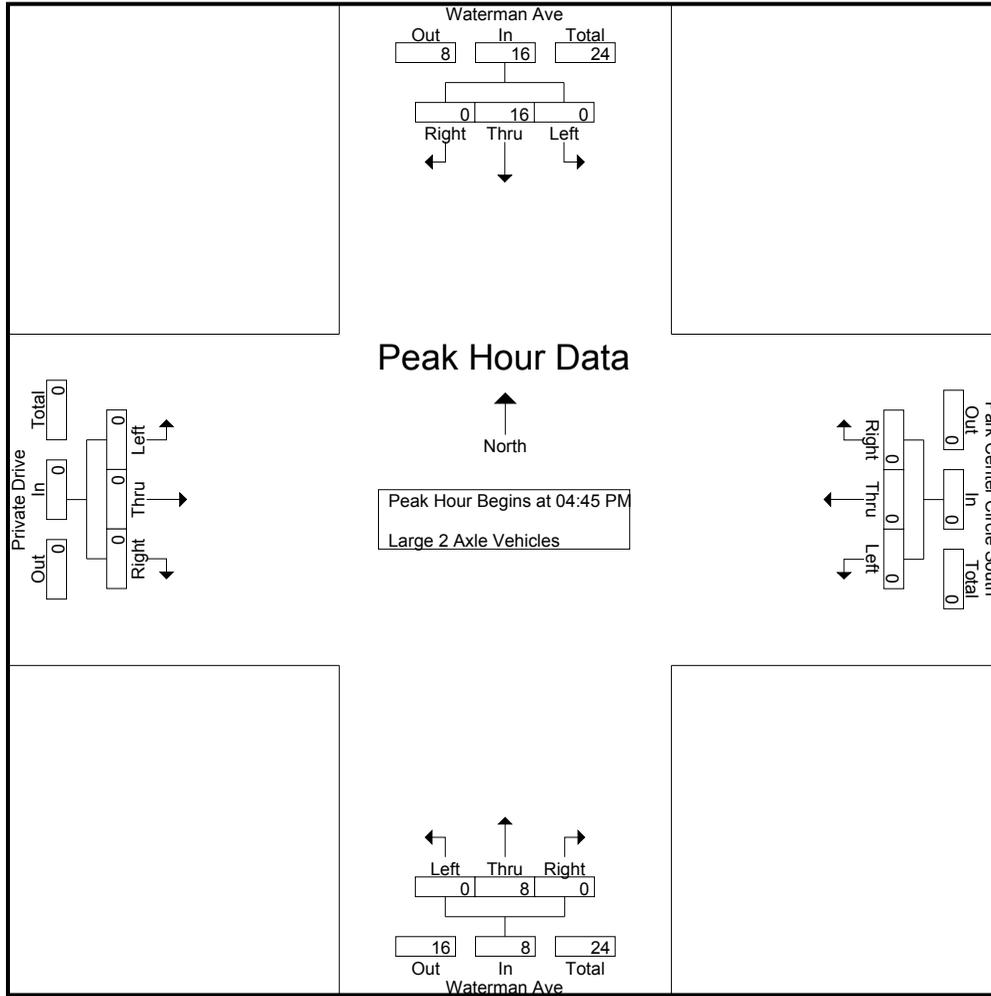
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 0     | 3          | 0                       | 1    | 0     | 1          | 6          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 5          |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 04:45 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 6          |
| Total       | 0                       | 10   | 0     | 10         | 1                                  | 0    | 0     | 1          | 0                       | 13   | 0     | 13         | 0                       | 1    | 0     | 1          | 25         |
| 05:00 PM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM    | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 13   | 0     | 13         | 1                                  | 0    | 0     | 1          | 0                       | 10   | 1     | 11         | 0                       | 0    | 0     | 0          | 25         |
| Grand Total | 0                       | 23   | 0     | 23         | 2                                  | 0    | 0     | 2          | 0                       | 23   | 1     | 24         | 0                       | 1    | 0     | 1          | 50         |
| Apprch %    | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 95.8 | 4.2   |            | 0                       | 100  | 0     |            |            |
| Total %     | 0                       | 46   | 0     | 46         | 4                                  | 0    | 0     | 4          | 0                       | 46   | 2     | 48         | 0                       | 2    | 0     | 2          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 6          |
| 05:00 PM   | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| Total Volume   | 0                       | 16   | 0     | 16         | 0                                  | 0    | 0     | 0          | 0                       | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .800 | .000  | .800       | .000                               | .000 | .000  | .000       | .000                    | .667 | .000  | .667       | .000                    | .000 | .000  | .000       | .857       |



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 16   | 0    | 16   | 0        | 0    | 0    | 0    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .800 | .000 | .800 | .000     | .000 | .000 | .000 | .000     | .667 | .000 | .667 | .000     | .000 | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

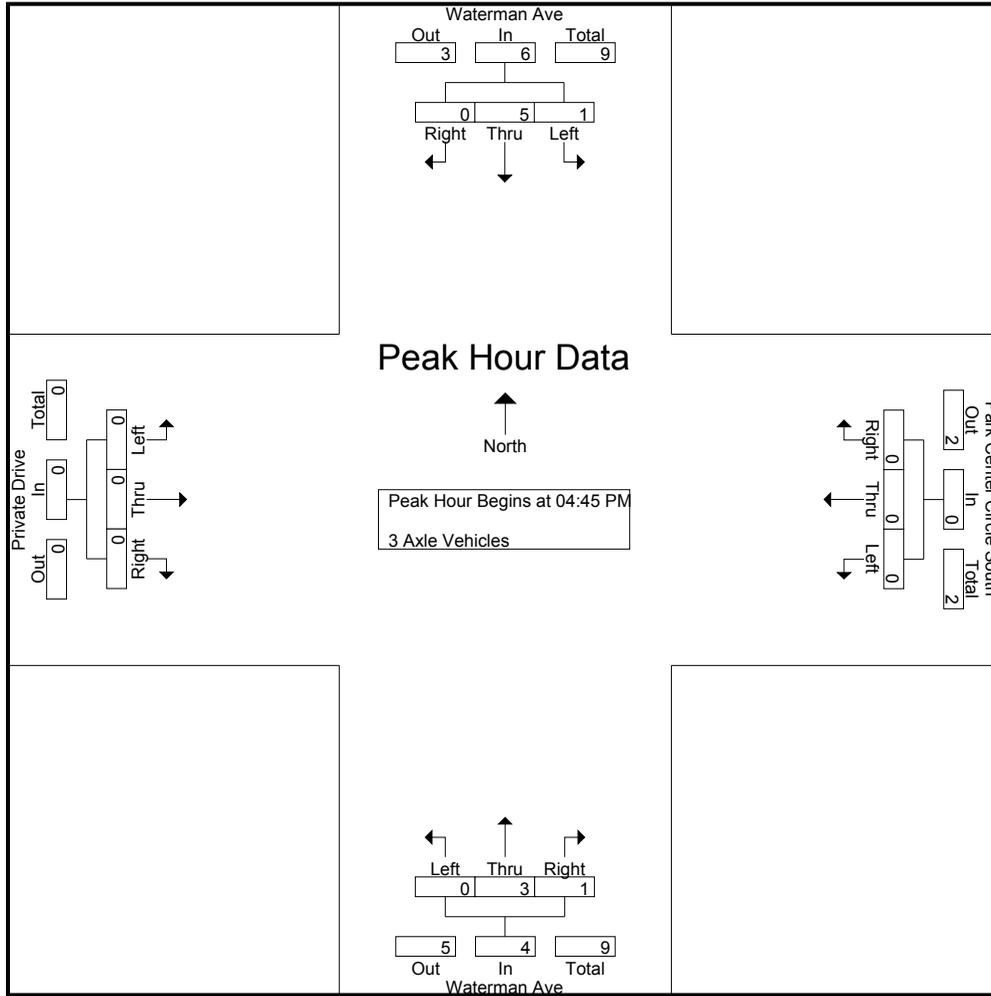
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 04:45 PM    | 1                       | 1    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 3          |
| Total       | 1                       | 3    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| Total       | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| Grand Total | 1                       | 8    | 0     | 9          | 0                                  | 0    | 0     | 0          | 0                       | 6    | 1     | 7          | 0                       | 0    | 0     | 0          | 16         |
| Apprch %    | 11.1                    | 88.9 | 0     |            | 0                                  | 0    | 0     |            | 0                       | 85.7 | 14.3  |            | 0                       | 0    | 0     |            |            |
| Total %     | 6.2                     | 50   | 0     | 56.2       | 0                                  | 0    | 0     | 0          | 0                       | 37.5 | 6.2   | 43.8       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 1                       | 1    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| Total Volume   | 1                       | 5    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 10         |
| % App. Total   | 16.7                    | 83.3 | 0     |            | 0                                  | 0    | 0     |            | 0                       | 75   | 25    |            | 0                       | 0    | 0     |            |            |
| PHF  | .250                    | .625 | .000  | .750       | .000                               | .000 | .000  | .000       | .000                    | .375 | .250  | .500       | .000                    | .000 | .000  | .000       | .625       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 1    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 5    | 0    | 6    | 0        | 0    | 0    | 0    | 0        | 3    | 1    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 16.7     | 83.3 | 0    |      | 0        | 0    | 0    |      | 0        | 75   | 25   |      | 0        | 0    | 0    |      |
| PHF          | .250     | .625 | .000 | .750 | .000     | .000 | .000 | .000 | .000     | .375 | .250 | .500 | .000     | .000 | .000 | .000 |

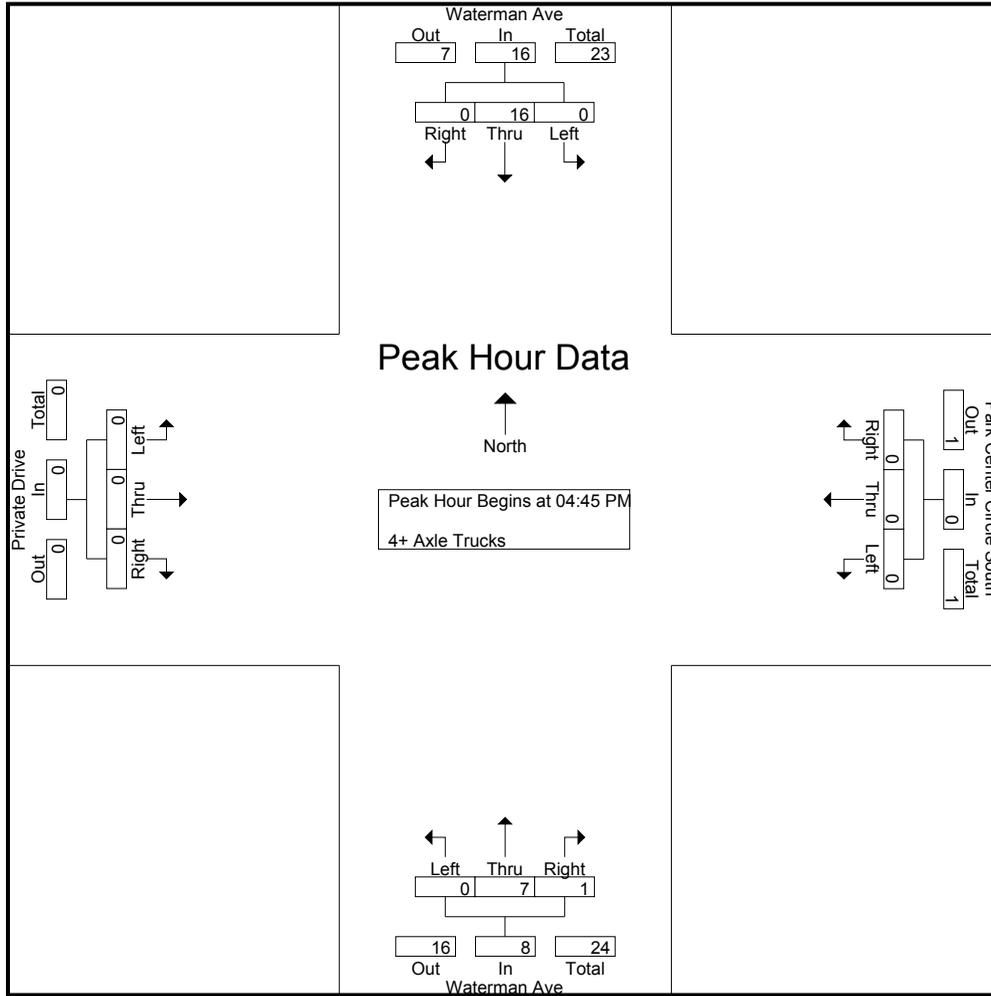
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| 04:15 PM    | 0                       | 6    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 9          |
| 04:30 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 04:45 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 21   | 0     | 21         | 0                                  | 0    | 0     | 0          | 0                       | 12   | 0     | 12         | 0                       | 0    | 0     | 0          | 33         |
| 05:00 PM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM    | 0                       | 7    | 0     | 7          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM    | 0                       | 6    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 0                       | 17   | 0     | 17         | 0                                  | 0    | 0     | 0          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 27         |
| Grand Total | 0                       | 38   | 0     | 38         | 0                                  | 0    | 0     | 0          | 0                       | 21   | 1     | 22         | 0                       | 0    | 0     | 0          | 60         |
| Apprch %    | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 95.5 | 4.5   |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 63.3 | 0     | 63.3       | 0                                  | 0    | 0     | 0          | 0                       | 35   | 1.7   | 36.7       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:00 PM   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM   | 0                       | 7    | 0     | 7          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| Total Volume   | 0                       | 16   | 0     | 16         | 0                                  | 0    | 0     | 0          | 0                       | 7    | 1     | 8          | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 87.5 | 12.5  |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .571 | .000  | .571       | .000                               | .000 | .000  | .000       | .000                    | .583 | .250  | .667       | .000                    | .000 | .000  | .000       | .667       |



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 16   | 0    | 16   | 0        | 0    | 0    | 0    | 0        | 7    | 1    | 8    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    |      | 0        | 0    | 0    | 0    | 0        | 87.5 | 12.5 |      | 0        | 0    | 0    |      |
| PHF          | .000     | .571 | .000 | .571 | .000     | .000 | .000 | .000 | .000     | .583 | .250 | .667 | .000     | .000 | .000 | .000 |

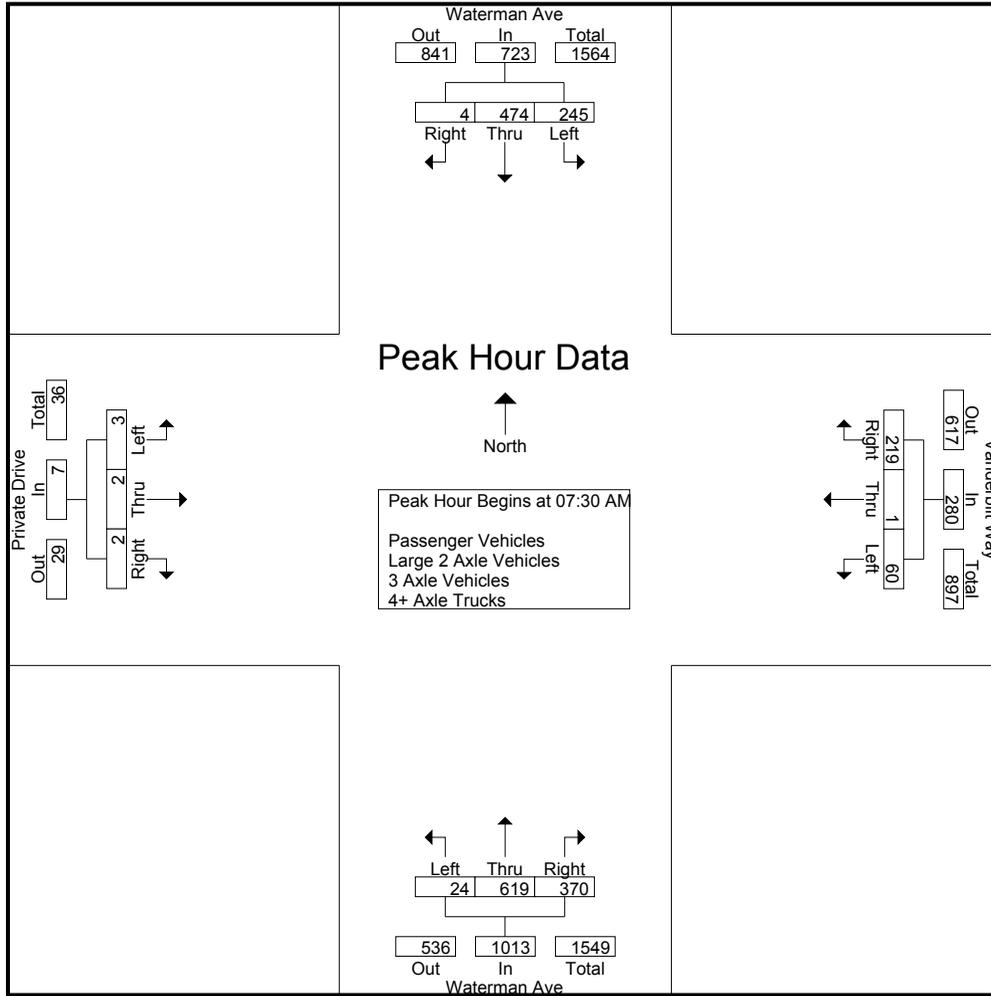
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM                | 22                      | 73   | 1     | 96         | 4                        | 0    | 35    | 39         | 1                       | 143  | 61    | 205        | 0                       | 0    | 2     | 2          | 342        |
| 07:15 AM                | 38                      | 120  | 0     | 158        | 6                        | 0    | 50    | 56         | 2                       | 143  | 83    | 228        | 1                       | 0    | 2     | 3          | 445        |
| 07:30 AM                | 55                      | 92   | 0     | 147        | 13                       | 0    | 58    | 71         | 3                       | 160  | 97    | 260        | 1                       | 0    | 1     | 2          | 480        |
| 07:45 AM                | 86                      | 136  | 0     | 222        | 18                       | 0    | 61    | 79         | 9                       | 158  | 103   | 270        | 1                       | 1    | 0     | 2          | 573        |
| Total                   | 201                     | 421  | 1     | 623        | 41                       | 0    | 204   | 245        | 15                      | 604  | 344   | 963        | 3                       | 1    | 5     | 9          | 1840       |
| 08:00 AM                | 69                      | 114  | 2     | 185        | 16                       | 0    | 61    | 77         | 4                       | 151  | 100   | 255        | 1                       | 0    | 0     | 1          | 518        |
| 08:15 AM                | 35                      | 132  | 2     | 169        | 13                       | 1    | 39    | 53         | 8                       | 150  | 70    | 228        | 0                       | 1    | 1     | 2          | 452        |
| 08:30 AM                | 24                      | 141  | 1     | 166        | 9                        | 3    | 31    | 43         | 8                       | 139  | 54    | 201        | 2                       | 0    | 0     | 2          | 412        |
| 08:45 AM                | 41                      | 114  | 1     | 156        | 17                       | 1    | 34    | 52         | 11                      | 115  | 62    | 188        | 1                       | 0    | 0     | 1          | 397        |
| Total                   | 169                     | 501  | 6     | 676        | 55                       | 5    | 165   | 225        | 31                      | 555  | 286   | 872        | 4                       | 1    | 1     | 6          | 1779       |
| Grand Total             | 370                     | 922  | 7     | 1299       | 96                       | 5    | 369   | 470        | 46                      | 1159 | 630   | 1835       | 7                       | 2    | 6     | 15         | 3619       |
| Apprch %                | 28.5                    | 71   | 0.5   |            | 20.4                     | 1.1  | 78.5  |            | 2.5                     | 63.2 | 34.3  |            | 46.7                    | 13.3 | 40    |            |            |
| Total %                 | 10.2                    | 25.5 | 0.2   | 35.9       | 2.7                      | 0.1  | 10.2  | 13         | 1.3                     | 32   | 17.4  | 50.7       | 0.2                     | 0.1  | 0.2   | 0.4        |            |
| Passenger Vehicles      | 366                     | 852  | 7     | 1225       | 95                       | 5    | 365   | 465        | 46                      | 1094 | 625   | 1765       | 7                       | 2    | 6     | 15         | 3470       |
| % Passenger Vehicles    | 98.9                    | 92.4 | 100   | 94.3       | 99                       | 100  | 98.9  | 98.9       | 100                     | 94.4 | 99.2  | 96.2       | 100                     | 100  | 100   | 100        | 95.9       |
| Large 2 Axle Vehicles   | 4                       | 36   | 0     | 40         | 0                        | 0    | 1     | 1          | 0                       | 22   | 2     | 24         | 0                       | 0    | 0     | 0          | 65         |
| % Large 2 Axle Vehicles | 1.1                     | 3.9  | 0     | 3.1        | 0                        | 0    | 0.3   | 0.2        | 0                       | 1.9  | 0.3   | 1.3        | 0                       | 0    | 0     | 0          | 1.8        |
| 3 Axle Vehicles         | 0                       | 7    | 0     | 7          | 1                        | 0    | 1     | 2          | 0                       | 6    | 2     | 8          | 0                       | 0    | 0     | 0          | 17         |
| % 3 Axle Vehicles       | 0                       | 0.8  | 0     | 0.5        | 1                        | 0    | 0.3   | 0.4        | 0                       | 0.5  | 0.3   | 0.4        | 0                       | 0    | 0     | 0          | 0.5        |
| 4+ Axle Trucks          | 0                       | 27   | 0     | 27         | 0                        | 0    | 2     | 2          | 0                       | 37   | 1     | 38         | 0                       | 0    | 0     | 0          | 67         |
| % 4+ Axle Trucks        | 0                       | 2.9  | 0     | 2.1        | 0                        | 0    | 0.5   | 0.4        | 0                       | 3.2  | 0.2   | 2.1        | 0                       | 0    | 0     | 0          | 1.9        |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 55                      | 92   | 0     | 147        | 13                       | 0    | 58    | 71         | 3                       | 160  | 97    | 260        | 1                       | 0    | 1     | 2          | 480        |
| 07:45 AM   | 86                      | 136  | 0     | 222        | 18                       | 0    | 61    | 79         | 9                       | 158  | 103   | 270        | 1                       | 1    | 0     | 2          | 573        |
| 08:00 AM   | 69                      | 114  | 2     | 185        | 16                       | 0    | 61    | 77         | 4                       | 151  | 100   | 255        | 1                       | 0    | 0     | 1          | 518        |
| 08:15 AM   | 35                      | 132  | 2     | 169        | 13                       | 1    | 39    | 53         | 8                       | 150  | 70    | 228        | 0                       | 1    | 1     | 2          | 452        |
| Total Volume   | 245                     | 474  | 4     | 723        | 60                       | 1    | 219   | 280        | 24                      | 619  | 370   | 1013       | 3                       | 2    | 2     | 7          | 2023       |
| % App. Total   | 33.9                    | 65.6 | 0.6   |            | 21.4                     | 0.4  | 78.2  |            | 2.4                     | 61.1 | 36.5  |            | 42.9                    | 28.6 | 28.6  |            |            |
| PHF  | .712                    | .871 | .500  | .814       | .833                     | .250 | .898  | .886       | .667                    | .967 | .898  | .938       | .750                    | .500 | .500  | .875       | .883       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM  |            |          |            | 07:15 AM  |      |           |           | 07:15 AM |            |            |            | 07:00 AM |          |          |          |
|--------------|-----------|------------|----------|------------|-----------|------|-----------|-----------|----------|------------|------------|------------|----------|----------|----------|----------|
| +0 mins.     | <b>86</b> | 136        | 0        | <b>222</b> | 6         | 0    | 50        | 56        | 2        | 143        | 83         | 228        | 0        | 0        | <b>2</b> | 2        |
| +15 mins.    | 69        | 114        | <b>2</b> | 185        | 13        | 0    | 58        | 71        | 3        | <b>160</b> | 97         | 260        | <b>1</b> | 0        | 2        | <b>3</b> |
| +30 mins.    | 35        | 132        | 2        | 169        | <b>18</b> | 0    | <b>61</b> | <b>79</b> | <b>9</b> | 158        | <b>103</b> | <b>270</b> | 1        | 0        | 1        | 2        |
| +45 mins.    | 24        | <b>141</b> | 1        | 166        | 16        | 0    | 61        | 77        | 4        | 151        | 100        | 255        | 1        | <b>1</b> | 0        | 2        |
| Total Volume | 214       | 523        | 5        | 742        | 53        | 0    | 230       | 283       | 18       | 612        | 383        | 1013       | 3        | 1        | 5        | 9        |
| % App. Total | 28.8      | 70.5       | 0.7      |            | 18.7      | 0    | 81.3      |           | 1.8      | 60.4       | 37.8       |            | 33.3     | 11.1     | 55.6     |          |
| PHF          | .622      | .927       | .625     | .836       | .736      | .000 | .943      | .896      | .500     | .956       | .930       | .938       | .750     | .250     | .625     | .750     |

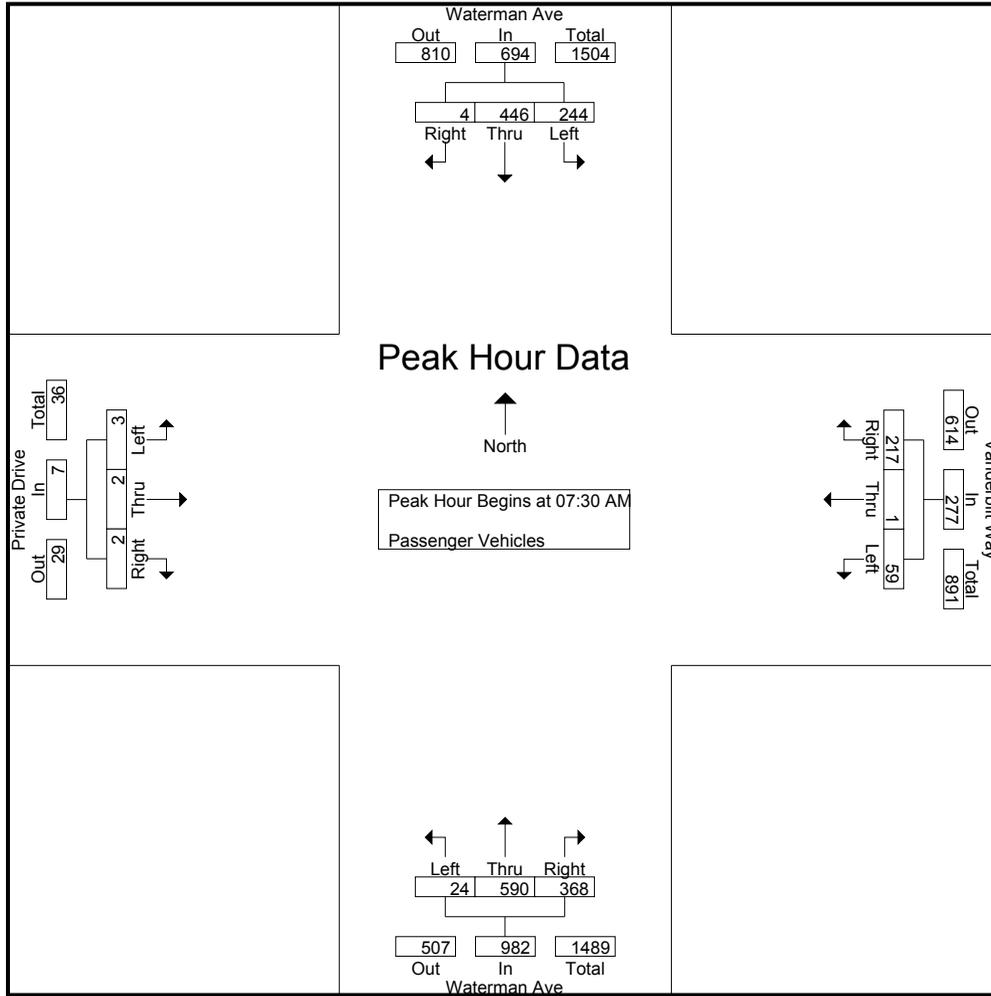
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 22                      | 64   | 1     | 87         | 4                        | 0    | 34    | 38         | 1                       | 135  | 60    | 196        | 0                       | 0    | 2     | 2          | 323        |
| 07:15 AM    | 38                      | 102  | 0     | 140        | 6                        | 0    | 50    | 56         | 2                       | 136  | 83    | 221        | 1                       | 0    | 2     | 3          | 420        |
| 07:30 AM    | 55                      | 88   | 0     | 143        | 12                       | 0    | 58    | 70         | 3                       | 155  | 97    | 255        | 1                       | 0    | 1     | 2          | 470        |
| 07:45 AM    | 86                      | 129  | 0     | 215        | 18                       | 0    | 60    | 78         | 9                       | 152  | 102   | 263        | 1                       | 1    | 0     | 2          | 558        |
| Total       | 201                     | 383  | 1     | 585        | 40                       | 0    | 202   | 242        | 15                      | 578  | 342   | 935        | 3                       | 1    | 5     | 9          | 1771       |
| 08:00 AM    | 68                      | 107  | 2     | 177        | 16                       | 0    | 60    | 76         | 4                       | 145  | 100   | 249        | 1                       | 0    | 0     | 1          | 503        |
| 08:15 AM    | 35                      | 122  | 2     | 159        | 13                       | 1    | 39    | 53         | 8                       | 138  | 69    | 215        | 0                       | 1    | 1     | 2          | 429        |
| 08:30 AM    | 23                      | 134  | 1     | 158        | 9                        | 3    | 30    | 42         | 8                       | 129  | 52    | 189        | 2                       | 0    | 0     | 2          | 391        |
| 08:45 AM    | 39                      | 106  | 1     | 146        | 17                       | 1    | 34    | 52         | 11                      | 104  | 62    | 177        | 1                       | 0    | 0     | 1          | 376        |
| Total       | 165                     | 469  | 6     | 640        | 55                       | 5    | 163   | 223        | 31                      | 516  | 283   | 830        | 4                       | 1    | 1     | 6          | 1699       |
| Grand Total | 366                     | 852  | 7     | 1225       | 95                       | 5    | 365   | 465        | 46                      | 1094 | 625   | 1765       | 7                       | 2    | 6     | 15         | 3470       |
| Apprch %    | 29.9                    | 69.6 | 0.6   |            | 20.4                     | 1.1  | 78.5  |            | 2.6                     | 62   | 35.4  |            | 46.7                    | 13.3 | 40    |            |            |
| Total %     | 10.5                    | 24.6 | 0.2   | 35.3       | 2.7                      | 0.1  | 10.5  | 13.4       | 1.3                     | 31.5 | 18    | 50.9       | 0.2                     | 0.1  | 0.2   | 0.4        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 55                      | 88   | 0     | 143        | 12                       | 0    | 58    | 70         | 3                       | 155  | 97    | 255        | 1                       | 0    | 1     | 2          | 470        |
| 07:45 AM   | 86                      | 129  | 0     | 215        | 18                       | 0    | 60    | 78         | 9                       | 152  | 102   | 263        | 1                       | 1    | 0     | 2          | 558        |
| 08:00 AM   | 68                      | 107  | 2     | 177        | 16                       | 0    | 60    | 76         | 4                       | 145  | 100   | 249        | 1                       | 0    | 0     | 1          | 503        |
| 08:15 AM   | 35                      | 122  | 2     | 159        | 13                       | 1    | 39    | 53         | 8                       | 138  | 69    | 215        | 0                       | 1    | 1     | 2          | 429        |
| Total Volume   | 244                     | 446  | 4     | 694        | 59                       | 1    | 217   | 277        | 24                      | 590  | 368   | 982        | 3                       | 2    | 2     | 7          | 1960       |
| % App. Total   | 35.2                    | 64.3 | 0.6   |            | 21.3                     | 0.4  | 78.3  |            | 2.4                     | 60.1 | 37.5  |            | 42.9                    | 28.6 | 28.6  |            |            |
| PHF  | .709                    | .864 | .500  | .807       | .819                     | .250 | .904  | .888       | .667                    | .952 | .902  | .933       | .750                    | .500 | .500  | .875       | .878       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 55       | 88   | 0    | 143  | 12       | 0    | 58   | 70   | 3        | 155  | 97   | 255  | 1        | 0    | 1    | 2    |
| +15 mins.    | 86       | 129  | 0    | 215  | 18       | 0    | 60   | 78   | 9        | 152  | 102  | 263  | 1        | 1    | 0    | 2    |
| +30 mins.    | 68       | 107  | 2    | 177  | 16       | 0    | 60   | 76   | 4        | 145  | 100  | 249  | 1        | 0    | 0    | 1    |
| +45 mins.    | 35       | 122  | 2    | 159  | 13       | 1    | 39   | 53   | 8        | 138  | 69   | 215  | 0        | 1    | 1    | 2    |
| Total Volume | 244      | 446  | 4    | 694  | 59       | 1    | 217  | 277  | 24       | 590  | 368  | 982  | 3        | 2    | 2    | 7    |
| % App. Total | 35.2     | 64.3 | 0.6  |      | 21.3     | 0.4  | 78.3 |      | 2.4      | 60.1 | 37.5 |      | 42.9     | 28.6 | 28.6 |      |
| PHF          | .709     | .864 | .500 | .807 | .819     | .250 | .904 | .888 | .667     | .952 | .902 | .933 | .750     | .500 | .500 | .875 |

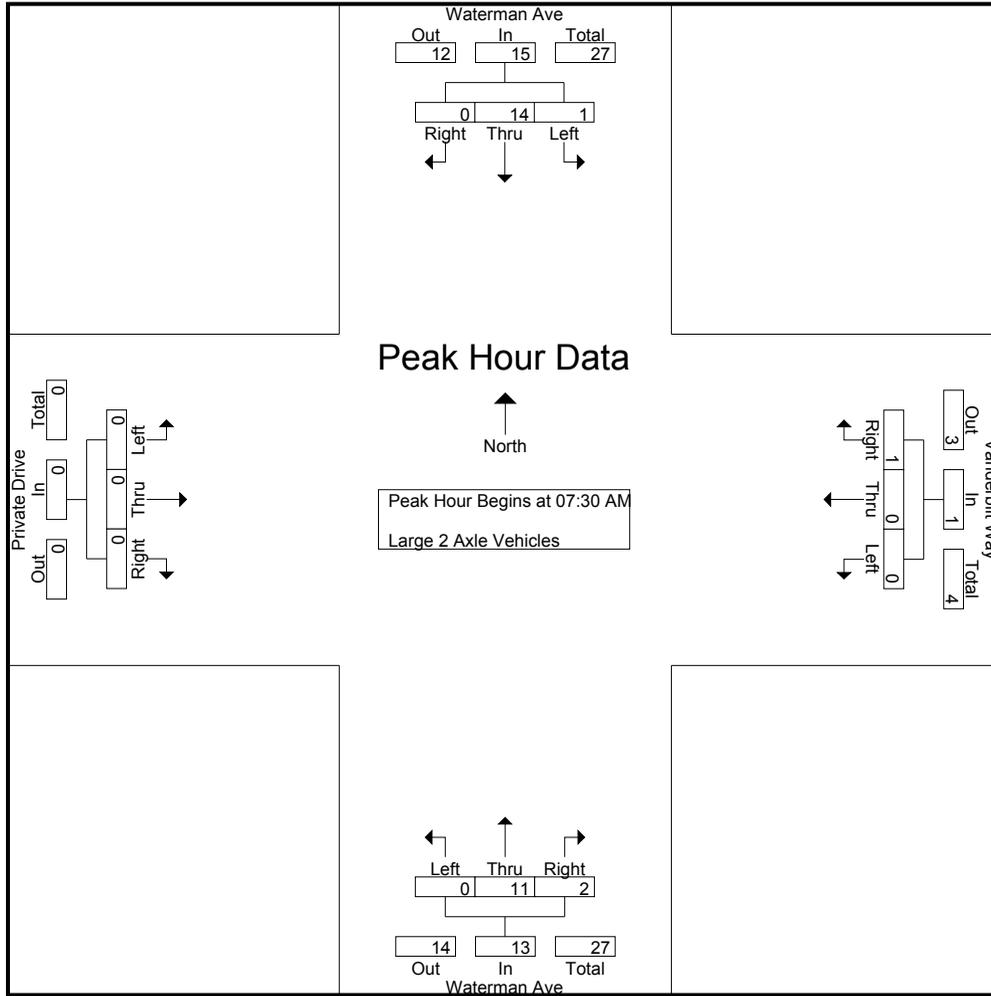
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 07:15 AM    | 0                       | 11   | 0     | 11         | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 14         |
| 07:30 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 23   | 0     | 23         | 0                        | 0    | 0     | 0          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 33         |
| 08:00 AM    | 1                       | 1    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 08:15 AM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 13         |
| 08:30 AM    | 1                       | 2    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 08:45 AM    | 2                       | 3    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| Total       | 4                       | 13   | 0     | 17         | 0                        | 0    | 1     | 1          | 0                       | 13   | 1     | 14         | 0                       | 0    | 0     | 0          | 32         |
| Grand Total | 4                       | 36   | 0     | 40         | 0                        | 0    | 1     | 1          | 0                       | 22   | 2     | 24         | 0                       | 0    | 0     | 0          | 65         |
| Apprch %    | 10                      | 90   | 0     |            | 0                        | 0    | 100   |            | 0                       | 91.7 | 8.3   |            | 0                       | 0    | 0     |            |            |
| Total %     | 6.2                     | 55.4 | 0     | 61.5       | 0                        | 0    | 1.5   | 1.5        | 0                       | 33.8 | 3.1   | 36.9       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 07:45 AM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 1                       | 1    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 08:15 AM   | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 13         |
| Total Volume   | 1                       | 14   | 0     | 15         | 0                        | 0    | 1     | 1          | 0                       | 11   | 2     | 13         | 0                       | 0    | 0     | 0          | 29         |
| % App. Total   | 6.7                     | 93.3 | 0     |            | 0                        | 0    | 100   |            | 0                       | 84.6 | 15.4  |            | 0                       | 0    | 0     |            |            |
| PHF  | .250                    | .500 | .000  | .536       | .000                     | .000 | .250  | .250       | .000                    | .550 | .500  | .542       | .000                    | .000 | .000  | .000       | .558       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 1        | 1    | 0    | 2    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 5    | 1    | 6    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 14   | 0    | 15   | 0        | 0    | 1    | 1    | 0        | 11   | 2    | 13   | 0        | 0    | 0    | 0    |
| % App. Total | 6.7      | 93.3 | 0    |      | 0        | 0    | 100  |      | 0        | 84.6 | 15.4 |      | 0        | 0    | 0    |      |
| PHF          | .250     | .500 | .000 | .536 | .000     | .000 | .250 | .250 | .000     | .550 | .500 | .542 | .000     | .000 | .000 | .000 |

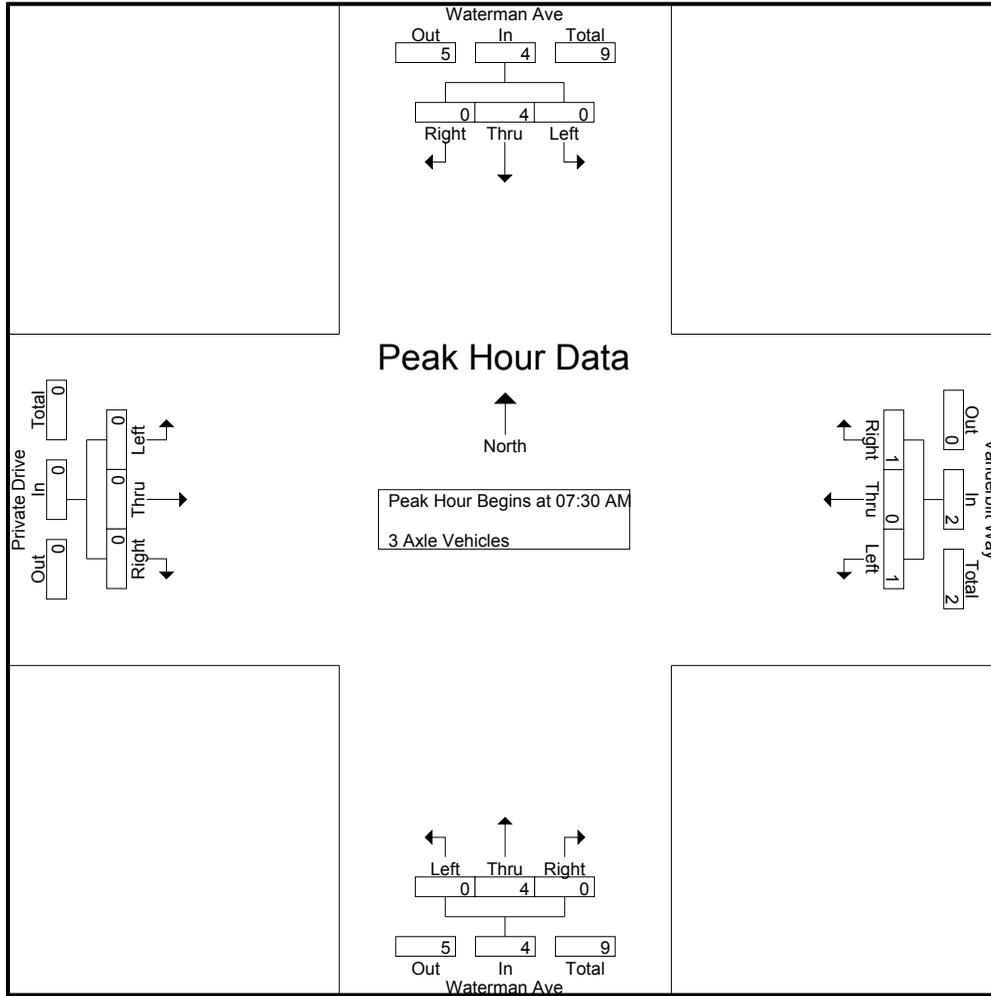
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 3          |
| 07:15 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:30 AM    | 0                       | 2    | 0     | 2          | 1                        | 0    | 0     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 07:45 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| Total       | 0                       | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 9          |
| 08:00 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 08:15 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| 08:30 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 3          |
| 08:45 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Grand Total | 0                       | 7    | 0     | 7          | 1                        | 0    | 1     | 2          | 0                       | 6    | 2     | 8          | 0                       | 0    | 0     | 0          | 17         |
| Apprch %    | 0                       | 100  | 0     |            | 50                       | 0    | 50    |            | 0                       | 75   | 25    |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 41.2 | 0     | 41.2       | 5.9                      | 0    | 5.9   | 11.8       | 0                       | 35.3 | 11.8  | 47.1       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 2    | 0     | 2          | 1                        | 0    | 0     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 07:45 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 08:00 AM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 08:15 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| Total Volume   | 0                       | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| % App. Total   | 0                       | 100  | 0     |            | 50                       | 0    | 50    |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .500 | .000  | .500       | .250                     | .000 | .250  | .500       | .000                    | .500 | .000  | .500       | .000                    | .000 | .000  | .000       | .625       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 1        | 0    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 4    | 0    | 4    | 1        | 0    | 1    | 2    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    |      | 50       | 0    | 50   |      | 0        | 100  | 0    |      | 0        | 0    | 0    |      |
| PHF          | .000     | .500 | .000 | .500 | .250     | .000 | .250 | .500 | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 |

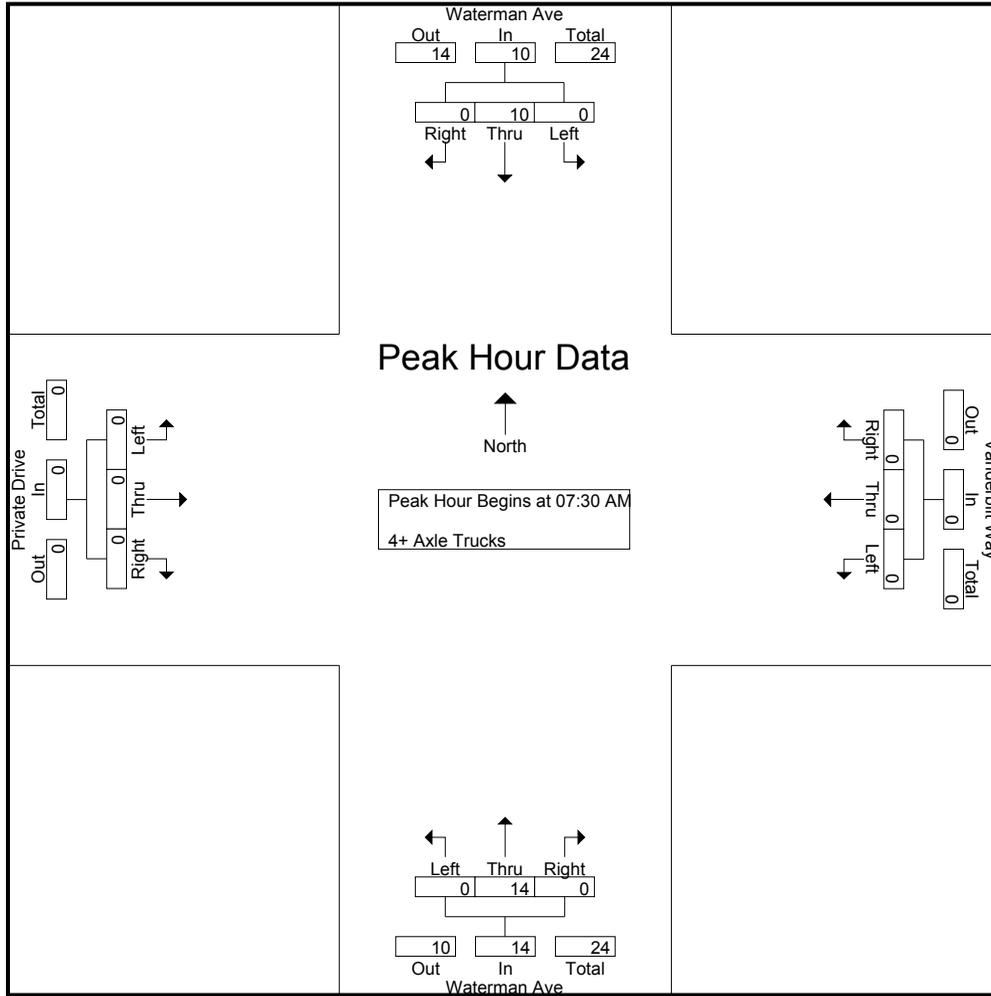
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 9          |
| 07:15 AM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 11   | 0     | 11         | 0                        | 0    | 1     | 1          | 0                       | 15   | 0     | 15         | 0                       | 0    | 0     | 0          | 27         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 08:15 AM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 08:30 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 1     | 1          | 0                       | 6    | 1     | 7          | 0                       | 0    | 0     | 0          | 12         |
| 08:45 AM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 7    | 0     | 7          | 0                       | 0    | 0     | 0          | 12         |
| Total       | 0                       | 16   | 0     | 16         | 0                        | 0    | 1     | 1          | 0                       | 22   | 1     | 23         | 0                       | 0    | 0     | 0          | 40         |
| Grand Total | 0                       | 27   | 0     | 27         | 0                        | 0    | 2     | 2          | 0                       | 37   | 1     | 38         | 0                       | 0    | 0     | 0          | 67         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 100   |            | 0                       | 97.4 | 2.6   |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 40.3 | 0     | 40.3       | 0                        | 0    | 3     | 3          | 0                       | 55.2 | 1.5   | 56.7       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 08:15 AM   | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Total Volume   | 0                       | 10   | 0     | 10         | 0                        | 0    | 0     | 0          | 0                       | 14   | 0     | 14         | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .625 | .000  | .625       | .000                     | .000 | .000  | .000       | .000                    | .700 | .000  | .700       | .000                    | .000 | .000  | .000       | .750       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 10   | 0    | 10   | 0        | 0    | 0    | 0    | 0        | 14   | 0    | 14   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .625 | .000 | .625 | .000     | .000 | .000 | .000 | .000     | .700 | .000 | .700 | .000     | .000 | .000 | .000 |

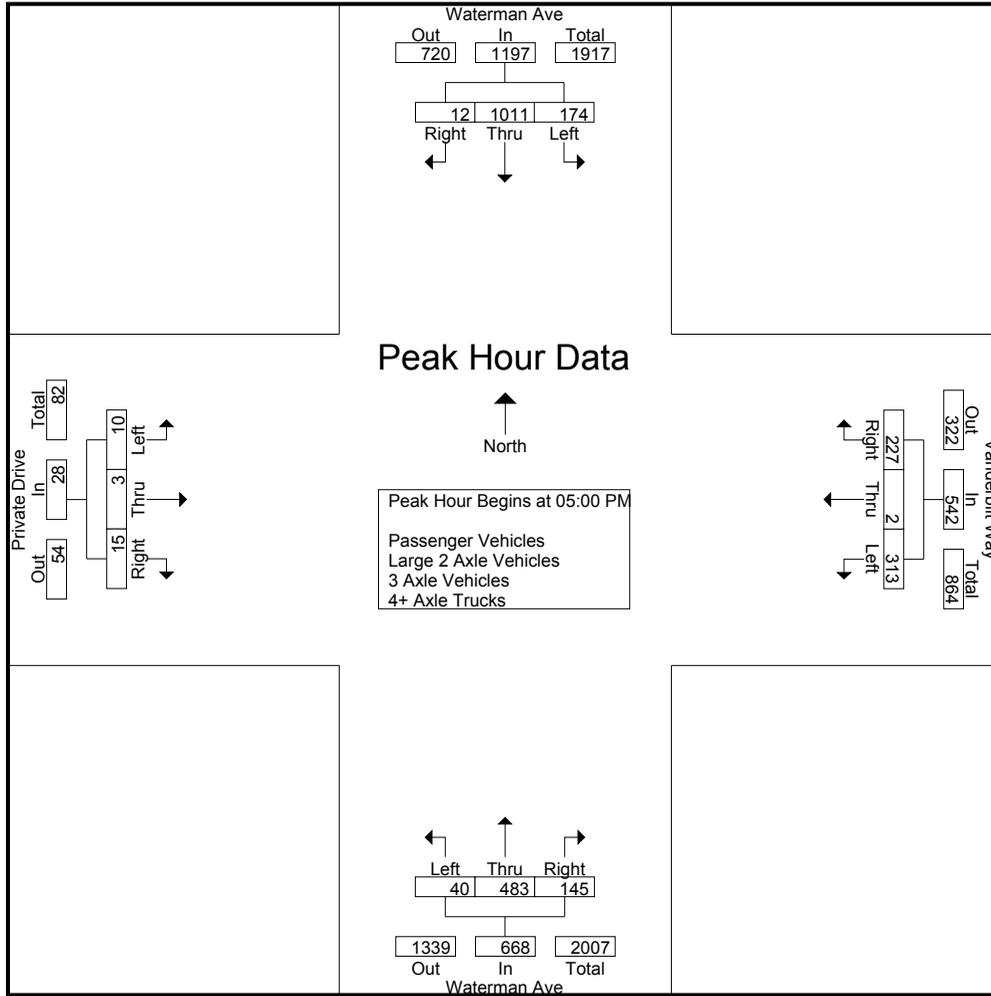
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |             |           |             | Vanderbilt Way Westbound |          |            |            | Waterman Ave Northbound |            |            |             | Private Drive Eastbound |          |           |            | Int. Total  |
|-------------------------|-------------------------|-------------|-----------|-------------|--------------------------|----------|------------|------------|-------------------------|------------|------------|-------------|-------------------------|----------|-----------|------------|-------------|
|                         | Left                    | Thru        | Right     | App. Total  | Left                     | Thru     | Right      | App. Total | Left                    | Thru       | Right      | App. Total  | Left                    | Thru     | Right     | App. Total |             |
| 04:00 PM                | 28                      | 179         | 2         | 209         | 44                       | 1        | 50         | 95         | 14                      | 152        | 21         | 187         | 5                       | 1        | 3         | 9          | 500         |
| 04:15 PM                | 24                      | 195         | 2         | 221         | 36                       | 1        | 35         | 72         | 8                       | 123        | 25         | 156         | 1                       | 1        | 6         | 8          | 457         |
| 04:30 PM                | 41                      | 230         | 0         | 271         | 70                       | 2        | 51         | 123        | 12                      | 111        | 23         | 146         | 0                       | 0        | 2         | 2          | 542         |
| 04:45 PM                | 55                      | 217         | 5         | 277         | 50                       | 0        | 42         | 92         | 12                      | 94         | 19         | 125         | 4                       | 0        | 0         | 4          | 498         |
| <b>Total</b>            | <b>148</b>              | <b>821</b>  | <b>9</b>  | <b>978</b>  | <b>200</b>               | <b>4</b> | <b>178</b> | <b>382</b> | <b>46</b>               | <b>480</b> | <b>88</b>  | <b>614</b>  | <b>10</b>               | <b>2</b> | <b>11</b> | <b>23</b>  | <b>1997</b> |
| 05:00 PM                | 42                      | 260         | 3         | 305         | 114                      | 1        | 67         | 182        | 7                       | 119        | 33         | 159         | 4                       | 1        | 6         | 11         | 657         |
| 05:15 PM                | 45                      | 251         | 2         | 298         | 63                       | 0        | 57         | 120        | 11                      | 119        | 25         | 155         | 3                       | 1        | 5         | 9          | 582         |
| 05:30 PM                | 52                      | 273         | 2         | 327         | 76                       | 0        | 52         | 128        | 7                       | 127        | 40         | 174         | 2                       | 0        | 0         | 2          | 631         |
| 05:45 PM                | 35                      | 227         | 5         | 267         | 60                       | 1        | 51         | 112        | 15                      | 118        | 47         | 180         | 1                       | 1        | 4         | 6          | 565         |
| <b>Total</b>            | <b>174</b>              | <b>1011</b> | <b>12</b> | <b>1197</b> | <b>313</b>               | <b>2</b> | <b>227</b> | <b>542</b> | <b>40</b>               | <b>483</b> | <b>145</b> | <b>668</b>  | <b>10</b>               | <b>3</b> | <b>15</b> | <b>28</b>  | <b>2435</b> |
| <b>Grand Total</b>      | <b>322</b>              | <b>1832</b> | <b>21</b> | <b>2175</b> | <b>513</b>               | <b>6</b> | <b>405</b> | <b>924</b> | <b>86</b>               | <b>963</b> | <b>233</b> | <b>1282</b> | <b>20</b>               | <b>5</b> | <b>26</b> | <b>51</b>  | <b>4432</b> |
| Apprch %                | 14.8                    | 84.2        | 1         |             | 55.5                     | 0.6      | 43.8       |            | 6.7                     | 75.1       | 18.2       |             | 39.2                    | 9.8      | 51        |            |             |
| Total %                 | 7.3                     | 41.3        | 0.5       | 49.1        | 11.6                     | 0.1      | 9.1        | 20.8       | 1.9                     | 21.7       | 5.3        | 28.9        | 0.5                     | 0.1      | 0.6       | 1.2        |             |
| Passenger Vehicles      | 319                     | 1766        | 20        | 2105        | 512                      | 6        | 401        | 919        | 86                      | 918        | 230        | 1234        | 20                      | 4        | 26        | 50         | 4308        |
| % Passenger Vehicles    | 99.1                    | 96.4        | 95.2      | 96.8        | 99.8                     | 100      | 99         | 99.5       | 100                     | 95.3       | 98.7       | 96.3        | 100                     | 80       | 100       | 98         | 97.2        |
| Large 2 Axle Vehicles   | 3                       | 22          | 1         | 26          | 1                        | 0        | 4          | 5          | 0                       | 18         | 3          | 21          | 0                       | 1        | 0         | 1          | 53          |
| % Large 2 Axle Vehicles | 0.9                     | 1.2         | 4.8       | 1.2         | 0.2                      | 0        | 1          | 0.5        | 0                       | 1.9        | 1.3        | 1.6         | 0                       | 20       | 0         | 2          | 1.2         |
| 3 Axle Vehicles         | 0                       | 6           | 0         | 6           | 0                        | 0        | 0          | 0          | 0                       | 6          | 0          | 6           | 0                       | 0        | 0         | 0          | 12          |
| % 3 Axle Vehicles       | 0                       | 0.3         | 0         | 0.3         | 0                        | 0        | 0          | 0          | 0                       | 0.6        | 0          | 0.5         | 0                       | 0        | 0         | 0          | 0.3         |
| 4+ Axle Trucks          | 0                       | 38          | 0         | 38          | 0                        | 0        | 0          | 0          | 0                       | 21         | 0          | 21          | 0                       | 0        | 0         | 0          | 59          |
| % 4+ Axle Trucks        | 0                       | 2.1         | 0         | 1.7         | 0                        | 0        | 0          | 0          | 0                       | 2.2        | 0          | 1.6         | 0                       | 0        | 0         | 0          | 1.3         |

| Start Time   | Waterman Ave Southbound |            |          |            | Vanderbilt Way Westbound |          |           |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |          |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|--------------------------|----------|-----------|------------|-------------------------|------------|-----------|------------|-------------------------|----------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                     | Thru     | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru     | Right    | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| 05:00 PM   | 42                      | 260        | 3        | 305        | <b>114</b>               | <b>1</b> | <b>67</b> | <b>182</b> | 7                       | 119        | 33        | 159        | <b>4</b>                | <b>1</b> | <b>6</b> | <b>11</b>  | <b>657</b> |
| 05:15 PM   | 45                      | 251        | 2        | 298        | 63                       | 0        | 57        | 120        | 11                      | 119        | 25        | 155        | 3                       | 1        | 5        | 9          | 582        |
| 05:30 PM   | <b>52</b>               | <b>273</b> | 2        | <b>327</b> | 76                       | 0        | 52        | 128        | 7                       | <b>127</b> | 40        | 174        | 2                       | 0        | 0        | 2          | 631        |
| 05:45 PM   | 35                      | 227        | <b>5</b> | 267        | 60                       | 1        | 51        | 112        | <b>15</b>               | 118        | <b>47</b> | <b>180</b> | 1                       | 1        | 4        | 6          | 565        |
| Total Volume   | 174                     | 1011       | 12       | 1197       | 313                      | 2        | 227       | 542        | 40                      | 483        | 145       | 668        | 10                      | 3        | 15       | 28         | 2435       |
| % App. Total   | 14.5                    | 84.5       | 1        |            | 57.7                     | 0.4      | 41.9      |            | 6                       | 72.3       | 21.7      |            | 35.7                    | 10.7     | 53.6     |            |            |
| PHF  | .837                    | .926       | .600     | .915       | .686                     | .500     | .847      | .745       | .667                    | .951       | .771      | .928       | .625                    | .750     | .625     | .636       | .927       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 55       | 217  | 5    | 277  | 114      | 1    | 67   | 182  | 7        | 119  | 33   | 159  | 4        | 1    | 6    | 11   |
| +15 mins.    | 42       | 260  | 3    | 305  | 63       | 0    | 57   | 120  | 11       | 119  | 25   | 155  | 3        | 1    | 5    | 9    |
| +30 mins.    | 45       | 251  | 2    | 298  | 76       | 0    | 52   | 128  | 7        | 127  | 40   | 174  | 2        | 0    | 0    | 2    |
| +45 mins.    | 52       | 273  | 2    | 327  | 60       | 1    | 51   | 112  | 15       | 118  | 47   | 180  | 1        | 1    | 4    | 6    |
| Total Volume | 194      | 1001 | 12   | 1207 | 313      | 2    | 227  | 542  | 40       | 483  | 145  | 668  | 10       | 3    | 15   | 28   |
| % App. Total | 16.1     | 82.9 | 1    |      | 57.7     | 0.4  | 41.9 |      | 6        | 72.3 | 21.7 |      | 35.7     | 10.7 | 53.6 |      |
| PHF          | .882     | .917 | .600 | .923 | .686     | .500 | .847 | .745 | .667     | .951 | .771 | .928 | .625     | .750 | .625 | .636 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

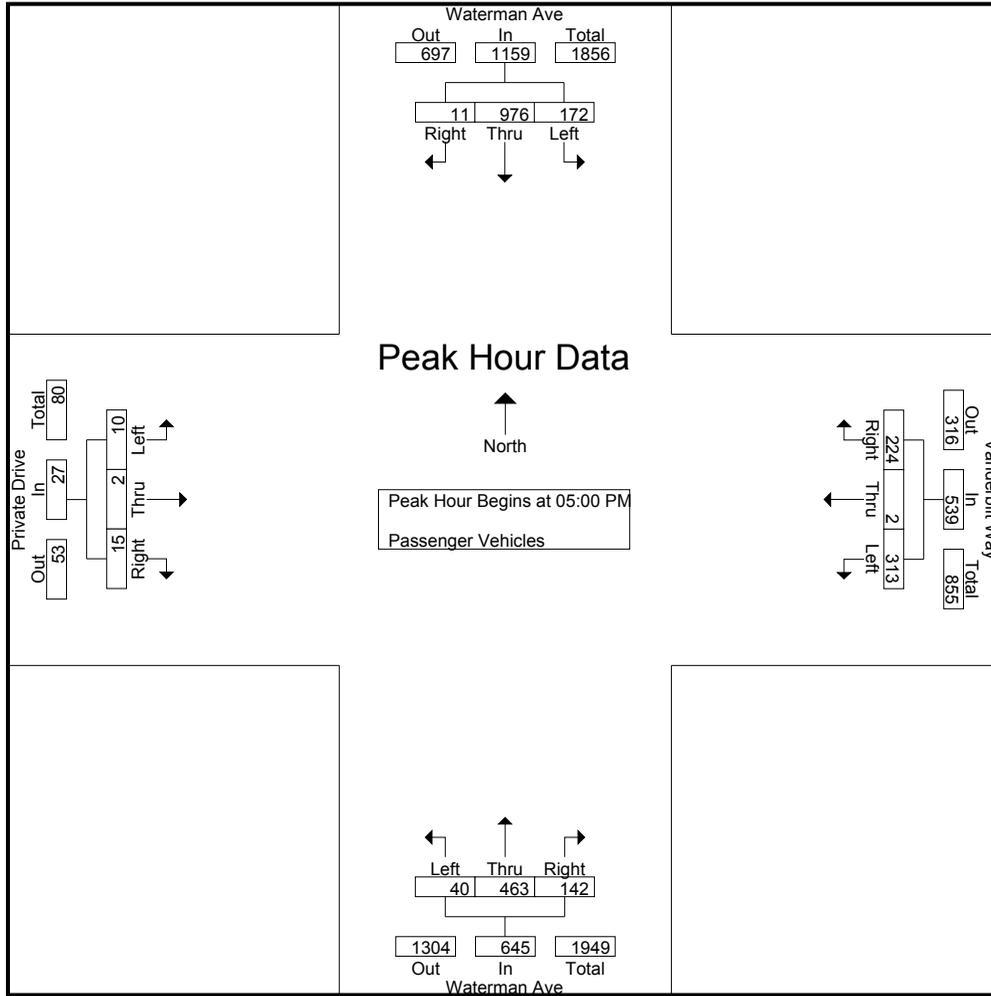
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 28                      | 172  | 2     | 202        | 44                       | 1    | 50    | 95         | 14                      | 144  | 21    | 179        | 5                       | 1    | 3     | 9          | 485        |
| 04:15 PM    | 24                      | 186  | 2     | 212        | 35                       | 1    | 35    | 71         | 8                       | 116  | 25    | 149        | 1                       | 1    | 6     | 8          | 440        |
| 04:30 PM    | 41                      | 222  | 0     | 263        | 70                       | 2    | 50    | 122        | 12                      | 104  | 23    | 139        | 0                       | 0    | 2     | 2          | 526        |
| 04:45 PM    | 54                      | 210  | 5     | 269        | 50                       | 0    | 42    | 92         | 12                      | 91   | 19    | 122        | 4                       | 0    | 0     | 4          | 487        |
| Total       | 147                     | 790  | 9     | 946        | 199                      | 4    | 177   | 380        | 46                      | 455  | 88    | 589        | 10                      | 2    | 11    | 23         | 1938       |
| 05:00 PM    | 41                      | 251  | 3     | 295        | 114                      | 1    | 66    | 181        | 7                       | 115  | 33    | 155        | 4                       | 1    | 6     | 11         | 642        |
| 05:15 PM    | 45                      | 244  | 2     | 291        | 63                       | 0    | 57    | 120        | 11                      | 114  | 23    | 148        | 3                       | 1    | 5     | 9          | 568        |
| 05:30 PM    | 51                      | 264  | 2     | 317        | 76                       | 0    | 51    | 127        | 7                       | 122  | 39    | 168        | 2                       | 0    | 0     | 2          | 614        |
| 05:45 PM    | 35                      | 217  | 4     | 256        | 60                       | 1    | 50    | 111        | 15                      | 112  | 47    | 174        | 1                       | 0    | 4     | 5          | 546        |
| Total       | 172                     | 976  | 11    | 1159       | 313                      | 2    | 224   | 539        | 40                      | 463  | 142   | 645        | 10                      | 2    | 15    | 27         | 2370       |
| Grand Total | 319                     | 1766 | 20    | 2105       | 512                      | 6    | 401   | 919        | 86                      | 918  | 230   | 1234       | 20                      | 4    | 26    | 50         | 4308       |
| Apprch %    | 15.2                    | 83.9 | 1     |            | 55.7                     | 0.7  | 43.6  |            | 7                       | 74.4 | 18.6  |            | 40                      | 8    | 52    |            |            |
| Total %     | 7.4                     | 41   | 0.5   | 48.9       | 11.9                     | 0.1  | 9.3   | 21.3       | 2                       | 21.3 | 5.3   | 28.6       | 0.5                     | 0.1  | 0.6   | 1.2        |            |

| Start Time   | Waterman Ave Southbound |            |          |            | Vanderbilt Way Westbound |          |           |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |          |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|--------------------------|----------|-----------|------------|-------------------------|------------|-----------|------------|-------------------------|----------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                     | Thru     | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru     | Right    | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| 05:00 PM   | 41                      | 251        | 3        | 295        | <b>114</b>               | <b>1</b> | <b>66</b> | <b>181</b> | 7                       | 115        | 33        | 155        | <b>4</b>                | <b>1</b> | <b>6</b> | <b>11</b>  | <b>642</b> |
| 05:15 PM   | 45                      | 244        | 2        | 291        | 63                       | 0        | 57        | 120        | 11                      | 114        | 23        | 148        | 3                       | 1        | 5        | 9          | 568        |
| 05:30 PM   | <b>51</b>               | <b>264</b> | 2        | <b>317</b> | 76                       | 0        | 51        | 127        | 7                       | <b>122</b> | 39        | 168        | 2                       | 0        | 0        | 2          | 614        |
| 05:45 PM   | 35                      | 217        | <b>4</b> | 256        | 60                       | 1        | 50        | 111        | <b>15</b>               | 112        | <b>47</b> | <b>174</b> | 1                       | 0        | 4        | 5          | 546        |
| Total Volume   | 172                     | 976        | 11       | 1159       | 313                      | 2        | 224       | 539        | 40                      | 463        | 142       | 645        | 10                      | 2        | 15       | 27         | 2370       |
| % App. Total   | 14.8                    | 84.2       | 0.9      |            | 58.1                     | 0.4      | 41.6      |            | 6.2                     | 71.8       | 22        |            | 37                      | 7.4      | 55.6     |            |            |
| PHF  | .843                    | .924       | .688     | .914       | .686                     | .500     | .848      | .744       | .667                    | .949       | .755      | .927       | .625                    | .500     | .625     | .614       | .923       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM  |            |          |            | 05:00 PM   |          |           |            | 05:00 PM  |            |           |            | 05:00 PM |          |          |           |
|--------------|-----------|------------|----------|------------|------------|----------|-----------|------------|-----------|------------|-----------|------------|----------|----------|----------|-----------|
| +0 mins.     | 41        | 251        | 3        | 295        | <b>114</b> | <b>1</b> | <b>66</b> | <b>181</b> | 7         | 115        | 33        | 155        | <b>4</b> | <b>1</b> | <b>6</b> | <b>11</b> |
| +15 mins.    | 45        | 244        | 2        | 291        | 63         | 0        | 57        | 120        | 11        | 114        | 23        | 148        | 3        | 1        | 5        | 9         |
| +30 mins.    | <b>51</b> | <b>264</b> | 2        | <b>317</b> | 76         | 0        | 51        | 127        | 7         | <b>122</b> | 39        | 168        | 2        | 0        | 0        | 2         |
| +45 mins.    | 35        | 217        | <b>4</b> | 256        | 60         | 1        | 50        | 111        | <b>15</b> | 112        | <b>47</b> | <b>174</b> | 1        | 0        | 4        | 5         |
| Total Volume | 172       | 976        | 11       | 1159       | 313        | 2        | 224       | 539        | 40        | 463        | 142       | 645        | 10       | 2        | 15       | 27        |
| % App. Total | 14.8      | 84.2       | 0.9      |            | 58.1       | 0.4      | 41.6      |            | 6.2       | 71.8       | 22        |            | 37       | 7.4      | 55.6     |           |
| PHF          | .843      | .924       | .688     | .914       | .686       | .500     | .848      | .744       | .667      | .949       | .755      | .927       | .625     | .500     | .625     | .614      |

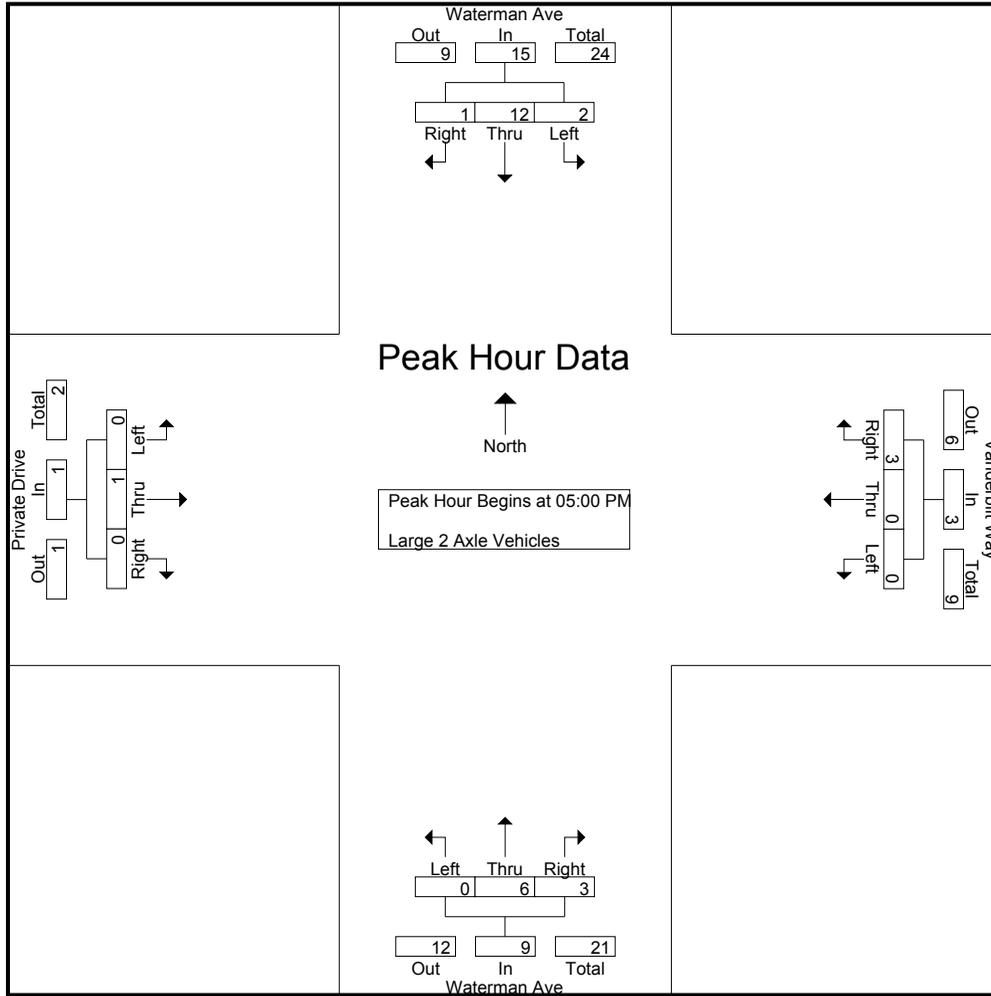
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 6          |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 1     | 1          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 04:45 PM    | 1                       | 4    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 1                       | 10   | 0     | 11         | 1                        | 0    | 1     | 2          | 0                       | 12   | 0     | 12         | 0                       | 0    | 0     | 0          | 25         |
| 05:00 PM    | 1                       | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 05:15 PM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 05:30 PM    | 1                       | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM    | 0                       | 4    | 1     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 1    | 0     | 1          | 8          |
| Total       | 2                       | 12   | 1     | 15         | 0                        | 0    | 3     | 3          | 0                       | 6    | 3     | 9          | 0                       | 1    | 0     | 1          | 28         |
| Grand Total | 3                       | 22   | 1     | 26         | 1                        | 0    | 4     | 5          | 0                       | 18   | 3     | 21         | 0                       | 1    | 0     | 1          | 53         |
| Apprch %    | 11.5                    | 84.6 | 3.8   |            | 20                       | 0    | 80    |            | 0                       | 85.7 | 14.3  |            | 0                       | 100  | 0     |            |            |
| Total %     | 5.7                     | 41.5 | 1.9   | 49.1       | 1.9                      | 0    | 7.5   | 9.4        | 0                       | 34   | 5.7   | 39.6       | 0                       | 1.9  | 0     | 1.9        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 1                       | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 05:15 PM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 05:30 PM   | 1                       | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM   | 0                       | 4    | 1     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 1    | 0     | 1          | 8          |
| Total Volume   | 2                       | 12   | 1     | 15         | 0                        | 0    | 3     | 3          | 0                       | 6    | 3     | 9          | 0                       | 1    | 0     | 1          | 28         |
| % App. Total   | 13.3                    | 80   | 6.7   |            | 0                        | 0    | 100   |            | 0                       | 66.7 | 33.3  |            | 0                       | 100  | 0     |            |            |
| PHF  | .500                    | .750 | .250  | .750       | .000                     | .000 | .750  | .750       | .000                    | .750 | .375  | .563       | .000                    | .250 | .000  | .250       | .875       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 4    | 0    | 5    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 2    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 1        | 0    | 0    | 1    | 0        | 0    | 1    | 1    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 4    | 1    | 5    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 12   | 1    | 15   | 0        | 0    | 3    | 3    | 0        | 6    | 3    | 9    | 0        | 1    | 0    | 1    |
| % App. Total | 13.3     | 80   | 6.7  |      | 0        | 0    | 100  |      | 0        | 66.7 | 33.3 |      | 0        | 100  | 0    |      |
| PHF          | .500     | .750 | .250 | .750 | .000     | .000 | .750 | .750 | .000     | .750 | .375 | .563 | .000     | .250 | .000 | .250 |

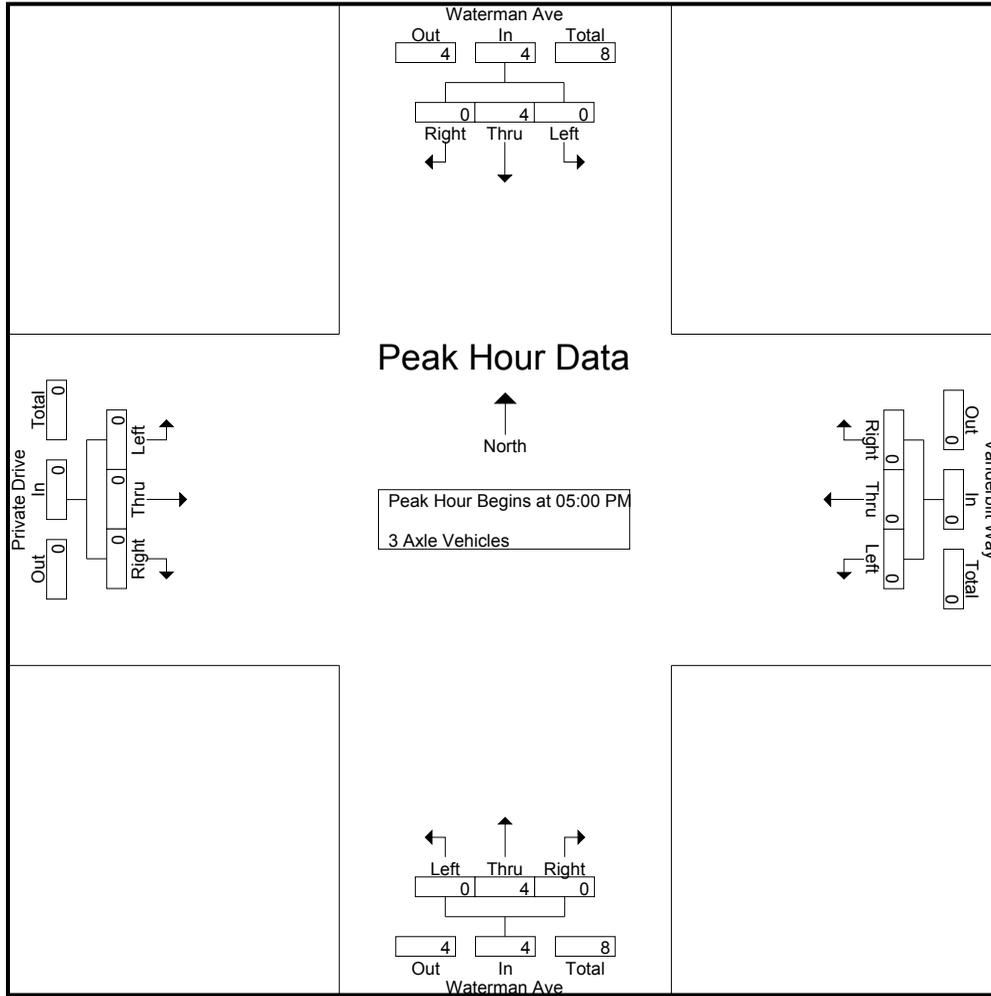
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 04:45 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| Total       | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| Grand Total | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 12         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 50   | 0     | 50         | 0                        | 0    | 0     | 0          | 0                       | 50   | 0     | 50         | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| Total Volume   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .500 | .000  | .500       | .000                     | .000 | .000  | .000       | .000                    | .500 | .000  | .500       | .000                    | .000 | .000  | .000       | .500       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

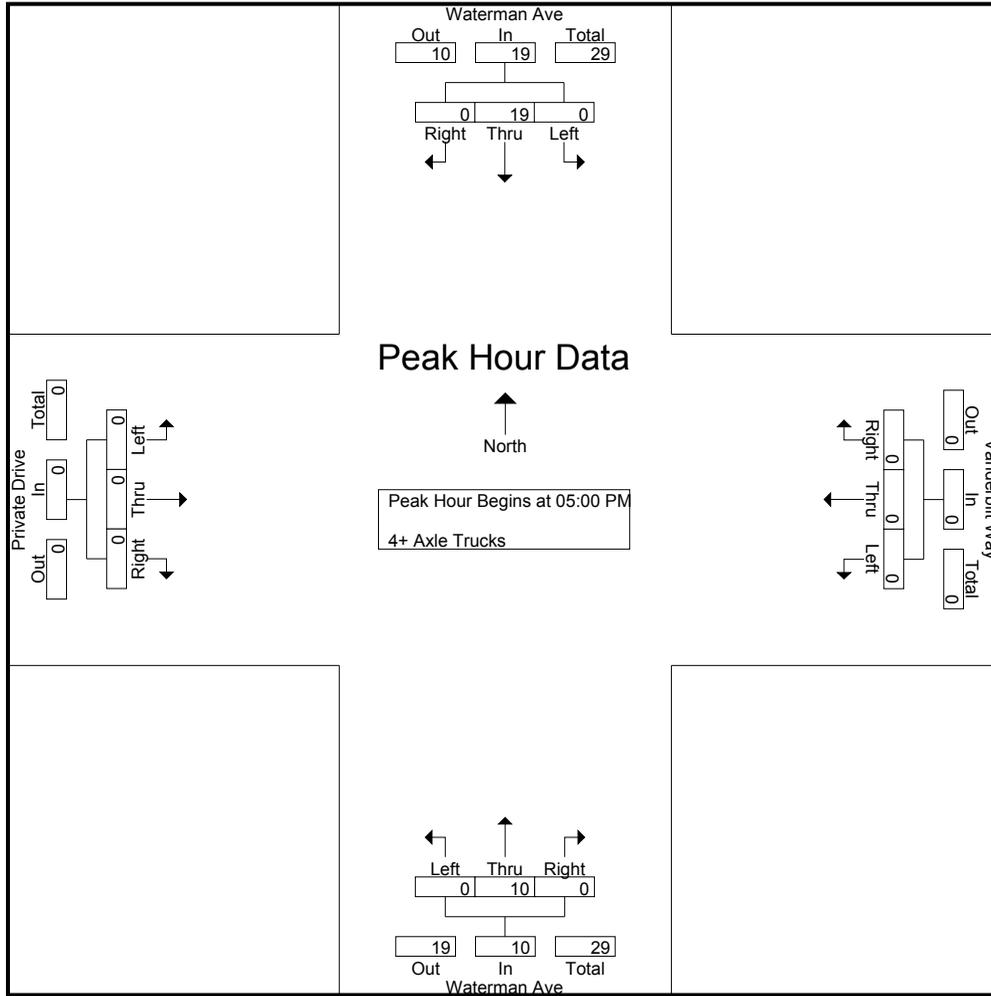
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 04:15 PM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 04:30 PM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| 04:45 PM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| Total       | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 11   | 0     | 11         | 0                       | 0    | 0     | 0          | 30         |
| 05:00 PM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 10   | 0     | 10         | 0                       | 0    | 0     | 0          | 29         |
| Grand Total | 0                       | 38   | 0     | 38         | 0                        | 0    | 0     | 0          | 0                       | 21   | 0     | 21         | 0                       | 0    | 0     | 0          | 59         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 64.4 | 0     | 64.4       | 0                        | 0    | 0     | 0          | 0                       | 35.6 | 0     | 35.6       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM   | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM   | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total Volume   | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 10   | 0     | 10         | 0                       | 0    | 0     | 0          | 29         |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .679 | .000  | .679       | .000                     | .000 | .000  | .000       | .000                    | .625 | .000  | .625       | .000                    | .000 | .000  | .000       | .725       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 6    | 0    | 6    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 19   | 0    | 19   | 0        | 0    | 0    | 0    | 0        | 10   | 0    | 10   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .679 | .000 | .679 | .000     | .000 | .000 | .000 | .000     | .625 | .000 | .625 | .000     | .000 | .000 | .000 |

**APPENDIX D**

**Future Growth Increment Calculation Worksheets**

### AVERAGE DAILY TRAFFIC

| INTERSECTION  | MODEL       | MODEL       | EXISTING      | MODEL       | FUTURE                   | OPENING     |
|---|-------------|-------------|---------------|-------------|--------------------------|-------------|
|   | 2008<br>LEG | 2008<br>ADT | 2015<br>ADT   | 2035<br>ADT | 2035<br>ADT <sup>1</sup> | 2017<br>ADT |
| E Street (NS) at:<br>Orange Show Road (EW) -#1                | North       | 8,013       | <b>12,100</b> | 8,827       | 13,300                   | 12,200      |
|   | South       | 7,016       | <b>17,700</b> | 8,946       | 19,500                   | 17,900      |
|   | East        | 14,140      | <b>25,500</b> | 18,286      | 28,600                   | 25,800      |
|   | West        | 19,502      | <b>33,600</b> | 24,225      | 37,100                   | 33,900      |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) -#2       | North       | -           | <b>700</b>    | -           | 800                      | 700         |
|   | South       | 1,607       | <b>300</b>    | 2,271       | 800                      | 300         |
|   | East        | 6,206       | <b>25,000</b> | 8,396       | 27,500                   | 25,300      |
|   | West        | 7,793       | <b>25,300</b> | 10,234      | 27,800                   | 25,600      |
| Project West Driveway (NS) at:<br>Dumas Street (EW) -#3       | North       | -           | -             | -           | -                        | -           |
|   | South       | -           | -             | -           | -                        | -           |
|   | East        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
|   | West        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
| Project East Driveway (NS) at:<br>Dumas Street (EW) -#4       | North       | -           | -             | -           | -                        | -           |
|   | South       | -           | -             | -           | -                        | -           |
|   | East        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
|   | West        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
| Waterman Street (NS) at:<br>Orange Show Road (EW) -#5         | North       | 18,345      | <b>19,700</b> | 24,441      | 24,200                   | 20,200      |
|   | South       | 18,380      | <b>22,800</b> | 24,199      | 27,100                   | 23,200      |
|   | East        | 5,874       | <b>22,500</b> | 6,738       | 24,800                   | 22,700      |
|   | West        | 6,206       | <b>24,500</b> | 8,396       | 27,000                   | 24,700      |
| Waterman Street (NS) at:<br>Dumas Street (EW) -#6             | North       | 18,380      | <b>23,600</b> | 24,199      | 27,900                   | 24,000      |
|   | South       | 19,015      | <b>23,600</b> | 25,036      | 28,100                   | 24,000      |
|   | East        | -           | -             | -           | -                        | -           |
|   | West        | 1,549       | <b>200</b>    | 1,730       | 300                      | 200         |
| Waterman Street (NS) at:<br>Park Center Circle North (EW) -#7 | North       | 19,015      | <b>23,300</b> | 25,036      | 27,800                   | 23,700      |
|   | South       | 19,015      | <b>22,500</b> | 25,036      | 27,000                   | 22,900      |
|   | East        | -           | <b>1,000</b>  | -           | 1,100                    | 1,000       |
|   | West        | -           | -             | -           | -                        | -           |
| Waterman Street (NS) at:<br>Park Center Circle South (EW) -#8 | North       | 19,015      | <b>21,800</b> | 25,036      | 26,300                   | 22,200      |
|   | South       | 17,903      | <b>23,800</b> | 23,467      | 27,900                   | 24,200      |
|   | East        | 814         | <b>2,600</b>  | 2,188       | 3,600                    | 2,700       |
|   | West        | 1,867       | <b>300</b>    | 2,560       | 800                      | 400         |
| Waterman Street (NS) at:<br>Vanderbilt Way (EW) -#9           | North       | 17,903      | <b>24,000</b> | 23,467      | 28,100                   | 24,400      |
|   | South       | 14,178      | <b>25,000</b> | 21,035      | 30,100                   | 25,500      |
|   | East        | 7,623       | <b>10,400</b> | 11,412      | 13,200                   | 10,700      |
|   | West        | -           | <b>1,000</b>  | -           | 1,100                    | 1,000       |

Adjusted for minimum 10% growth over existing average daily traffic volumes for year 2035.

| E Street (NS) at: Orange Show Road (EW) - #1                       |        |       |        |      |  |        |       |        |      |     |     |
|--|--------|-------|--------|------|--|--------|-------|--------|------|-----|-----|
| MORNING PEAK HOUR  |        |       |        |      | EVENING PEAK HOUR  |        |       |        |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |        |       |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |        |       |        |      |     |     |
|  |        | 51    | 101    | 51   |  |        | 255   | 136    | 142  |     |     |
|  | 213 ^  | <     | v      | >    |  |        | 115 ^ | <      | v    | >   | 39  |
|  | 702 >  |       |        | <    | 279  |        | 779 > |        |      | <   | 684 |
|  | 325 v  |       |        | v    | 64   |        | 295 v |        |      | v   | 141 |
|  |        |       | 61     | 66   | 38   |        |       | 449    | 277  | 125 |     |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |        |       |        |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |        |       |        |      |     |     |
|  |        |       | 203    | 306  |  |        |       | 533    | 431  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 391 <  | IN =  | 1978 < | 370  |  | 1388 < | IN =  | 3437 < | 864  |     |     |
|  | 1240 > | OUT = | 1978 > | 791  |  | 1189 > | OUT = | 3437 > | 1046 |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 490    | 165  |  |        |       | 572    | 851  |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |        |       |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |        |       |        |      |     |     |
|  |        | 6     | 23     | 0    |  |        | 3     | 21     | 3    |     |     |
|  | 8 ^    | <     | v      | >    |  |        | 5 ^   | <      | v    | >   | 3   |
|  | 99 >   |       |        | <    | 106  |        | 114 > |        |      | <   | 92  |
|  | 12 v   |       |        | v    | 12   |        | 4 v   |        |      | v   | 2   |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |        |       |        |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0                        |        |       |        |      |     |     |
|  |        |       | 36     | 22   | 3  |        |       |        | 8    | 11  | 3   |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |        |       |        |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |        |       |        |      |     |     |
|  |        | 57    | 124    | 51   |  |        | 258   | 157    | 145  |     |     |
|  | 221 ^  | <     | v      | >    |  |        | 120 ^ | <      | v    | >   | 42  |
|  | 801 >  |       |        | <    | 385  |        | 893 > |        |      | <   | 776 |
|  | 337 v  |       |        | v    | 76   |        | 299 v |        |      | v   | 143 |
|  |        |       | 97     | 88   | 41   |        |       | 457    | 288  | 128 |     |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |        |       |        |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |        |       |        |      |     |     |
|  |        |       | 259    | 696  |  |        |       | 1085   | 952  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 719 <  | IN =  | 3324 < | 572  |  | 2748 < | IN =  | 6032 < | 2018 |     |     |
|  | 2135 > | OUT = | 3323 > | 1307 |  | 1913 > | OUT = | 6032 > | 1348 |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 601    | 358  |  |        |       | 984    | 1016 |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |        |       |        |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |        |       |        |      |     |     |
|  |        |       | 22     | 28   |  |        |       | 32     | 44   |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 74 <   | IN =  | 179 <  | 65   |  | 114 <  | IN =  | 290 <  | 101  |     |     |
|  | 73 >   | OUT = | 178 >  | 57   |  | 130 >  | OUT = | 291 >  | 103  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 19     | 19   |  |        |       | 30     | 27   |     |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |        |       |        |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |        |       |        |      |     |     |
|  |        |       | 106    | 274  |  |        |       | 312    | 278  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
| PHF FOR TRUCKS: 0.333  |        |       |        |      | PHF FOR TRUCKS: 0.25   |        |       |        |      |     |     |
|  | 298 <  | IN =  | 1323 < | 239  |  | 798 <  | IN =  | 1761 < | 590  |     |     |
|  | 836 >  | OUT = | 1322 > | 516  |  | 568 >  | OUT = | 1762 > | 403  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 235    | 142  |  |        |       | 283    | 291  |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |        |       |        |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |        |       |        |      |     |     |
|  |        |       | 592    | 488  |  |        |       | 1679   | 1164 |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 1086 < | IN =  | 5345 < | 900  |  | 4727 < | IN =  | 9604 < | 3676 |     |     |
|  | 3460 > | OUT = | 5345 > | 2495 |  | 2697 > | OUT = | 9604 > | 2175 |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 1276   | 393  |  |        |       | 1538   | 1552 |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |        |       |        |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |        |       |        |      |     |     |
|  |        |       | 72     | 66   |  |        |       | 101    | 101  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 103 <  | IN =  | 340 <  | 88   |  | 167 <  | IN =  | 513 <  | 141  |     |     |
|  | 118 >  | OUT = | 339 >  | 95   |  | 167 >  | OUT = | 513 >  | 141  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 75     | 62   |  |        |       | 104    | 104  |     |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |        |       |        |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |        |       |        |      |     |     |
|  |        |       | 249    | 207  |  |        |       | 495    | 351  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
| PHF FOR TRUCKS: 0.333  |        |       |        |      | PHF FOR TRUCKS: 0.25   |        |       |        |      |     |     |
|  | 447 <  | IN =  | 2144 < | 371  |  | 1365 < | IN =  | 2817 < | 1065 |     |     |
|  | 1354 > | OUT = | 2144 > | 980  |  | 797 >  | OUT = | 2817 > | 644  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 510    | 170  |  |        |       | 457    | 461  |     |     |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |        |       |        |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |        |       |        |      |     |     |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |        |       |        |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |        |       |        |      |     |     |
|  |        |       | 143    | -66  |  |        |       | 184    | 74   |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 149 <  |       | <      | 132  |  | 567 <  |       | <      | 474  |     |     |
|  | 518 >  |       | >      | 464  |  | 229 >  |       | >      | 241  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 275    | 28   |  |        |       | 174    | 169  |     |     |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |        |       |        |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |        |       |        |      |     |     |
|  |        |       | 140    | 30   |  |        |       | 180    | 70   |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 150 <  | IN =  | 820 <  | 130  |  | 570 <  | IN =  | 1050 < | 470  |     |     |
|  | 520 >  | OUT = | 920 >  | 460  |  | 230 >  | OUT = | 1050 > | 240  |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 280    | 30   |  |        |       | 170    | 170  |     |     |
| FUTURE YEAR GROWTH:<br>2 YEARS                                     |        |       |        |      | FUTURE YEAR GROWTH:<br>2 YEARS                                     |        |       |        |      |     |     |
|  |        |       | 10     | 0    |  |        |       | 10     | 10   |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  | 10 <   |       | <      | 10   |  | 40 <   |       | <      | 30   |     |     |
|  | 40 >   |       | >      | 30   |  | 20 >   |       | >      | 20   |     |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |     |
|  |        |       | 20     | 0    |  |        |       | 10     | 10   |     |     |

**E Street (NS) at: Orange Show Road (EW) - #1**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 97              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 457             | SOUTH LEG |                    |
|  | THRU             | 88              | IN ...    | 230                |                              | THRU             | 288             | IN ...    | 880                |
|  | RIGHT            | 41              | OUT ...   | 560                |                              | RIGHT            | 128             | OUT ...   | 610                |
| SOUTH BOUND                            | LEFT             | 51              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 145             | NORTH LEG |                    |
|  | THRU             | 124             | IN ...    | 240                |                              | THRU             | 157             | IN ...    | 570                |
|  | RIGHT            | 57              | OUT ...   | 340                |                              | RIGHT            | 258             | OUT ...   | 460                |
| EAST BOUND                             | LEFT             | 221             | WEST LEG  |                    | EAST BOUND                   | LEFT             | 120             | WEST LEG  |                    |
|  | THRU             | 801             | IN ...    | 1,400              |                              | THRU             | 893             | IN ...    | 1,340              |
|  | RIGHT            | 337             | OUT ...   | 550                |                              | RIGHT            | 299             | OUT ...   | 1,530              |
| WEST BOUND                             | LEFT             | 76              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 143             | EAST LEG  |                    |
|  | THRU             | 385             | IN ...    | 500                |                              | THRU             | 776             | IN ...    | 1,000              |
|  | RIGHT            | 27              | OUT ...   | 920                |                              | RIGHT            | 42              | OUT ...   | 1,190              |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 97              | 99                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 457             | 459                   | NORTH LEG                 |
|  | THRU             | 88              | 89                    | RATIO 4.8%                |                           | THRU             | 288             | 292                   | RATIO 8.4%                |
|  | RIGHT            | 41              | 42                    | ADT 12,200                |                           | RIGHT            | 128             | 129                   | ADT 12,200                |
| SOUTH BOUND                            | LEFT             | 51              | 53                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 145             | 148                   | SOUTH LEG                 |
|  | THRU             | 124             | 129                   | RATIO 4.4%                |                           | THRU             | 157             | 159                   | RATIO 8.3%                |
|  | RIGHT            | 57              | 58                    | ADT 17,900                |                           | RIGHT            | 258             | 263                   | ADT 17,900                |
| EAST BOUND                             | LEFT             | 221             | 224                   | EAST LEG                  | EAST BOUND                | LEFT             | 120             | 124                   | EAST LEG                  |
|  | THRU             | 801             | 825                   | RATIO 5.5%                |                           | THRU             | 893             | 913                   | RATIO 8.5%                |
|  | RIGHT            | 337             | 351                   | ADT 25,800                |                           | RIGHT            | 299             | 303                   | ADT 25,800                |
| WEST BOUND                             | LEFT             | 76              | 79                    | WEST LEG                  | WEST BOUND                | LEFT             | 143             | 148                   | WEST LEG                  |
|  | THRU             | 385             | 393                   | RATIO 5.8%                |                           | THRU             | 776             | 808                   | RATIO 8.5%                |
|  | RIGHT            | 27              | 27                    | ADT 33,900                |                           | RIGHT            | 42              | 44                    | ADT 33,900                |

**E Street (NS) at: Orange Show Road (EW) - #1**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 97              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 457             | SOUTH LEG |                   |
|                              | THRU             | 88              | IN ...    | 250               |                              | THRU             | 288             | IN ...    | 1,000             |
|                              | RIGHT            | 41              | OUT ...   | 750               |                              | RIGHT            | 128             | OUT ...   | 730               |
| SOUTH BOUND                  | LEFT             | 51              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 145             | NORTH LEG |                   |
|                              | THRU             | 124             | IN ...    | 330               |                              | THRU             | 157             | IN ...    | 690               |
|                              | RIGHT            | 57              | OUT ...   | 360               |                              | RIGHT            | 258             | OUT ...   | 500               |
| EAST BOUND                   | LEFT             | 221             | WEST LEG  |                   | EAST BOUND                   | LEFT             | 120             | WEST LEG  |                   |
|                              | THRU             | 801             | IN ...    | 1,750             |                              | THRU             | 893             | IN ...    | 1,480             |
|                              | RIGHT            | 337             | OUT ...   | 650               |                              | RIGHT            | 299             | OUT ...   | 1,910             |
| WEST BOUND                   | LEFT             | 76              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 143             | EAST LEG  |                   |
|                              | THRU             | 385             | IN ...    | 590               |                              | THRU             | 776             | IN ...    | 1,310             |
|                              | RIGHT            | 27              | OUT ...   | 1,230             |                              | RIGHT            | 42              | OUT ...   | 1,350             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 97              | 110                  | NORTH LEG                 | NORTH BOUND               | LEFT             | 457             | 533                  | NORTH LEG                 |
|                              | THRU             | 88              | 92                   | RATIO 5.2%                |                           | THRU             | 288             | 318                  | RATIO 9.0%                |
|                              | RIGHT            | 41              | 54                   | ADT 13,300                |                           | RIGHT            | 128             | 152                  | ADT 13,300                |
| SOUTH BOUND                  | LEFT             | 51              | 78                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 145             | 181                  | SOUTH LEG                 |
|                              | THRU             | 124             | 186                  | RATIO 5.2%                |                           | THRU             | 157             | 194                  | RATIO 8.9%                |
|                              | RIGHT            | 57              | 74                   | ADT 19,500                |                           | RIGHT            | 258             | 316                  | ADT 19,500                |
| EAST BOUND                   | LEFT             | 221             | 238                  | EAST LEG                  | EAST BOUND                | LEFT             | 120             | 128                  | EAST LEG                  |
|                              | THRU             | 801             | 1,098                | RATIO 6.4%                |                           | THRU             | 893             | 1,018                | RATIO 9.3%                |
|                              | RIGHT            | 337             | 457                  | ADT 28,600                |                           | RIGHT            | 299             | 338                  | ADT 28,600                |
| WEST BOUND                   | LEFT             | 76              | 107                  | WEST LEG                  | WEST BOUND                | LEFT             | 143             | 197                  | WEST LEG                  |
|                              | THRU             | 385             | 466                  | RATIO 6.6%                |                           | THRU             | 776             | 1,061                | RATIO 9.1%                |
|                              | RIGHT            | 27              | 30                   | ADT 37,100                |                           | RIGHT            | 42              | 54                   | ADT 37,100                |

**Washington Avenue (NS) at: Orange Show Road (EW) - #2**

| MORNING PEAK HOUR   |       |        |     | EVENING PEAK HOUR  |       |        |      |
|---|-------|--------|-----|--|-------|--------|------|
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |       |        |     | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |       |        |      |
|   | 5     | 0      | 6   |  | 9     | 0      | 4    |
| 34 ^  | <     | v      | >   | 27 ^   | <     | v      | >    |
| 759 >   |       |        | <   | 1015 >   |       |        | <    |
| 12 v  |       |        | v   | 10 v   |       |        | v    |
|   | 4     | 0      | 2   |  | 2     | 2      | 1    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |       |        |     | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |       |        |      |
|   |       | 11     | 43  |  |       | 13     | 39   |
| 307 <   | IN =  | 1132 < | 310 | 843 <  | IN =  | 1918 < | 848  |
| 805 >   | OUT = | 1132 > | 767 | 1052 >   | OUT = | 1918 > | 1020 |
|   |       | 15     | 6   |  |       | 16     | 5    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |       |        |     | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |       |        |      |
|   | 5     | 0      | 0   |  | 2     | 0      | 0    |
| 0 ^   | <     | v      | >   | 2 ^  | <     | v      | >    |
| 77 >  |       |        | <   | 105 >  |       |        | <    |
| 0 v   |       |        | v   | 2 v  |       |        | v    |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |       |        |     | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0  |       |        |      |
|   | 2     | 3      | 0   |  | 0     | 0      | 0    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |       |        |     | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |       |        |      |
|   | 10    | 0      | 6   |  | 11    | 0      | 4    |
| 34 ^  | <     | v      | >   | 29 ^   | <     | v      | >    |
| 836 >   |       |        | <   | 1120 >   |       |        | <    |
| 12 v  |       |        | v   | 12 v   |       |        | v    |
|   | 6     | 3      | 2   |  | 2     | 2      | 1    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |       |        |     | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 463 <   | IN =  | 1065 < | 398 | 899 <  | IN =  | 1762 < | 665  |
| 602 >   | OUT = | 1065 > | 484 | 861 >  | OUT = | 1762 > | 763  |
|   |       | 118    | 65  |  |       | 100    | 236  |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |       |        |     | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 45 <  | IN =  | 81 <   | 34  | 67 <   | IN =  | 132 <  | 48   |
| 35 >  | OUT = | 80 >   | 26  | 65 >   | OUT = | 132 >  | 51   |
|   |       | 9      | 12  |  |       | 14     | 19   |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |       |        |     | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 191 <   | IN =  | 432 <  | 163 | 268 <  | IN =  | 526 <  | 198  |
| 240 >   | OUT = | 431 >  | 193 | 257 >  | OUT = | 526 >  | 226  |
|   |       | 48     | 29  |  |       | 32     | 71   |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |       |        |     | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 619 <   | IN =  | 1939 < | 591 | 2246 <   | IN =  | 3812 < | 1819 |
| 1245 >  | OUT = | 1940 > | 966 | 1439 >   | OUT = | 3811 > | 1368 |
|   |       | 355    | 103 |  |       | 197    | 554  |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |       |        |     | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 55 <  | IN =  | 117 <  | 43  | 96 <   | IN =  | 192 <  | 70   |
| 58 >  | OUT = | 117 >  | 41  | 96 >   | OUT = | 192 >  | 70   |
|   |       | 21     | 16  |  |       | 26     | 26   |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |       |        |     | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 254 <   | IN =  | 776 <  | 239 | 653 <  | IN =  | 1115 < | 527  |
| 492 >   | OUT = | 776 >  | 381 | 427 >  | OUT = | 1115 > | 401  |
|   |       | 142    | 44  |  |       | 62     | 162  |
| RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00         |       |        |     | RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00        |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 63 <  |       | <      | 76  | 384 <  |       | <      | 329  |
| 252 >   |       | >      | 188 | 170 >  |       | >      | 174  |
|   |       | 94     | 16  |  |       | 30     | 91   |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                          |       |        |     | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                         |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 60 <  | IN =  | 350 <  | 80  | 380 <  | IN =  | 590 <  | 330  |
| 250 >   | OUT = | 340 >  | 190 | 170 >  | OUT = | 580 >  | 170  |
|   |       | 90     | 20  |  |       | 30     | 90   |
| FUTURE YEAR GROWTH:<br>2 YEARS 2015 TO 2017   |       |        |     | FUTURE YEAR GROWTH:<br>2 YEARS 2015 TO 2017  |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 0 <   |       | <      | 10  | 30 <   |       | <      | 20   |
| 20 >  |       | >      | 10  | 10 >   |       | >      | 10   |
|   |       | 10     | 0   |  |       | 0      | 10   |

Washington Avenue (NS) at: Orange Show Road (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 6               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                    |
|  | THRU             | 3               | IN ...    | 10                 |                              | THRU             | 2               | IN ...    | 20                 |
|  | RIGHT            | 2               | OUT ...   | 30                 |                              | RIGHT            | 1               | OUT ...   | 20                 |
| SOUTH BOUND                            | LEFT             | 6               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 4               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 20                 |                              | THRU             | 0               | IN ...    | 20                 |
|  | RIGHT            | 10              | OUT ...   | 50                 |                              | RIGHT            | 11              | OUT ...   | 50                 |
| EAST BOUND                             | LEFT             | 34              | WEST LEG  |                    | EAST BOUND                   | LEFT             | 29              | WEST LEG  |                    |
|  | THRU             | 836             | IN ...    | 900                |                              | THRU             | 1,120           | IN ...    | 1,170              |
|  | RIGHT            | 12              | OUT ...   | 390                |                              | RIGHT            | 12              | OUT ...   | 980                |
| WEST BOUND                             | LEFT             | 3               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 6               | EAST LEG  |                    |
|  | THRU             | 378             | IN ...    | 400                |                              | THRU             | 934             | IN ...    | 980                |
|  | RIGHT            | 11              | OUT ...   | 860                |                              | RIGHT            | 15              | OUT ...   | 1,140              |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 6               | 6                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 8                     | NORTH LEG                 |
|  | THRU             | 3               | 3                     | RATIO 9.1%                |                           | THRU             | 2               | 8                     | RATIO 10.1%               |
|  | RIGHT            | 2               | 2                     | ADT 700                   |                           | RIGHT            | 1               | 4                     | ADT 700                   |
| SOUTH BOUND                            | LEFT             | 6               | 6                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 4               | 4                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO 13.7%               |                           | THRU             | 0               | 0                     | RATIO 13.3%               |
|  | RIGHT            | 10              | 10                    | ADT 300                   |                           | RIGHT            | 11              | 15                    | ADT 300                   |
| EAST BOUND                             | LEFT             | 34              | 34                    | EAST LEG                  | EAST BOUND                | LEFT             | 29              | 29                    | EAST LEG                  |
|  | THRU             | 836             | 850                   | RATIO 5.0%                |                           | THRU             | 1,120           | 1,130                 | RATIO 8.4%                |
|  | RIGHT            | 12              | 23                    | ADT 25,300                |                           | RIGHT            | 12              | 13                    | ADT 25,300                |
| WEST BOUND                             | LEFT             | 3               | 7                     | WEST LEG                  | WEST BOUND                | LEFT             | 6               | 7                     | WEST LEG                  |
|  | THRU             | 378             | 380                   | RATIO 5.1%                |                           | THRU             | 934             | 957                   | RATIO 8.4%                |
|  | RIGHT            | 11              | 11                    | ADT 25,600                |                           | RIGHT            | 15              | 15                    | ADT 25,600                |

Washington Avenue (NS) at: Orange Show Road (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 6               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                   |
|                              | THRU             | 3               | IN ...    | 20                | NORTH BOUND                  | THRU             | 2               | IN ...    | 80                |
|                              | RIGHT            | 2               | OUT ...   | 90                | NORTH BOUND                  | RIGHT            | 1               | OUT ...   | 40                |
| SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 4               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 20                | SOUTH BOUND                  | THRU             | 0               | IN ...    | 20                |
|                              | RIGHT            | 10              | OUT ...   | 50                | SOUTH BOUND                  | RIGHT            | 11              | OUT ...   | 50                |
| EAST BOUND                   | LEFT             | 34              | WEST LEG  |                   | EAST BOUND                   | LEFT             | 29              | WEST LEG  |                   |
|                              | THRU             | 836             | IN ...    | 1,070             | EAST BOUND                   | THRU             | 1,120           | IN ...    | 1,290             |
|                              | RIGHT            | 12              | OUT ...   | 430               | EAST BOUND                   | RIGHT            | 12              | OUT ...   | 1,230             |
| WEST BOUND                   | LEFT             | 3               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 6               | EAST LEG  |                   |
|                              | THRU             | 378             | IN ...    | 450               | WEST BOUND                   | THRU             | 934             | IN ...    | 1,200             |
|                              | RIGHT            | 11              | OUT ...   | 980               | WEST BOUND                   | RIGHT            | 15              | OUT ...   | 1,260             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 6               | 10                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 40                   | NORTH LEG                 |
|                              | THRU             | 3               | 5                    | RATIO 9.4%                | NORTH BOUND               | THRU             | 2               | 21                   | RATIO 11.3%               |
|                              | RIGHT            | 2               | 4                    | ADT 800                   | NORTH BOUND               | RIGHT            | 1               | 19                   | ADT 800                   |
| SOUTH BOUND                  | LEFT             | 6               | 8                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 4               | 5                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO 13.7%               | SOUTH BOUND               | THRU             | 0               | 0                    | RATIO 15.0%               |
|                              | RIGHT            | 10              | 11                   | ADT 800                   | SOUTH BOUND               | RIGHT            | 11              | 15                   | ADT 800                   |
| EAST BOUND                   | LEFT             | 34              | 38                   | EAST LEG                  | EAST BOUND                | LEFT             | 29              | 32                   | EAST LEG                  |
|                              | THRU             | 836             | 967                  | RATIO 5.2%                | EAST BOUND                | THRU             | 1,120           | 1,236                | RATIO 9.0%                |
|                              | RIGHT            | 12              | 70                   | ADT 27,500                | EAST BOUND                | RIGHT            | 12              | 26                   | ADT 27,500                |
| WEST BOUND                   | LEFT             | 3               | 20                   | WEST LEG                  | WEST BOUND                | LEFT             | 6               | 14                   | WEST LEG                  |
|                              | THRU             | 378             | 408                  | RATIO 5.4%                | WEST BOUND                | THRU             | 934             | 1,175                | RATIO 9.1%                |
|                              | RIGHT            | 11              | 12                   | ADT 27,800                | WEST BOUND                | RIGHT            | 15              | 17                   | ADT 27,800                |

| Project West Access (NS) at: Dumas Street (EW) - #3                                   |      |       |       |       |  |    |   |       |       |       |     |   |    |   |   |   |   |
|---|------|-------|-------|-------|--|----|---|-------|-------|-------|-----|---|----|---|---|---|---|
| MORNING PEAK HOUR   |      |       |       |       | EVENING PEAK HOUR  |    |   |       |       |       |     |   |    |   |   |   |   |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     | 0  |    |   |       | 0     | 0     | 0   |   |    |   |   |   |   |
|   | 0 ^  | <     | v     | >     | ^  | 0  |   | 0 ^   | <     | v     | >   | ^ | 0  |   |   |   |   |
|   | 9 >  |       |       |       | <  | 7  |   | 7 >   |       |       |     | < | 11 |   |   |   |   |
|   | 0 v  |       |       |       | v  | 0  |   | 0 v   |       |       |     | v | 0  |   |   |   |   |
|   |      |       | 0     | 0     | 0  |    |   |       | 0     | 0     | 0   |   |    |   |   |   |   |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |      |       |       |       | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 7 <   | IN =  | 16 <  | 7  |    |   | 11 <  | IN =  | 18 <  | 11  |   |    |   |   |   |   |
|   |      | 9 >   | OUT = | 16 >  | 9  |    |   | 7 >   | OUT = | 18 >  | 7   |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     | 0  |    |   |       | 0     | 0     | 0   |   |    |   |   |   |   |
|   | 0 ^  | <     | v     | >     | ^  | 0  |   | 0 ^   | <     | v     | >   | ^ | 0  |   |   |   |   |
|   | 2 >  |       |       |       | <  | 5  |   | 3 >   |       |       |     | < | 5  |   |   |   |   |
|   | 0 v  |       |       |       | v  | 0  |   | 0 v   |       |       |     | v | 0  |   |   |   |   |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |      |       |       |       | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       | <     | ^     | >  | 0  | 0 | 0     |       |       |     | < | ^  | > | 0 | 0 | 0 |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |      |       |       |       | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     | 0  |    |   |       | 0     | 0     | 0   |   |    |   |   |   |   |
|   | 0 ^  | <     | v     | >     | ^  | 0  |   | 0 ^   | <     | v     | >   | ^ | 0  |   |   |   |   |
|   | 11 > |       |       |       | <  | 12 |   | 10 >  |       |       |     | < | 16 |   |   |   |   |
|   | 0 v  |       |       |       | v  | 0  |   | 0 v   |       |       |     | v | 0  |   |   |   |   |
|   |      |       | 0     | 0     | 0  |    |   |       | 0     | 0     | 0   |   |    |   |   |   |   |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 146 < | IN =  | 198 < | 146  |    |   | 124 < | IN =  | 319 < | 124 |   |    |   |   |   |   |
|   |      | 52 >  | OUT = | 198 > | 52   |    |   | 195 > | OUT = | 319 > | 195 |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 10 <  | IN =  | 17 <  | 10   |    |   | 15 <  | IN =  | 26 <  | 15  |   |    |   |   |   |   |
|   |      | 7 >   | OUT = | 17 >  | 7  |    |   | 11 >  | OUT = | 26 >  | 11  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |      |       |       |       | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 59 <  | IN =  | 81 <  | 59   |    |   | 38 <  | IN =  | 96 <  | 38  |   |    |   |   |   |   |
|   |      | 22 >  | OUT = | 81 >  | 22   |    |   | 57 >  | OUT = | 96 >  | 57  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 142 < | IN =  | 240 < | 142  |    |   | 209 < | IN =  | 465 < | 209 |   |    |   |   |   |   |
|   |      | 98 >  | OUT = | 240 > | 98   |    |   | 256 > | OUT = | 465 > | 256 |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 7 <   | IN =  | 19 <  | 7  |    |   | 18 <  | IN =  | 36 <  | 18  |   |    |   |   |   |   |
|   |      | 12 >  | OUT = | 19 >  | 12   |    |   | 18 >  | OUT = | 36 >  | 18  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |      |       |       |       | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 56 <  | IN =  | 98 <  | 56   |    |   | 63 <  | IN =  | 139 < | 63  |   |    |   |   |   |   |
|   |      | 41 >  | OUT = | 98 >  | 41   |    |   | 76 >  | OUT = | 139 > | 76  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                      |      |       |       |       | RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                     |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | -3 <  |       | <     | -3   |    |   | 25 <  |       | <     | 25  |   |    |   |   |   |   |
|   |      | 19 >  |       | >     | 19   |    |   | 19 >  |       | >     | 19  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                       |      |       |       |       | ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                      |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 0 <   | IN =  | 20 <  | 0  |    |   | 20 <  | IN =  | 40 <  | 20  |   |    |   |   |   |   |
|   |      | 20 >  | OUT = | 20 >  | 20   |    |   | 20 >  | OUT = | 40 >  | 20  |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
| FUTURE YEAR GROWTH:<br>2 YEARS  |      |       |       |       | FUTURE YEAR GROWTH:<br>2 YEARS   |    |   |       |       |       |     |   |    |   |   |   |   |
|   |      |       |       | 0     | 0  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |
|   |      | 0 <   |       | <     | 0  |    |   | 0 <   |       | <     | 0   |   |    |   |   |   |   |
|   |      | 0 >   |       | >     | 0  |    |   | 0 >   |       | >     | 0   |   |    |   |   |   |   |
|   |      |       | v     | ^     |  |    |   |       | v     | ^     |     |   |    |   |   |   |   |
|   |      |       | 0     | 0     |  |    |   |       | 0     | 0     |     |   |    |   |   |   |   |

Project West Access (NS) at: Dumas Street (EW) - #3

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 11              | IN ...    | 10                 |                              | THRU             | 10              | IN ...    | 10                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 12              | IN ...    | 10                 |                              | THRU             | 16              | IN ...    | 20                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 11              | 11                    | RATIO 7.7%                |                           | THRU             | 10              | 10                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 12              | 12                    | RATIO 7.7%                |                           | THRU             | 16              | 20                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |

**Project West Access (NS) at: Dumas Street (EW) - #3**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   |
|                              | THRU             | 11              | IN ...    | 20                |                              | THRU             | 10              | IN ...    | 20                |
|                              | RIGHT            | 0               | OUT ...   | 10                |                              | RIGHT            | 0               | OUT ...   | 30                |
| WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   |
|                              | THRU             | 12              | IN ...    | 10                |                              | THRU             | 16              | IN ...    | 30                |
|                              | RIGHT            | 0               | OUT ...   | 20                |                              | RIGHT            | 0               | OUT ...   | 20                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG                  |
|                              | THRU             | 11              | 20                   | RATIO 8.5%                |                           | THRU             | 10              | 20                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG                  |
|                              | THRU             | 12              | 14                   | RATIO 8.5%                |                           | THRU             | 16              | 30                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |

| Project East Access (NS) at: Dumas Street (EW) - #4                                   |      |       |       |       |  |    |       |       |       |     |   |    |
|---|------|-------|-------|-------|--|----|-------|-------|-------|-----|---|----|
| MORNING PEAK HOUR   |      |       |       |       | EVENING PEAK HOUR  |    |       |       |       |     |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 9 >  |       |       |       | <  | 7  | 7 >   |       |       |     | < | 11 |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |      |       |       |       | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 7 <   | IN =  | 16 <  | 7  |    | 11 <  | IN =  | 18 <  | 11  |   |    |
|   |      | 9 >   | OUT = | 16 >  | 9  |    | 7 >   | OUT = | 18 >  | 7   |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 2 >  |       |       |       | <  | 5  | 3 >   |       |       |     | < | 5  |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |      |       |       |       | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |      |       |       |       | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 11 > |       |       |       | <  | 12 | 10 >  |       |       |     | < | 16 |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 146 < | IN =  | 198 < | 146  |    | 124 < | IN =  | 319 < | 124 |   |    |
|   |      | 52 >  | OUT = | 198 > | 52   |    | 195 > | OUT = | 319 > | 195 |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 10 <  | IN =  | 17 <  | 10   |    | 15 <  | IN =  | 26 <  | 15  |   |    |
|   |      | 7 >   | OUT = | 17 >  | 7  |    | 11 >  | OUT = | 26 >  | 11  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |      |       |       |       | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 59 <  | IN =  | 81 <  | 59   |    | 38 <  | IN =  | 96 <  | 38  |   |    |
|   |      | 22 >  | OUT = | 81 >  | 22   |    | 57 >  | OUT = | 96 >  | 57  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 142 < | IN =  | 240 < | 142  |    | 209 < | IN =  | 465 < | 209 |   |    |
|   |      | 98 >  | OUT = | 240 > | 98   |    | 256 > | OUT = | 465 > | 256 |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 7 <   | IN =  | 19 <  | 7  |    | 18 <  | IN =  | 36 <  | 18  |   |    |
|   |      | 12 >  | OUT = | 19 >  | 12   |    | 18 >  | OUT = | 36 >  | 18  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |      |       |       |       | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 56 <  | IN =  | 98 <  | 56   |    | 63 <  | IN =  | 139 < | 63  |   |    |
|   |      | 41 >  | OUT = | 98 >  | 41   |    | 76 >  | OUT = | 139 > | 76  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00         |      |       |       |       | RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00        |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | -3 <  |       | <     | -3   |    | 25 <  |       | <     | 25  |   |    |
|   |      | 19 >  |       | >     | 19   |    | 19 >  |       | >     | 19  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                          |      |       |       |       | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                         |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 0 <   | IN =  | 20 <  | 0  |    | 20 <  | IN =  | 40 <  | 20  |   |    |
|   |      | 20 >  | OUT = | 20 >  | 20   |    | 20 >  | OUT = | 40 >  | 20  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS   |      |       |       |       | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 0 <   |       | <     | 0  |    | 0 <   |       | <     | 0   |   |    |
|   |      | 0 >   |       | >     | 0  |    | 0 >   |       | >     | 0   |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |

**Project East Access (NS) at: Dumas Street (EW) - #4**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 11              | IN ...    | 10                 |                              | THRU             | 10              | IN ...    | 10                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 12              | IN ...    | 10                 |                              | THRU             | 16              | IN ...    | 20                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 11              | 11                    | RATIO 7.7%                |                           | THRU             | 10              | 10                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 12              | 12                    | RATIO 7.7%                |                           | THRU             | 16              | 20                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |

**Project East Access (NS) at: Dumas Street (EW) - #4**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   |
|                              | THRU             | 11              | IN ...    | 20                |                              | THRU             | 10              | IN ...    | 20                |
|                              | RIGHT            | 0               | OUT ...   | 10                |                              | RIGHT            | 0               | OUT ...   | 30                |
| WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   |
|                              | THRU             | 12              | IN ...    | 10                |                              | THRU             | 16              | IN ...    | 30                |
|                              | RIGHT            | 0               | OUT ...   | 20                |                              | RIGHT            | 0               | OUT ...   | 20                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG                  |
|                              | THRU             | 11              | 20                   | RATIO 8.5%                |                           | THRU             | 10              | 20                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG                  |
|                              | THRU             | 12              | 14                   | RATIO 8.5%                |                           | THRU             | 16              | 30                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |

| Waterman Avenue (NS) at: Orange Show Road (EW) - #5                |     |    |       |      |  |     |                      |      |      |       |       |     |  |
|--|-----|----|-------|------|--|-----|----------------------|------|------|-------|-------|-----|--|
| MORNING PEAK HOUR  |     |    |       |      | EVENING PEAK HOUR  |     |                      |      |      |       |       |     |  |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |     |    |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |     |                      |      |      |       |       |     |  |
|  |     |    | 61    | 445  | 38   |     |                      |      | 83   | 647   | 97    |     |  |
|  |     | <  | v     | >    | ^  |     |                      | <    | v    | >     | ^     |     |  |
|  | 137 | ^  |       |      |  |     |                      | 115  | ^    |       |       |     |  |
|  | 342 | >  |       |      |  |     |                      | 674  | >    |       |       |     |  |
|  | 264 | v  |       |      |  |     |                      | 197  | v    |       |       |     |  |
|  |     |    | <     | ^    | >  |     |                      | <    | ^    | >     |       |     |  |
|  |     |    | 58    | 538  | 49   |     |                      | 185  | 518  | 99    |       |     |  |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |     |    |       |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |     |                      |      |      |       |       |     |  |
|  |     |    |       | 544  | 736  |     |                      |      | 827  | 711   |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 322 | <  | IN =  | 2269 | <  | 337 |                      | 840  | <    | IN =  | 3398  |     |  |
|  | 743 | >  | OUT = | 2269 | >  | 429 |                      | 986  | >    | OUT = | 3398  |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 782  | 645  |     |                      |      | 977  | 802   |       |     |  |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |     |    |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |     |                      |      |      |       |       |     |  |
|  |     |    |       | 19   | 67   | 10  |                      |      |      | 8     | 45    | 2   |  |
|  |     | <  | v     | >    | ^  |     |                      | <    | v    | >     | ^     |     |  |
|  | 23  | ^  |       |      |  |     |                      | 11   | ^    |       |       |     |  |
|  | 39  | >  |       |      |  |     |                      | 72   | >    |       |       |     |  |
|  | 6   | v  |       |      |  |     |                      | 12   | v    |       |       |     |  |
|  |     |    | <     | ^    | >  |     |                      | <    | ^    | >     |       |     |  |
| PCE FACTORS BY AXLE:   |     |    |       | 5    | 55   | 5   | PCE FACTORS BY AXLE: |      |      | 3     | 31    | 11  |  |
| 2:   | 1.5 | 3: | 2.0   | 4+:  | 3.0  |     | 2:                   | 1.5  | 3:   | 2     | 4+:   | 3.0 |  |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |     |    |       |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |     |                      |      |      |       |       |     |  |
|  |     |    |       | 80   | 512  | 48  |                      |      |      | 91    | 692   | 99  |  |
|  |     | <  | v     | >    | ^  |     |                      | <    | v    | >     | ^     |     |  |
|  | 160 | ^  |       |      |  |     |                      | 126  | ^    |       |       |     |  |
|  | 381 | >  |       |      |  |     |                      | 746  | >    |       |       |     |  |
|  | 270 | v  |       |      |  |     |                      | 209  | v    |       |       |     |  |
|  |     |    | <     | ^    | >  |     |                      | <    | ^    | >     |       |     |  |
|  |     |    |       | 63   | 593  | 54  |                      |      | 188  | 549   | 110   |     |  |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |     |    |       |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |     |                      |      |      |       |       |     |  |
|  |     |    |       | 1393 | 1460   |     |                      |      | 2520 | 2488  |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 398 | <  | IN =  | 3710 | <  | 319 |                      | 665  | <    | IN =  | 6481  |     |  |
|  | 484 | >  | OUT = | 3710 | >  | 353 |                      | 763  | >    | OUT = | 6481  |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 1499 | 1514   |     |                      |      | 2357 | 2559  |       |     |  |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |     |    |       |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |     |                      |      |      |       |       |     |  |
|  |     |    |       | 43   | 36   |     |                      |      | 58   | 81    |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 34  | <  | IN =  | 134  | <  | 30  |                      | 48   | <    | IN =  | 241   |     |  |
|  | 26  | >  | OUT = | 134  | >  | 27  |                      | 51   | >    | OUT = | 241   |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 37   | 35   |     |                      |      | 46   | 88    |       |     |  |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |     |    |       |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |     |                      |      |      |       |       |     |  |
|  |     |    |       | 544  | 567  |     |                      |      | 720  | 717   |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
| PHF FOR TRUCKS: 0.333  |     |    |       |      | PHF FOR TRUCKS: 0.25   |     |                      |      |      |       |       |     |  |
|  | 163 | <  | IN =  | 1454 | <  | 131 |                      | 198  | <    | IN =  | 1875  |     |  |
|  | 193 | >  | OUT = | 1454 | >  | 143 |                      | 226  | >    | OUT = | 1875  |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 582  | 587  |     |                      |      | 671  | 739   |       |     |  |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |     |    |       |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |     |                      |      |      |       |       |     |  |
|  |     |    |       | 2548 | 1827   |     |                      |      | 3565 | 3968  |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 591 | <  | IN =  | 5742 | <  | 550 |                      | 1819 | <    | IN =  | 10468 |     |  |
|  | 966 | >  | OUT = | 5742 | >  | 628 |                      | 1368 | >    | OUT = | 10467 |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 2696 | 1678   |     |                      |      | 3308 | 4128  |       |     |  |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |     |    |       |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |     |                      |      |      |       |       |     |  |
|  |     |    |       | 69   | 52   |     |                      |      | 89   | 89    |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 43  | <  | IN =  | 193  | <  | 40  |                      | 70   | <    | IN =  | 303   |     |  |
|  | 41  | >  | OUT = | 193  | >  | 41  |                      | 70   | >    | OUT = | 303   |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 57   | 43   |     |                      |      | 76   | 76    |       |     |  |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |     |    |       |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |     |                      |      |      |       |       |     |  |
|  |     |    |       | 991  | 712  |     |                      |      | 1020 | 1133  |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
| PHF FOR TRUCKS: 0.333  |     |    |       |      | PHF FOR TRUCKS: 0.25   |     |                      |      |      |       |       |     |  |
|  | 239 | <  | IN =  | 2246 | <  | 222 |                      | 527  | <    | IN =  | 3007  |     |  |
|  | 381 | >  | OUT = | 2246 | >  | 252 |                      | 401  | >    | OUT = | 3007  |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 1043 | 652  |     |                      |      | 945  | 1175  |       |     |  |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |     |    |       |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |     |                      |      |      |       |       |     |  |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |     |    |       |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |     |                      |      |      |       |       |     |  |
|  |     |    |       | 448  | 145  |     |                      |      | 300  | 416   |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 76  | <  |       |      |  |     |                      | 329  | <    |       |       |     |  |
|  | 188 | >  |       |      |  |     |                      | 174  | >    |       |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 462  | 65   |     |                      |      | 274  | 436   |       |     |  |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |     |    |       |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |     |                      |      |      |       |       |     |  |
|  |     |    |       | 450  | 140  |     |                      |      | 300  | 420   |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 80  | <  | IN =  | 790  | <  | 90  |                      | 330  | <    | IN =  | 1130  |     |  |
|  | 190 | >  | OUT = | 790  | >  | 110 |                      | 170  | >    | OUT = | 1130  |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 460  | 60   |     |                      |      | 270  | 440   |       |     |  |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |     |    |       |      | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |     |                      |      |      |       |       |     |  |
|  |     |    |       | 30   | 10   |     |                      |      | 20   | 30    |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  | 10  | <  |       |      |  |     |                      | 20   | <    |       |       |     |  |
|  | 10  | >  |       |      |  |     |                      | 10   | >    |       |       |     |  |
|  |     |    | v     | ^    |  |     |                      | v    | ^    |       |       |     |  |
|  |     |    |       | 30   | 0  |     |                      |      | 20   | 30    |       |     |  |

**Waterman Avenue (NS) at: Orange Show Road (EW) - #5**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 63              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 188             | SOUTH LEG |                    |
|  | THRU             | 593             | IN ...    | 710                |                              | THRU             | 549             | IN ...    | 880                |
|  | RIGHT            | 54              | OUT ...   | 890                |                              | RIGHT            | 110             | OUT ...   | 1,080              |
| SOUTH BOUND                            | LEFT             | 48              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 99              | NORTH LEG |                    |
|  | THRU             | 512             | IN ...    | 670                |                              | THRU             | 692             | IN ...    | 900                |
|  | RIGHT            | 80              | OUT ...   | 830                |                              | RIGHT            | 91              | OUT ...   | 790                |
| EAST BOUND                             | LEFT             | 160             | WEST LEG  |                    | EAST BOUND                   | LEFT             | 126             | WEST LEG  |                    |
|  | THRU             | 381             | IN ...    | 820                |                              | THRU             | 746             | IN ...    | 1,090              |
|  | RIGHT            | 270             | OUT ...   | 410                |                              | RIGHT            | 209             | OUT ...   | 980                |
| WEST BOUND                             | LEFT             | 75              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 156             | EAST LEG  |                    |
|  | THRU             | 256             | IN ...    | 410                |                              | THRU             | 679             | IN ...    | 940                |
|  | RIGHT            | 67              | OUT ...   | 490                |                              | RIGHT            | 85              | OUT ...   | 970                |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 63              | 63                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 188             | 194                   | NORTH LEG                 |
|  | THRU             | 593             | 596                   | RATIO 7.4%                |                           | THRU             | 549             | 574                   | RATIO 8.4%                |
|  | RIGHT            | 54              | 54                    | ADT 20,200                |                           | RIGHT            | 110             | 114                   | ADT 20,200                |
| SOUTH BOUND                            | LEFT             | 48              | 50                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 99              | 102                   | SOUTH LEG                 |
|  | THRU             | 512             | 538                   | RATIO 6.9%                |                           | THRU             | 692             | 708                   | RATIO 8.5%                |
|  | RIGHT            | 80              | 84                    | ADT 23,200                |                           | RIGHT            | 91              | 92                    | ADT 23,200                |
| EAST BOUND                             | LEFT             | 160             | 164                   | EAST LEG                  | EAST BOUND                | LEFT             | 126             | 128                   | EAST LEG                  |
|  | THRU             | 381             | 386                   | RATIO 4.0%                |                           | THRU             | 746             | 754                   | RATIO 8.4%                |
|  | RIGHT            | 270             | 274                   | ADT 22,700                |                           | RIGHT            | 209             | 211                   | ADT 22,700                |
| WEST BOUND                             | LEFT             | 75              | 78                    | WEST LEG                  | WEST BOUND                | LEFT             | 156             | 161                   | WEST LEG                  |
|  | THRU             | 256             | 264                   | RATIO 5.0%                |                           | THRU             | 679             | 694                   | RATIO 8.4%                |
|  | RIGHT            | 67              | 70                    | ADT 24,700                |                           | RIGHT            | 85              | 88                    | ADT 24,700                |

Waterman Avenue (NS) at: Orange Show Road (EW) - #5

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 63              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 188             | SOUTH LEG |                   |
|                              | THRU             | 593             | IN ...    | 750               |                              | THRU             | 549             | IN ...    | 1,180             |
|                              | RIGHT            | 54              | OUT ...   | 1,200             |                              | RIGHT            | 110             | OUT ...   | 1,260             |
| SOUTH BOUND                  | LEFT             | 48              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 99              | NORTH LEG |                   |
|                              | THRU             | 512             | IN ...    | 970               |                              | THRU             | 692             | IN ...    | 1,100             |
|                              | RIGHT            | 80              | OUT ...   | 920               |                              | RIGHT            | 91              | OUT ...   | 1,070             |
| EAST BOUND                   | LEFT             | 160             | WEST LEG  |                   | EAST BOUND                   | LEFT             | 126             | WEST LEG  |                   |
|                              | THRU             | 381             | IN ...    | 950               |                              | THRU             | 746             | IN ...    | 1,210             |
|                              | RIGHT            | 270             | OUT ...   | 460               |                              | RIGHT            | 209             | OUT ...   | 1,200             |
| WEST BOUND                   | LEFT             | 75              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 156             | EAST LEG  |                   |
|                              | THRU             | 256             | IN ...    | 470               |                              | THRU             | 679             | IN ...    | 1,080             |
|                              | RIGHT            | 67              | OUT ...   | 560               |                              | RIGHT            | 85              | OUT ...   | 1,040             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 63              | 70                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 188             | 261                  | NORTH LEG                 |
|                              | THRU             | 593             | 637                  | RATIO 7.8%                |                           | THRU             | 549             | 794                  | RATIO 9.0%                |
|                              | RIGHT            | 54              | 54                   | ADT 24,200                |                           | RIGHT            | 110             | 126                  | ADT 24,200                |
| SOUTH BOUND                  | LEFT             | 48              | 71                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 99              | 115                  | SOUTH LEG                 |
|                              | THRU             | 512             | 787                  | RATIO 7.2%                |                           | THRU             | 692             | 857                  | RATIO 9.0%                |
|                              | RIGHT            | 80              | 111                  | ADT 27,100                |                           | RIGHT            | 91              | 128                  | ADT 27,100                |
| EAST BOUND                   | LEFT             | 160             | 196                  | EAST LEG                  | EAST BOUND                | LEFT             | 126             | 170                  | EAST LEG                  |
|                              | THRU             | 381             | 435                  | RATIO 4.2%                |                           | THRU             | 746             | 799                  | RATIO 8.6%                |
|                              | RIGHT            | 270             | 319                  | ADT 24,800                |                           | RIGHT            | 209             | 239                  | ADT 24,800                |
| WEST BOUND                   | LEFT             | 75              | 94                   | WEST LEG                  | WEST BOUND                | LEFT             | 156             | 164                  | WEST LEG                  |
|                              | THRU             | 256             | 290                  | RATIO 5.3%                |                           | THRU             | 679             | 811                  | RATIO 8.9%                |
|                              | RIGHT            | 67              | 87                   | ADT 27,000                |                           | RIGHT            | 85              | 106                  | ADT 27,000                |



**Waterman Avenue (NS) at: Dumas Street (EW) - #6**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 3               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                    |
|  | THRU             | 716             | IN ...    | 730                |                              | THRU             | 869             | IN ...    | 900                |
|  | RIGHT            | 0               | OUT ...   | 880                |                              | RIGHT            | 0               | OUT ...   | 1,120              |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 838             | IN ...    | 880                |                              | THRU             | 1,085           | IN ...    | 1,120              |
|  | RIGHT            | 8               | OUT ...   | 730                |                              | RIGHT            | 5               | OUT ...   | 900                |
| EAST BOUND                             | LEFT             | 5               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 5               | WEST LEG  |                    |
|  | THRU             | 0               | IN ...    | 10                 |                              | THRU             | 0               | IN ...    | 10                 |
|  | RIGHT            | 6               | OUT ...   | 10                 |                              | RIGHT            | 7               | OUT ...   | 10                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 3               | 3                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 3                     | NORTH LEG                 |
|  | THRU             | 716             | 726                   | RATIO 6.7%                |                           | THRU             | 869             | 896                   | RATIO 8.4%                |
|  | RIGHT            | 0               | 0                     | ADT 24,000                |                           | RIGHT            | 0               | 0                     | ADT 24,000                |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 838             | 874                   | RATIO 6.7%                |                           | THRU             | 1,085           | 1,114                 | RATIO 8.4%                |
|  | RIGHT            | 8               | 8                     | ADT 24,000                |                           | RIGHT            | 5               | 7                     | ADT 24,000                |
| EAST BOUND                             | LEFT             | 5               | 5                     | EAST LEG                  | EAST BOUND                | LEFT             | 5               | 5                     | EAST LEG                  |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 6               | 6                     | ADT 0                     |                           | RIGHT            | 7               | 7                     | ADT 0                     |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 11.0%               |                           | THRU             | 0               | 0                     | RATIO 11.0%               |
|  | RIGHT            | 0               | 0                     | ADT 200                   |                           | RIGHT            | 0               | 0                     | ADT 200                   |

**Waterman Avenue (NS) at: Dumas Street (EW) - #6**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 3               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                   |
|                              | THRU             | 716             | IN ...    | 850               |                              | THRU             | 869             | IN ...    | 1,120             |
|                              | RIGHT            | 0               | OUT ...   | 1,110             |                              | RIGHT            | 0               | OUT ...   | 1,380             |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   |
|                              | THRU             | 838             | IN ...    | 1,190             |                              | THRU             | 1,085           | IN ...    | 1,290             |
|                              | RIGHT            | 8               | OUT ...   | 770               |                              | RIGHT            | 5               | OUT ...   | 1,200             |
| EAST BOUND                   | LEFT             | 5               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 5               | WEST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 20                |                              | THRU             | 0               | IN ...    | 20                |
|                              | RIGHT            | 6               | OUT ...   | 10                |                              | RIGHT            | 7               | OUT ...   | 20                |
| WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 3               | 4                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 6                    | NORTH LEG                 |
|                              | THRU             | 716             | 763                  | RATIO 6.7%                |                           | THRU             | 869             | 1,191                | RATIO 9.3%                |
|                              | RIGHT            | 0               | 0                    | ADT 27,900                |                           | RIGHT            | 0               | 0                    | ADT 27,900                |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG                 |
|                              | THRU             | 838             | 1,099                | RATIO 6.7%                |                           | THRU             | 1,085           | 1,367                | RATIO 9.2%                |
|                              | RIGHT            | 8               | 9                    | ADT 28,100                |                           | RIGHT            | 5               | 14                   | ADT 28,100                |
| EAST BOUND                   | LEFT             | 5               | 7                    | EAST LEG                  | EAST BOUND                | LEFT             | 5               | 9                    | EAST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 6               | 11                   | ADT 0                     |                           | RIGHT            | 7               | 13                   | ADT 0                     |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO 10.5%               |                           | THRU             | 0               | 0                    | RATIO 13.8%               |
|                              | RIGHT            | 0               | 0                    | ADT 300                   |                           | RIGHT            | 0               | 0                    | ADT 300                   |

| Waterman Avenue (NS) at: Park Circle North (EW) - #7               |     |       |      |      |  |  |     |       |      |   |    |
|--|-----|-------|------|------|--|--|-----|-------|------|---|----|
| MORNING PEAK HOUR  |     |       |      |      | EVENING PEAK HOUR  |  |     |       |      |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |     |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |  |     |       |      |   |    |
|  |     | 0     | 691  | 77   |  |  | 0   | 1074  | 6    |   |    |
|  | 0 ^ | <     | v    | >    | 6  |  | 0 ^ | <     | v    | > | 63 |
|  | 0 > |       |      | <    | 0  |  | 0 > |       |      | < | 0  |
|  | 0 v |       |      | v    | 1  |  | 0 v |       |      | v | 8  |
|  |     | <     | ^    | >    |  |  | <   | ^     | >    |   |    |
|  |     | 0     | 642  | 27   |  |  | 0   | 677   | 2    |   |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |     |       |      |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |  |     |       |      |   |    |
|  |     |       | 768  | 648  |  |  |     | 1080  | 740  |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 1444 | <    | 7  |  | 0 < | IN =  | 1830 | < | 71 |
|  | 0 > | OUT = | 1444 | >    | 104  |  | 0 > | OUT = | 1830 | > | 8  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 692  | 669  |  |  |     | 1082  | 679  |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |     |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |  |     |       |      |   |    |
|  |     | 0     | 58   | 0    |  |  | 0   | 77    | 3    |   |    |
|  | 0 ^ | <     | v    | >    | 0  |  | 0 ^ | <     | v    | > | 0  |
|  | 0 > |       |      | <    | 0  |  | 0 > |       |      | < | 0  |
|  | 0 v |       |      | v    | 0  |  | 0 v |       |      | v | 0  |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |     |       |      |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |  |     |       |      |   |    |
|  |     | <     | ^    | >    |  |  | <   | ^     | >    |   |    |
|  |     | 0     | 69   | 0    |  |  | 0   | 40    | 0    |   |    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |     |       |      |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |  |     |       |      |   |    |
|  |     | 0     | 749  | 77   |  |  | 0   | 1151  | 9    |   |    |
|  | 0 ^ | <     | v    | >    | 6  |  | 0 ^ | <     | v    | > | 63 |
|  | 0 > |       |      | <    | 0  |  | 0 > |       |      | < | 0  |
|  | 0 v |       |      | v    | 1  |  | 0 v |       |      | v | 8  |
|  |     | <     | ^    | >    |  |  | <   | ^     | >    |   |    |
|  |     | 0     | 711  | 27   |  |  | 0   | 717   | 2    |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |     |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |  |     |       |      |   |    |
|  |     |       | 1485 | 1599 |  |  |     | 2445  | 2569 |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 3084 | <    | 0  |  | 0 < | IN =  | 5014 | < | 0  |
|  | 0 > | OUT = | 3084 | >    | 0  |  | 0 > | OUT = | 5014 | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 1485 | 1599 |  |  |     | 2445  | 2569 |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |     |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |  |     |       |      |   |    |
|  |     |       | 37   | 38   |  |  |     | 47    | 93   |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 75   | <    | 0  |  | 0 < | IN =  | 140  | < | 0  |
|  | 0 > | OUT = | 75   | >    | 0  |  | 0 > | OUT = | 140  | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 37   | 38   |  |  |     | 47    | 93   |   |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |     |       |      |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |  |     |       |      |   |    |
|  |     |       | 577  | 620  |  |  |     | 696   | 743  |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
| PHF FOR TRUCKS: 0.333  |     |       |      |      | PHF FOR TRUCKS: 0.25   |  |     |       |      |   |    |
|  | 0 < | IN =  | 1197 | <    | 0  |  | 0 < | IN =  | 1439 | < | 0  |
|  | 0 > | OUT = | 1197 | >    | 0  |  | 0 > | OUT = | 1439 | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 577  | 620  |  |  |     | 696   | 743  |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |     |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |  |     |       |      |   |    |
|  |     |       | 2399 | 2028 |  |  |     | 3818  | 3802 |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 4427 | <    | 0  |  | 0 < | IN =  | 7620 | < | 0  |
|  | 0 > | OUT = | 4427 | >    | 0  |  | 0 > | OUT = | 7620 | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 2399 | 2028 |  |  |     | 3818  | 3802 |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |     |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |  |     |       |      |   |    |
|  |     |       | 64   | 44   |  |  |     | 79    | 79   |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 108  | <    | 0  |  | 0 < | IN =  | 158  | < | 0  |
|  | 0 > | OUT = | 108  | >    | 0  |  | 0 > | OUT = | 158  | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 64   | 44   |  |  |     | 79    | 79   |   |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |     |       |      |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |  |     |       |      |   |    |
|  |     |       | 933  | 785  |  |  |     | 1089  | 1084 |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
| PHF FOR TRUCKS: 0.333  |     |       |      |      | PHF FOR TRUCKS: 0.25   |  |     |       |      |   |    |
|  | 0 < | IN =  | 1718 | <    | 0  |  | 0 < | IN =  | 2173 | < | 0  |
|  | 0 > | OUT = | 1718 | >    | 0  |  | 0 > | OUT = | 2173 | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 933  | 785  |  |  |     | 1089  | 1084 |   |    |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |     |       |      |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |  |     |       |      |   |    |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |     |       |      |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |  |     |       |      |   |    |
|  |     |       | 356  | 165  |  |  |     | 392   | 342  |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < |       |      | <    | 0  |  | 0 < |       |      | < | 0  |
|  | 0 > |       |      | >    | 0  |  | 0 > |       |      | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 356  | 165  |  |  |     | 392   | 342  |   |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |     |       |      |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |  |     |       |      |   |    |
|  |     |       | 360  | 170  |  |  |     | 390   | 340  |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < | IN =  | 530  | <    | 0  |  | 0 < | IN =  | 740  | < | 10 |
|  | 0 > | OUT = | 540  | >    | 10   |  | 0 > | OUT = | 730  | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 360  | 170  |  |  |     | 390   | 340  |   |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |     |       |      |      | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |  |     |       |      |   |    |
|  |     |       | 30   | 10   |  |  |     | 30    | 30   |   |    |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  | 0 < |       |      | <    | 0  |  | 0 < |       |      | < | 0  |
|  | 0 > |       |      | >    | 0  |  | 0 > |       |      | > | 0  |
|  |     | v     | ^    |      |  |  | v   | ^     |      |   |    |
|  |     |       | 30   | 10   |  |  |     | 30    | 30   |   |    |

**Waterman Avenue (NS) at: Park Circle North (EW) - #7**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 711             | IN ...    | 750                |                              | THRU             | 717             | IN ...    | 750                |
|  | RIGHT            | 27              | OUT ...   | 780                |                              | RIGHT            | 2               | OUT ...   | 1,190              |
| SOUTH BOUND                            | LEFT             | 77              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 9               | NORTH LEG |                    |
|  | THRU             | 749             | IN ...    | 860                |                              | THRU             | 1,151           | IN ...    | 1,190              |
|  | RIGHT            | 0               | OUT ...   | 730                |                              | RIGHT            | 0               | OUT ...   | 810                |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| WEST BOUND                             | LEFT             | 1               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 8               | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 10                 |                              | THRU             | 0               | IN ...    | 70                 |
|  | RIGHT            | 6               | OUT ...   | 100                |                              | RIGHT            | 63              | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 711             | 721                   | RATIO 6.7%                |                           | THRU             | 717             | 748                   | RATIO 8.5%                |
|  | RIGHT            | 27              | 27                    | ADT 23,700                |                           | RIGHT            | 2               | 2                     | ADT 23,700                |
| SOUTH BOUND                            | LEFT             | 77              | 78                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 9               | 9                     | SOUTH LEG                 |
|  | THRU             | 749             | 779                   | RATIO 6.7%                |                           | THRU             | 1,151           | 1,182                 | RATIO 8.5%                |
|  | RIGHT            | 0               | 0                     | ADT 22,900                |                           | RIGHT            | 0               | 0                     | ADT 22,900                |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 11.5%               |                           | THRU             | 0               | 0                     | RATIO 8.6%                |
|  | RIGHT            | 0               | 0                     | ADT 1,000                 |                           | RIGHT            | 0               | 0                     | ADT 1,000                 |
| WEST BOUND                             | LEFT             | 1               | 1                     | WEST LEG                  | WEST BOUND                | LEFT             | 8               | 9                     | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 6               | 9                     | ADT 0                     |                           | RIGHT            | 63              | 66                    | ADT 0                     |

**Waterman Avenue (NS) at: Park Circle North (EW) - #7**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   |
|                              | THRU             | 711             | IN ...    | 870               |                              | THRU             | 717             | IN ...    | 970               |
|                              | RIGHT            | 27              | OUT ...   | 1,020             |                              | RIGHT            | 2               | OUT ...   | 1,450             |
| SOUTH BOUND                  | LEFT             | 77              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 9               | NORTH LEG |                   |
|                              | THRU             | 749             | IN ...    | 1,100             |                              | THRU             | 1,151           | IN ...    | 1,450             |
|                              | RIGHT            | 0               | OUT ...   | 850               |                              | RIGHT            | 0               | OUT ...   | 1,030             |
| EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| WEST BOUND                   | LEFT             | 1               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 8               | EAST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 10                |                              | THRU             | 0               | IN ...    | 80                |
|                              | RIGHT            | 6               | OUT ...   | 110               |                              | RIGHT            | 63              | OUT ...   | 10                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG                 |
|                              | THRU             | 711             | 841                  | RATIO 7.0%                |                           | THRU             | 717             | 960                  | RATIO 8.9%                |
|                              | RIGHT            | 27              | 30                   | ADT 27,800                |                           | RIGHT            | 2               | 2                    | ADT 27,800                |
| SOUTH BOUND                  | LEFT             | 77              | 83                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 9               | 10                   | SOUTH LEG                 |
|                              | THRU             | 749             | 1,019                | RATIO 7.0%                |                           | THRU             | 1,151           | 1,441                | RATIO 8.9%                |
|                              | RIGHT            | 0               | 0                    | ADT 27,000                |                           | RIGHT            | 0               | 0                    | ADT 27,000                |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO 11.2%               |                           | THRU             | 0               | 0                    | RATIO 8.4%                |
|                              | RIGHT            | 0               | 0                    | ADT 1,100                 |                           | RIGHT            | 0               | 0                    | ADT 1,100                 |
| WEST BOUND                   | LEFT             | 1               | 1                    | WEST LEG                  | WEST BOUND                | LEFT             | 8               | 10                   | WEST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 6               | 9                    | ADT 0                     |                           | RIGHT            | 63              | 70                   | ADT 0                     |

| Waterman Avenue (NS) at: Park Center Circle South (EW) - #8                           |       |       |   |        |      |  |       |       |      |        |     |      |     |
|---|-------|-------|---|--------|------|--|-------|-------|------|--------|-----|------|-----|
| MORNING PEAK HOUR   |       |       |   |        |      | EVENING PEAK HOUR  |       |       |      |        |     |      |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |       |       |   |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |       |       |      |        |     |      |     |
|   |       |       | 5 | 672    | 21   |  |       |       | 7    | 1005   | 4   |      |     |
|   | 8 ^   | <     | v | >      | ^    |  | 1 ^   | <     | v    | >      | ^   |      |     |
|   | 0 >   |       |   |        | <    |  | 0 >   |       |      |        | <   |      |     |
|   | 9 v   |       |   |        | v    |  | 10 v  |       |      |        | v   |      |     |
|   |       |       | 5 | 640    | 155  |  |       |       | 9    | 654    | 12  |      |     |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |       |       |   |        |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |       |       |      |        |     |      |     |
|   |       |       |   | 698    | 653  |  |       |       | 1016 | 680    |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 10 <  | IN =  |   | 1538 < | 23   |  | 16 <  | IN =  |      | 1897 < | 195 |      |     |
|   | 17 >  | OUT = |   | 1538 > | 176  |  | 11 >  | OUT = |      | 1897 > | 16  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 699    | 800  |  |       |       | 1185 | 675    |     |      |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |       |       |   |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |       |       |      |        |     |      |     |
|   |       |       | 2 | 54     | 0    |  |       |       | 0    | 82     | 2   |      |     |
|   |       | <     | v | >      | ^    |  |       | <     | v    | >      | ^   |      |     |
|   | 0 ^   |       |   |        | ^    |  | 0 ^   |       |      |        | ^   |      |     |
|   | 4 >   |       |   |        | <    |  | 0 >   |       |      |        | <   |      |     |
|   | 2 v   |       |   |        | v    |  | 0 v   |       |      |        | v   |      |     |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |       |       |   |        |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |       |       |      |        |     |      |     |
|   |       |       | 0 | 64     | 6    |  |       |       | 0    | 39     | 5   |      |     |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |       |       |   |        |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |       |       |      |        |     |      |     |
|   |       |       | 7 | 726    | 21   |  |       |       | 7    | 1087   | 6   |      |     |
|   | 8 ^   | <     | v | >      | ^    |  | 1 ^   | <     | v    | >      | ^   |      |     |
|   | 4 >   |       |   |        | <    |  | 0 >   |       |      |        | <   |      |     |
|   | 11 v  |       |   |        | v    |  | 10 v  |       |      |        | v   |      |     |
|   |       |       | 5 | 704    | 161  |  |       |       | 9    | 693    | 17  |      |     |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |       |       |   |        |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |       |       |      |        |     |      |     |
|   |       |       |   | 1485   | 1599 |  |       |       | 2445 | 2569   |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 285 < | IN =  |   | 3194 < | 15   |  | 189 < | IN =  |      | 5201 < | 71  |      |     |
|   | 73 >  | OUT = |   | 3193 > | 88   |  | 433 > | OUT = |      | 5201 > | 74  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 1221   | 1621 |  |       |       | 2369 | 2252   |     |      |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |       |       |   |        |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |       |       |      |        |     |      |     |
|   |       |       |   | 37     | 38   |  |       |       | 47   | 93     |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 2 <   | IN =  |   | 81 <   | 3    |  | 2 <   | IN =  |      | 151 <  | 5   |      |     |
|   | 1 >   | OUT = |   | 83 >   | 8    |  | 2 >   | OUT = |      | 151 >  | 13  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 35     | 40   |  |       |       | 43   | 97     |     |      |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |       |       |   |        |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |       |       |      |        |     |      |     |
|   |       |       |   | 577    | 620  |  |       |       | 696  | 743    |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 109 < | IN =  |   | 1241 < | 7    |  | 53 <  | IN =  |      | 1494 < | 21  |      |     |
|   | 28 >  | OUT = |   | 1241 > | 36   |  | 122 > | OUT = |      | 1494 > | 24  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 476    | 629  |  |       |       | 674  | 655    |     |      |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |       |       |   |        |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |       |       |      |        |     |      |     |
|   |       |       |   | 2399   | 2028 |  |       |       | 3818 | 3802   |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 315 < | IN =  |   | 4661 < | 71   |  | 311 < | IN =  |      | 7827 < | 303 |      |     |
|   | 113 > | OUT = |   | 4662 > | 247  |  | 301 > | OUT = |      | 8127 > | 332 |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 2072   | 2078 |  |       |       | 3682 | 3405   |     |      |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |       |       |   |        |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |       |       |      |        |     |      |     |
|   |       |       |   | 64     | 44   |  |       |       | 79   | 79     |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 5 <   | IN =  |   | 118 <  | 5    |  | 7 <   | IN =  |      | 175 <  | 17  |      |     |
|   | 5 >   | OUT = |   | 117 >  | 10   |  | 7 >   | OUT = |      | 175 >  | 17  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 58     | 44   |  |       |       | 72   | 72     |     |      |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |       |       |   |        |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |       |       |      |        |     |      |     |
|   |       |       |   | 933    | 785  |  |       |       | 1089 | 1084   |     |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   | 121 < | IN =  |   | 1810 < | 29   |  | 89 <  | IN =  |      | 2235 < | 89  |      |     |
|   | 45 >  | OUT = |   | 1811 > | 97   |  | 86 >  | OUT = |      | 2319 > | 97  |      |     |
|   |       |       |   | v      | ^    |  |       |       | v    | ^      |     |      |     |
|   |       |       |   | 807    | 804  |  |       |       | 1049 | 971    |     |      |     |
| RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                      |       |       |   |        |      | RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                     |       |       |      |        |     |      |     |
|   |       |       |   | 2008   | TO   | 2035   |       |       |      | 2008   | TO  | 2035 |     |
|   |       |       |   |        |      | 356  | 165   |       |      |        |     | 392  | 342 |
|   |       |       |   | v      | ^    |  |       |       |      |        |     | v    | ^   |
|   | 12 <  |       |   |        | <    | 22   |       | 35 <  |      |        | <   | 68   |     |
|   | 17 >  |       |   |        | >    | 61   |       | -36 > |      |        | >   | 73   |     |
|   |       |       |   | v      | ^    |  |       |       |      |        | v   | ^    |     |
|   |       |       |   | 331    | 175  |  |       |       |      |        | 375 | 317  |     |
| ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                       |       |       |   |        |      | ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                      |       |       |      |        |     |      |     |
|   |       |       |   | 2008   | TO   | 2035   |       |       |      | 2008   | TO  | 2035 |     |
|   |       |       |   |        |      | 360  | 170   |       |      |        |     | 390  | 340 |
|   |       |       |   | v      | ^    |  |       |       |      |        |     | v    | ^   |
|   | 10 <  | IN =  |   | 570 <  | 20   |  | 40 <  | IN =  |      | 780 <  | 70  |      |     |
|   | 20 >  | OUT = |   | 570 >  | 60   |  | 0 >   | OUT = |      | 820 >  | 70  |      |     |
|   |       |       |   | v      | ^    |  |       |       |      |        | v   | ^    |     |
|   |       |       |   | 330    | 170  |  |       |       |      |        | 370 | 320  |     |
| FUTURE YEAR GROWTH:<br>2 YEARS  |       |       |   |        |      | FUTURE YEAR GROWTH:<br>2 YEARS   |       |       |      |        |     |      |     |
|   |       |       |   | 2015   | TO   | 2017   |       |       |      | 2015   | TO  | 2017 |     |
|   |       |       |   |        |      | 30   | 10    |       |      |        |     | 30   | 30  |
|   |       |       |   | v      | ^    |  |       |       |      |        |     | v    | ^   |
|   | 0 <   |       |   |        | <    | 0  |       | 0 <   |      |        | <   | 10   |     |
|   | 0 >   |       |   |        | >    | 0  |       | 0 >   |      |        | >   | 10   |     |
|   |       |       |   | v      | ^    |  |       |       |      |        | v   | ^    |     |
|   |       |       |   | 20     | 10   |  |       |       |      |        | 30  | 20   |     |

**Waterman Avenue (NS) at: Park Center Circle South (EW) - #8**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 5               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 9               | SOUTH LEG |                    |
|  | THRU             | 704             | IN ...    | 880                |                              | THRU             | 693             | IN ...    | 740                |
|  | RIGHT            | 161             | OUT ...   | 780                |                              | RIGHT            | 17              | OUT ...   | 1,300              |
| SOUTH BOUND                            | LEFT             | 21              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                    |
|  | THRU             | 726             | IN ...    | 780                |                              | THRU             | 1,087           | IN ...    | 1,140              |
|  | RIGHT            | 7               | OUT ...   | 730                |                              | RIGHT            | 7               | OUT ...   | 750                |
| EAST BOUND                             | LEFT             | 8               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 1               | WEST LEG  |                    |
|  | THRU             | 4               | IN ...    | 20                 |                              | THRU             | 0               | IN ...    | 10                 |
|  | RIGHT            | 11              | OUT ...   | 10                 |                              | RIGHT            | 10              | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 23              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 170             | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 30                 |                              | THRU             | 0               | IN ...    | 210                |
|  | RIGHT            | 7               | OUT ...   | 190                |                              | RIGHT            | 25              | OUT ...   | 30                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 5               | 5                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 9               | 10                    | NORTH LEG                 |
|  | THRU             | 704             | 715                   | RATIO 6.8%                |                           | THRU             | 693             | 718                   | RATIO 8.5%                |
|  | RIGHT            | 161             | 163                   | ADT 22,200                |                           | RIGHT            | 17              | 21                    | ADT 22,200                |
| SOUTH BOUND                            | LEFT             | 21              | 23                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 6               | 9                     | SOUTH LEG                 |
|  | THRU             | 726             | 748                   | RATIO 6.9%                |                           | THRU             | 1,087           | 1,113                 | RATIO 8.5%                |
|  | RIGHT            | 7               | 7                     | ADT 24,200                |                           | RIGHT            | 7               | 10                    | ADT 24,200                |
| EAST BOUND                             | LEFT             | 8               | 8                     | EAST LEG                  | EAST BOUND                | LEFT             | 1               | 1                     | EAST LEG                  |
|  | THRU             | 4               | 4                     | RATIO 8.1%                |                           | THRU             | 0               | 0                     | RATIO 8.9%                |
|  | RIGHT            | 11              | 11                    | ADT 2,700                 |                           | RIGHT            | 10              | 10                    | ADT 2,700                 |
| WEST BOUND                             | LEFT             | 23              | 23                    | WEST LEG                  | WEST BOUND                | LEFT             | 170             | 178                   | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 8.8%                |                           | THRU             | 0               | 0                     | RATIO 7.8%                |
|  | RIGHT            | 7               | 7                     | ADT 400                   |                           | RIGHT            | 25              | 31                    | ADT 400                   |

**Waterman Avenue (NS) at: Park Center Circle South (EW) - #8**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 5               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 9               | SOUTH LEG |                   |
|                              | THRU             | 704             | IN ...    | 1,000             |                              | THRU             | 693             | IN ...    | 960               |
|                              | RIGHT            | 161             | OUT ...   | 1,000             |                              | RIGHT            | 17              | OUT ...   | 1,540             |
| SOUTH BOUND                  | LEFT             | 21              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                   |
|                              | THRU             | 726             | IN ...    | 1,020             |                              | THRU             | 1,087           | IN ...    | 1,390             |
|                              | RIGHT            | 7               | OUT ...   | 850               |                              | RIGHT            | 7               | OUT ...   | 970               |
| EAST BOUND                   | LEFT             | 8               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 1               | WEST LEG  |                   |
|                              | THRU             | 4               | IN ...    | 30                |                              | THRU             | 0               | IN ...    | 10                |
|                              | RIGHT            | 11              | OUT ...   | 20                |                              | RIGHT            | 10              | OUT ...   | 50                |
| WEST BOUND                   | LEFT             | 23              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 170             | EAST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 40                |                              | THRU             | 0               | IN ...    | 250               |
|                              | RIGHT            | 7               | OUT ...   | 230               |                              | RIGHT            | 25              | OUT ...   | 70                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 5               | 6                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 9               | 24                   | NORTH LEG                 |
|                              | THRU             | 704             | 826                  | RATIO 7.1%                |                           | THRU             | 693             | 923                  | RATIO 8.9%                |
|                              | RIGHT            | 161             | 187                  | ADT 26,300                |                           | RIGHT            | 17              | 47                   | ADT 26,300                |
| SOUTH BOUND                  | LEFT             | 21              | 37                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 6               | 23                   | SOUTH LEG                 |
|                              | THRU             | 726             | 959                  | RATIO 7.2%                |                           | THRU             | 1,087           | 1,328                | RATIO 9.1%                |
|                              | RIGHT            | 7               | 14                   | ADT 27,900                |                           | RIGHT            | 7               | 26                   | ADT 27,900                |
| EAST BOUND                   | LEFT             | 8               | 12                   | EAST LEG                  | EAST BOUND                | LEFT             | 1               | 1                    | EAST LEG                  |
|                              | THRU             | 4               | 6                    | RATIO 7.5%                |                           | THRU             | 0               | 0                    | RATIO 8.9%                |
|                              | RIGHT            | 11              | 12                   | ADT 3,600                 |                           | RIGHT            | 10              | 11                   | ADT 3,600                 |
| WEST BOUND                   | LEFT             | 23              | 28                   | WEST LEG                  | WEST BOUND                | LEFT             | 170             | 204                  | WEST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO 6.3%                |                           | THRU             | 0               | 0                    | RATIO 7.8%                |
|                              | RIGHT            | 7               | 12                   | ADT 800                   |                           | RIGHT            | 25              | 46                   | ADT 800                   |

| Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9                  |    |   |       |      |  |      |  |    |      |       |      |     |      |     |     |
|--|----|---|-------|------|--|------|--|----|------|-------|------|-----|------|-----|-----|
| MORNING PEAK HOUR  |    |   |       |      | EVENING PEAK HOUR  |      |  |    |      |       |      |     |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |    |   |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |      |  |    |      |       |      |     |      |     |     |
|  |    |   | 4     | 446  | 244  |      |  |    | 11   | 976   | 172  |     |      |     |     |
|  | 3  | ^ | <     | v    | >  | ^    |  | 10 | ^    | <     | v    | >   | ^    |     |     |
|  |    | 2 | >     |      |  | <    |  | 2  | >    |       |      | <   |      | 224 |     |
|  |    | 2 | v     |      |  | v    |  | 15 | v    |       |      | v   |      | 2   |     |
|  |    |   |       |      |  |      |  |    |      |       |      |     |      | 313 |     |
|  |    |   |       | 24   | 590  | 368  |  |    |      |       |      |     | 40   | 463 | 142 |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |    |   |       |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 694  | 810  |      |  |    | 1159 | 697   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 29 | < | IN =  | 1960 | <  | 277  |  | 53 | <    | IN =  | 2370 | <   | 539  |     |     |
|  | 7  | > | OUT = | 1960 | >  | 614  |  | 27 | >    | OUT = | 2370 | >   | 316  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 507  | 982  |      |  |    | 1304 | 645   |      |     |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |    |   |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 0    | 59   | 2    |  |    |      | 2     | 83   | 3   |      |     |     |
|  |    |   |       | <    | v  | >    |  |    |      | <     | v    | >   |      |     |     |
|  | 0  | ^ |       |      |  | ^    |  | 0  | ^    |       |      |     | ^    |     |     |
|  | 0  | > |       |      |  | <    |  | 0  | >    |       |      | <   |      | 5   |     |
|  | 0  | v |       |      |  | v    |  | 0  | v    |       |      | v   |      | 0   |     |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |    |   |       |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0                        |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 0    | 67   | 3    |  |    |      | 0     | 47   | 5   |      |     |     |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |    |   |       |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 4    | 505  | 246  |  |    |      | 13    | 1059 | 175 |      |     |     |
|  | 3  | ^ | <     | v    | >  | ^    |  | 10 | ^    | <     | v    | >   | ^    |     |     |
|  |    | 2 | >     |      |  | <    |  | 4  | >    |       |      | <   |      | 229 |     |
|  |    | 2 | v     |      |  | v    |  | 15 | v    |       |      | v   |      | 2   |     |
|  |    |   |       |      |  |      |  |    |      |       |      |     |      | 313 |     |
|  |    |   |       | 24   | 657  | 371  |  |    |      | 40    | 510  | 147 |      |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |    |   |       |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 1221 | 1621   |      |  |    | 2369 | 2252  |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 3356 | <  | 784  |  | 0  | <    | IN =  | 5225 | <   | 1140 |     |     |
|  | 0  | > | OUT = | 3356 | >  | 886  |  | 0  | >    | OUT = | 5224 | >   | 859  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 849  | 1351   |      |  |    | 2113 | 1716  |      |     |      |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |    |   |       |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 35   | 40   |      |  |    | 43   | 97    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 88   | <  | 17   |  | 0  | <    | IN =  | 158  | <   | 31   |     |     |
|  | 0  | > | OUT = | 88   | >  | 19   |  | 0  | >    | OUT = | 158  | >   | 30   |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 29   | 36   |      |  |    | 31   | 84    |      |     |      |     |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |    |   |       |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 476  | 629  |      |  |    | 674  | 655   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
| PHF FOR TRUCKS: 0.333  |    |   |       |      | PHF FOR TRUCKS: 0.25   |      |  |    |      |       |      |     |      |     |     |
|  | 0  | < | IN =  | 1305 | <  | 304  |  | 0  | <    | IN =  | 1503 | <   | 327  |     |     |
|  | 0  | > | OUT = | 1305 | >  | 343  |  | 0  | >    | OUT = | 1502 | >   | 248  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 332  | 525  |      |  |    | 599  | 501   |      |     |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |    |   |       |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 2072 | 2078   |      |  |    | 3682 | 3405  |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 4155 | <  | 989  |  | 0  | <    | IN =  | 8618 | <   | 1887 |     |     |
|  | 0  | > | OUT = | 5155 | >  | 1356 |  | 0  | >    | OUT = | 8618 | >   | 1663 |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 1721 | 1094   |      |  |    | 3550 | 3049  |      |     |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |    |   |       |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 58   | 44   |      |  |    | 72   | 72    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 132  | <  | 28   |  | 0  | <    | IN =  | 173  | <   | 43   |     |     |
|  | 0  | > | OUT = | 132  | >  | 35   |  | 0  | >    | OUT = | 173  | >   | 43   |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 53   | 46   |      |  |    | 58   | 58    |      |     |      |     |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |    |   |       |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 807  | 804  |      |  |    | 1049 | 971   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
| PHF FOR TRUCKS: 0.333  |    |   |       |      | PHF FOR TRUCKS: 0.25   |      |  |    |      |       |      |     |      |     |     |
|  | 0  | < | IN =  | 1623 | <  | 385  |  | 0  | <    | IN =  | 2456 | <   | 539  |     |     |
|  | 0  | > | OUT = | 2003 | >  | 527  |  | 0  | >    | OUT = | 2456 | >   | 476  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 672  | 431  |      |  |    | 1009 | 868   |      |     |      |     |     |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |    |   |       |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |      |  |    |      |       |      |     |      |     |     |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |    |   |       |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 331  | 175  |      |  |    | 375  | 317   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < |       |      | <  | 82   |  | 0  | <    |       | <    | 212 |      |     |     |
|  | 0  | > |       |      | >  | 184  |  | 0  | >    |       | >    | 228 |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 339  | -94  |      |  |    | 409  | 367   |      |     |      |     |     |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |    |   |       |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 330  | 170  |      |  |    | 370  | 320   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 10 | < | IN =  | 420  | <  | 80   |  | 10 | <    | IN =  | 950  | <   | 210  |     |     |
|  | 0  | > | OUT = | 690  | >  | 180  |  | 0  | >    | OUT = | 970  | >   | 230  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 340  | 10   |      |  |    | 410  | 370   |      |     |      |     |     |
| FUTURE YEAR GROWTH:<br>2 YEARS                                     |    |   |       |      | FUTURE YEAR GROWTH:<br>2 YEARS                                     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 20   | 10   |      |  |    | 30   | 20    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < |       |      | <  | 10   |  | 0  | <    |       | <    | 20  |      |     |     |
|  | 0  | > |       |      | >  | 10   |  | 0  | >    |       | >    | 20  |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 30   | 0  |      |  |    | 30   | 30    |      |     |      |     |     |

**Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 24              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 40              | SOUTH LEG |                    |
|  | THRU             | 657             | IN ...    | 1,060              |                              | THRU             | 510             | IN ...    | 730                |
|  | RIGHT            | 371             | OUT ...   | 600                |                              | RIGHT            | 147             | OUT ...   | 1,420              |
| SOUTH BOUND                            | LEFT             | 246             | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 175             | NORTH LEG |                    |
|  | THRU             | 505             | IN ...    | 790                |                              | THRU             | 1,059           | IN ...    | 1,280              |
|  | RIGHT            | 4               | OUT ...   | 890                |                              | RIGHT            | 13              | OUT ...   | 770                |
| EAST BOUND                             | LEFT             | 3               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 10              | WEST LEG  |                    |
|  | THRU             | 2               | IN ...    | 10                 |                              | THRU             | 4               | IN ...    | 30                 |
|  | RIGHT            | 2               | OUT ...   | 30                 |                              | RIGHT            | 15              | OUT ...   | 60                 |
| WEST BOUND                             | LEFT             | 61              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 313             | EAST LEG  |                    |
|  | THRU             | 1               | IN ...    | 290                |                              | THRU             | 2               | IN ...    | 560                |
|  | RIGHT            | 221             | OUT ...   | 630                |                              | RIGHT            | 229             | OUT ...   | 350                |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 24              | 25                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 40              | 44                    | NORTH LEG                 |
|  | THRU             | 657             | 661                   | RATIO 6.9%                |                           | THRU             | 510             | 526                   | RATIO 8.4%                |
|  | RIGHT            | 371             | 374                   | ADT 24,400                |                           | RIGHT            | 147             | 160                   | ADT 24,400                |
| SOUTH BOUND                            | LEFT             | 246             | 253                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 175             | 186                   | SOUTH LEG                 |
|  | THRU             | 505             | 533                   | RATIO 6.5%                |                           | THRU             | 1,059           | 1,080                 | RATIO 8.4%                |
|  | RIGHT            | 4               | 4                     | ADT 25,500                |                           | RIGHT            | 13              | 14                    | ADT 25,500                |
| EAST BOUND                             | LEFT             | 3               | 4                     | EAST LEG                  | EAST BOUND                | LEFT             | 10              | 10                    | EAST LEG                  |
|  | THRU             | 2               | 3                     | RATIO 8.6%                |                           | THRU             | 4               | 4                     | RATIO 8.5%                |
|  | RIGHT            | 2               | 3                     | ADT 10,700                |                           | RIGHT            | 15              | 15                    | ADT 10,700                |
| WEST BOUND                             | LEFT             | 61              | 64                    | WEST LEG                  | WEST BOUND                | LEFT             | 313             | 324                   | WEST LEG                  |
|  | THRU             | 1               | 1                     | RATIO 4.0%                |                           | THRU             | 2               | 2                     | RATIO 8.9%                |
|  | RIGHT            | 221             | 225                   | ADT 1,000                 |                           | RIGHT            | 229             | 234                   | ADT 1,000                 |

**Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

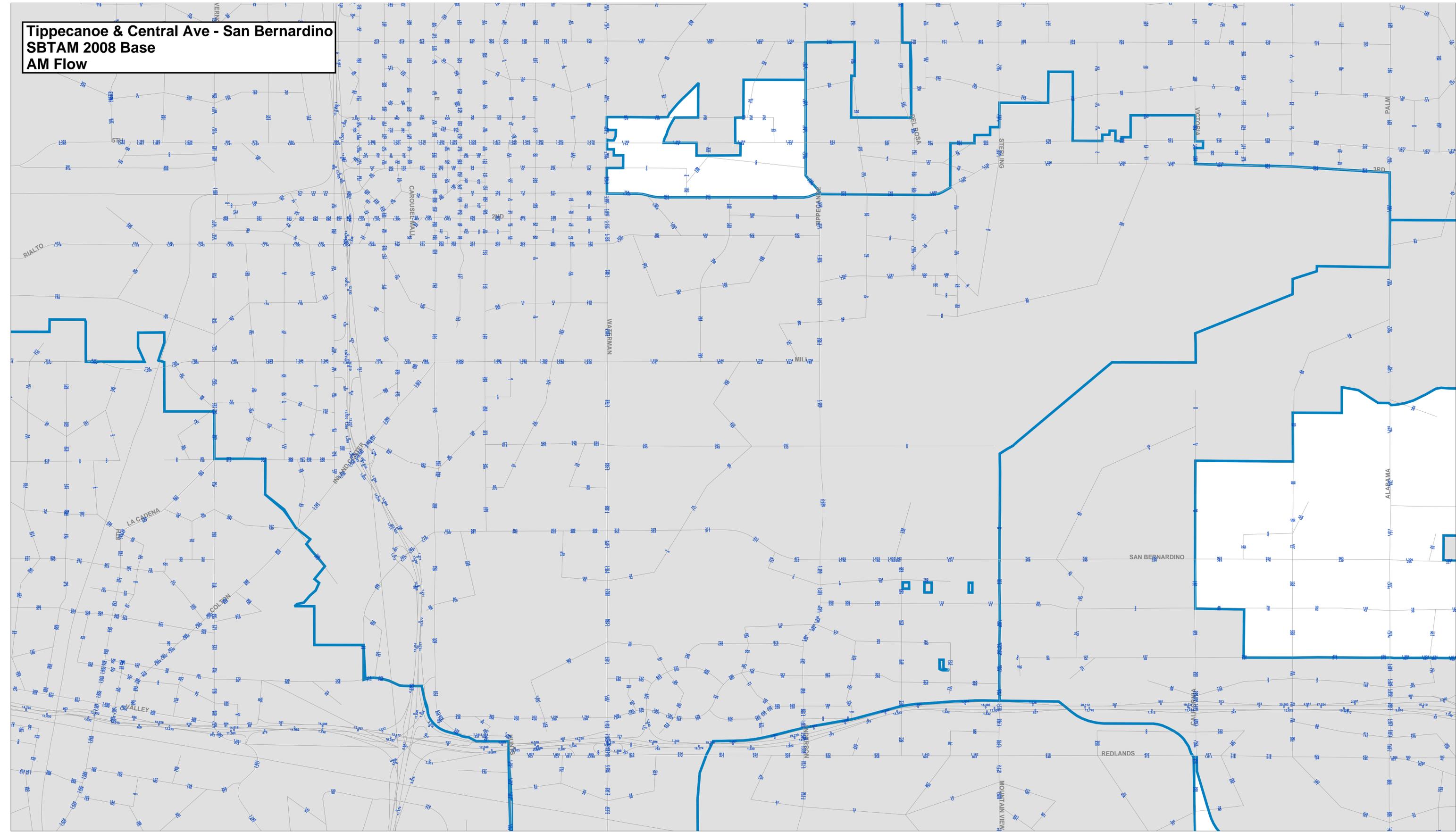
| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 24              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 40              | SOUTH LEG |                   |
|                              | THRU             | 657             | IN ...    | 1,060             | NORTH BOUND                  | THRU             | 510             | IN ...    | 970               |
|                              | RIGHT            | 371             | OUT ...   | 820               | NORTH BOUND                  | RIGHT            | 147             | OUT ...   | 1,690             |
| SOUTH BOUND                  | LEFT             | 246             | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 175             | NORTH LEG |                   |
|                              | THRU             | 505             | IN ...    | 1,000             | SOUTH BOUND                  | THRU             | 1,059           | IN ...    | 1,520             |
|                              | RIGHT            | 4               | OUT ...   | 1,010             | SOUTH BOUND                  | RIGHT            | 13              | OUT ...   | 990               |
| EAST BOUND                   | LEFT             | 3               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 10              | WEST LEG  |                   |
|                              | THRU             | 2               | IN ...    | 10                | EAST BOUND                   | THRU             | 4               | IN ...    | 30                |
|                              | RIGHT            | 2               | OUT ...   | 30                | EAST BOUND                   | RIGHT            | 15              | OUT ...   | 70                |
| WEST BOUND                   | LEFT             | 61              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 313             | EAST LEG  |                   |
|                              | THRU             | 1               | IN ...    | 340               | WEST BOUND                   | THRU             | 2               | IN ...    | 700               |
|                              | RIGHT            | 221             | OUT ...   | 750               | WEST BOUND                   | RIGHT            | 229             | OUT ...   | 500               |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 24              | 27                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 40              | 52                   | NORTH LEG                 |
|                              | THRU             | 657             | 720                  | RATIO 7.4%                | NORTH BOUND               | THRU             | 510             | 685                  | RATIO 9.0%                |
|                              | RIGHT            | 371             | 404                  | ADT 28,100                | NORTH BOUND               | RIGHT            | 147             | 242                  | ADT 28,100                |
| SOUTH BOUND                  | LEFT             | 246             | 343                  | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 175             | 253                  | SOUTH LEG                 |
|                              | THRU             | 505             | 735                  | RATIO 6.5%                | SOUTH BOUND               | THRU             | 1,059           | 1,266                | RATIO 8.9%                |
|                              | RIGHT            | 4               | 5                    | ADT 30,100                | SOUTH BOUND               | RIGHT            | 13              | 15                   | ADT 30,100                |
| EAST BOUND                   | LEFT             | 3               | 5                    | EAST LEG                  | EAST BOUND                | LEFT             | 10              | 10                   | EAST LEG                  |
|                              | THRU             | 2               | 3                    | RATIO 8.5%                | EAST BOUND                | THRU             | 4               | 5                    | RATIO 9.1%                |
|                              | RIGHT            | 2               | 3                    | ADT 13,200                | EAST BOUND                | RIGHT            | 15              | 15                   | ADT 13,200                |
| WEST BOUND                   | LEFT             | 61              | 82                   | WEST LEG                  | WEST BOUND                | LEFT             | 313             | 409                  | WEST LEG                  |
|                              | THRU             | 1               | 1                    | RATIO 4.0%                | WEST BOUND                | THRU             | 2               | 3                    | RATIO 9.1%                |
|                              | RIGHT            | 221             | 285                  | ADT 1,100                 | WEST BOUND                | RIGHT            | 229             | 295                  | ADT 1,100                 |

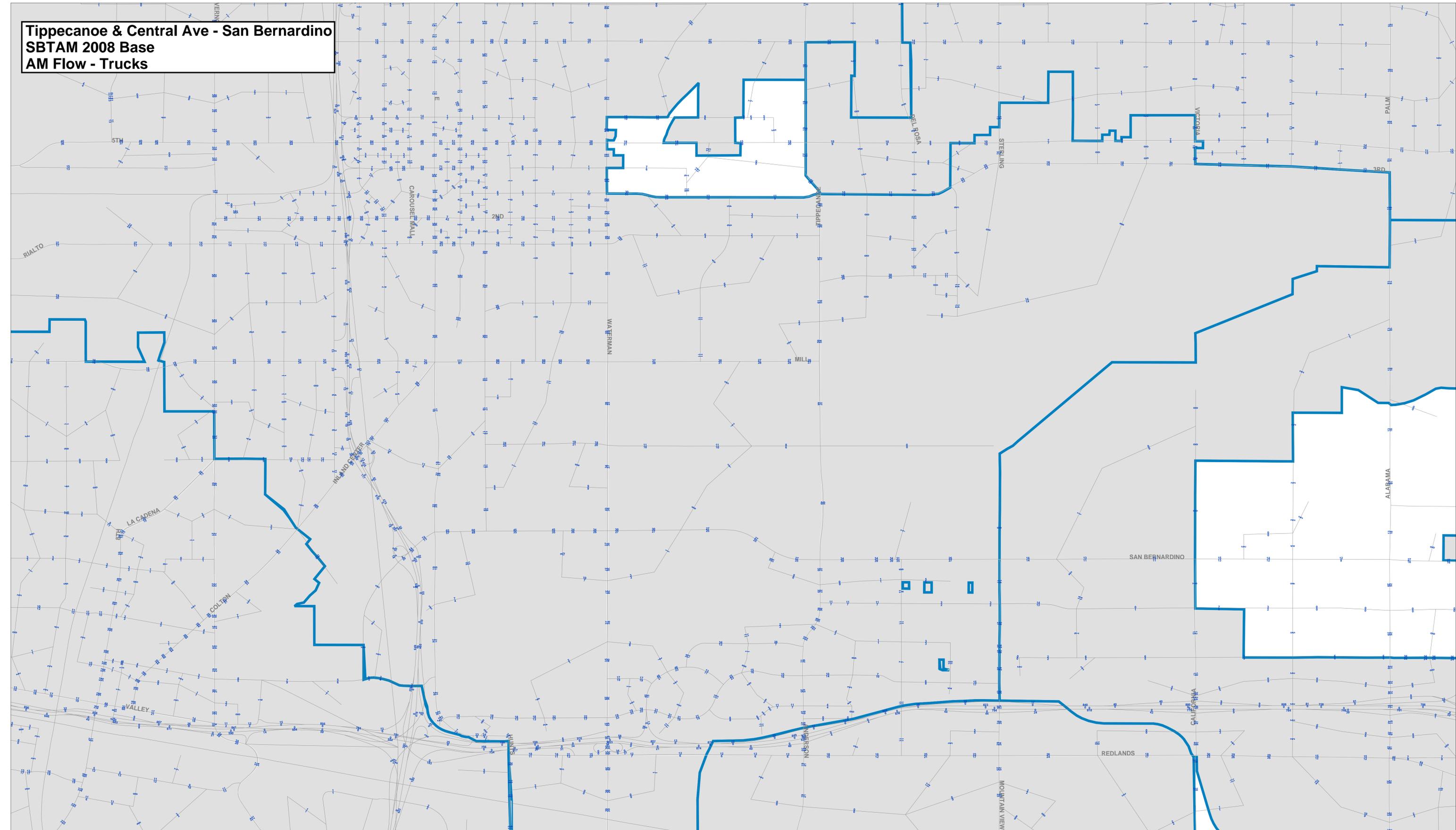
**APPENDIX E**

**Traffic Model Plots**

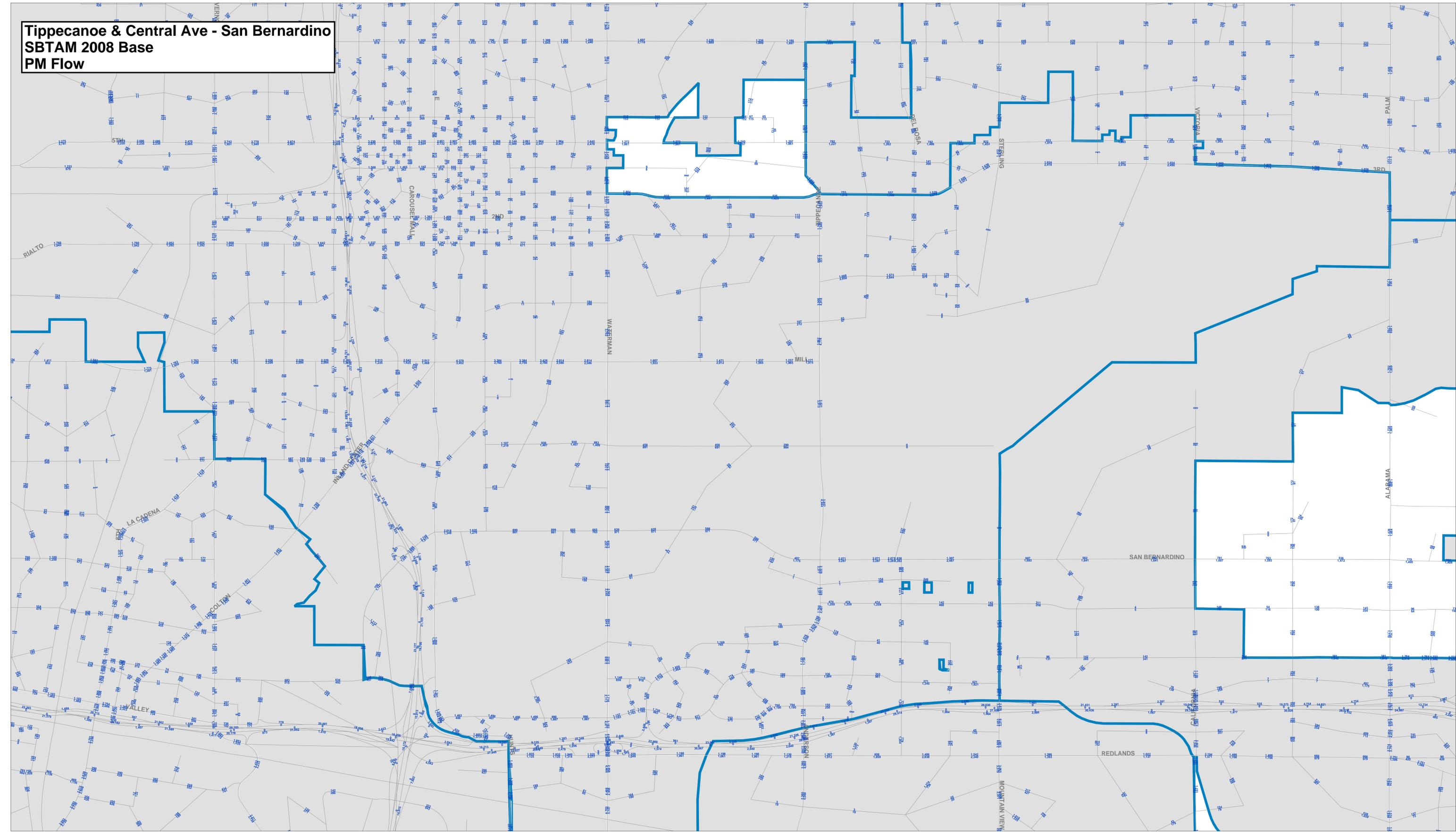
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**AM Flow**



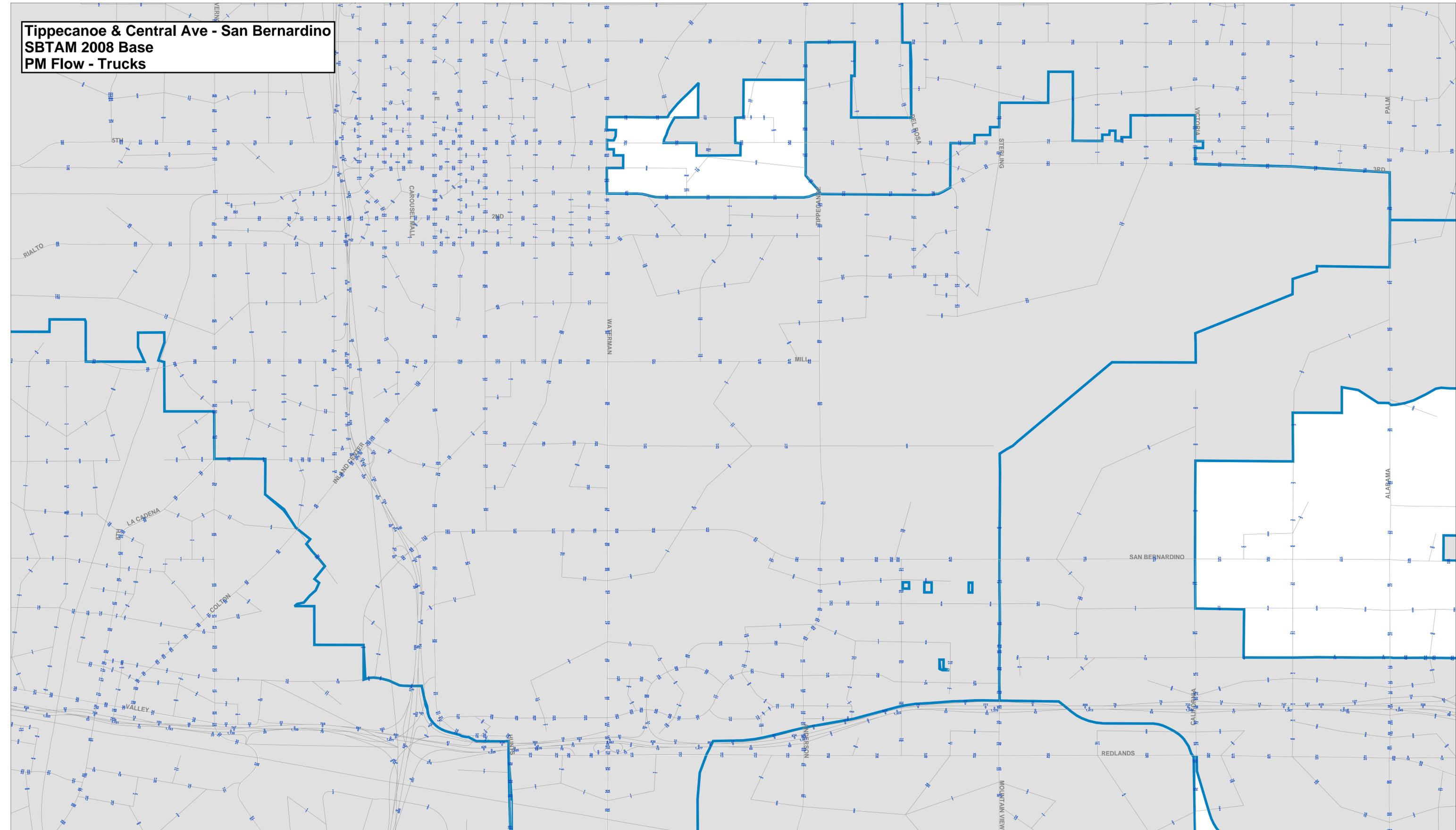
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**AM Flow - Trucks**



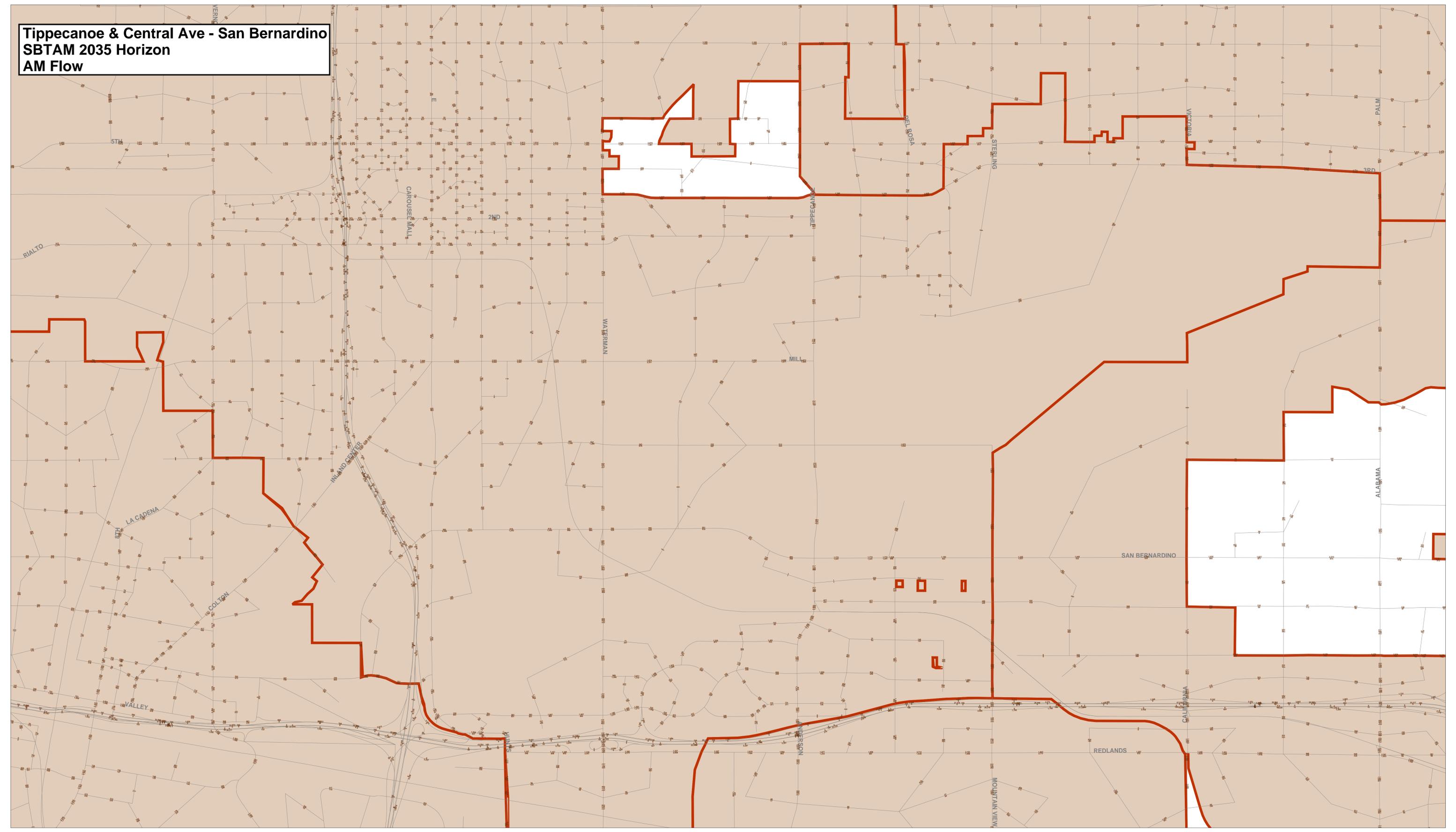
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**PM Flow**



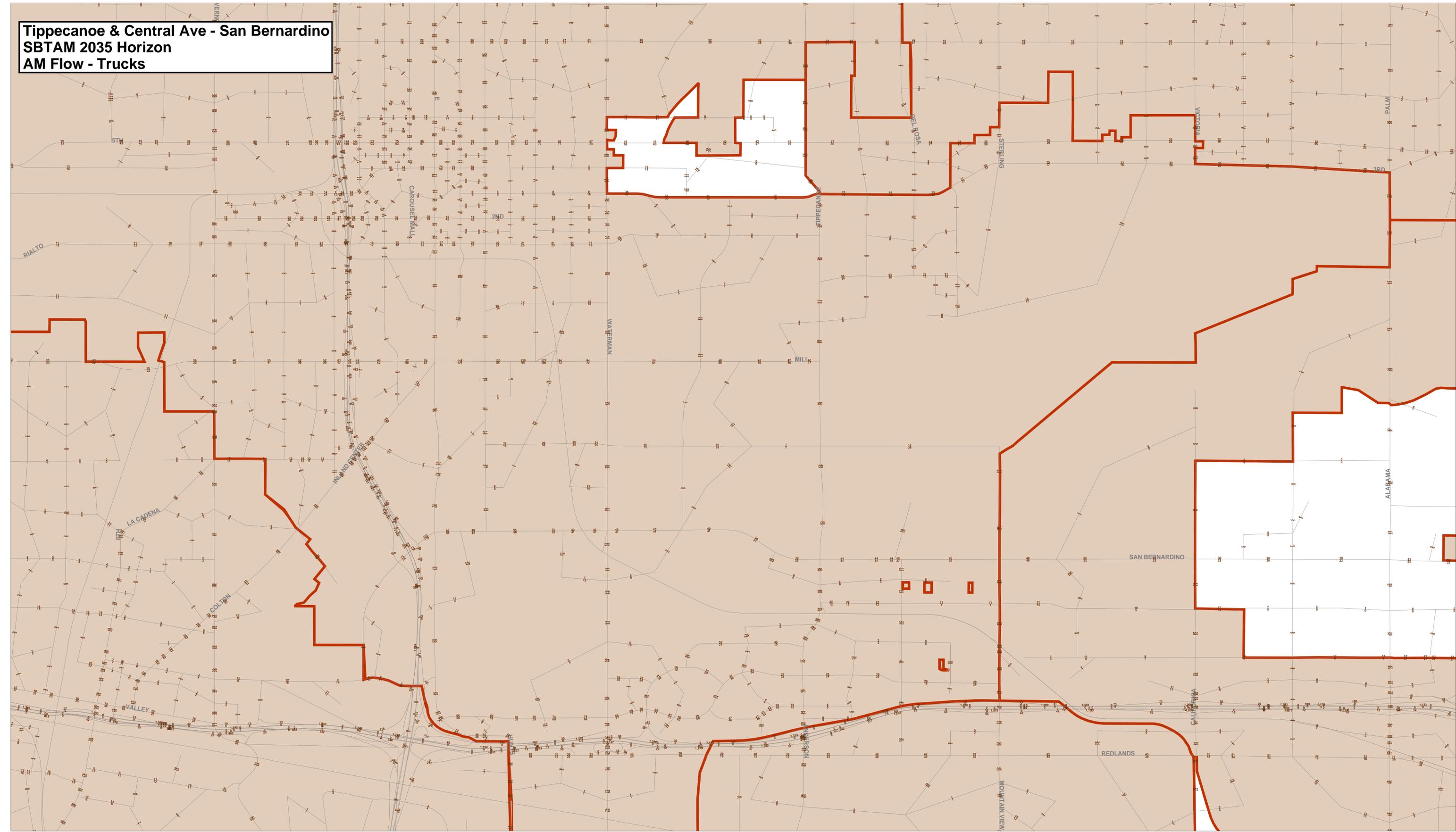
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**PM Flow - Trucks**



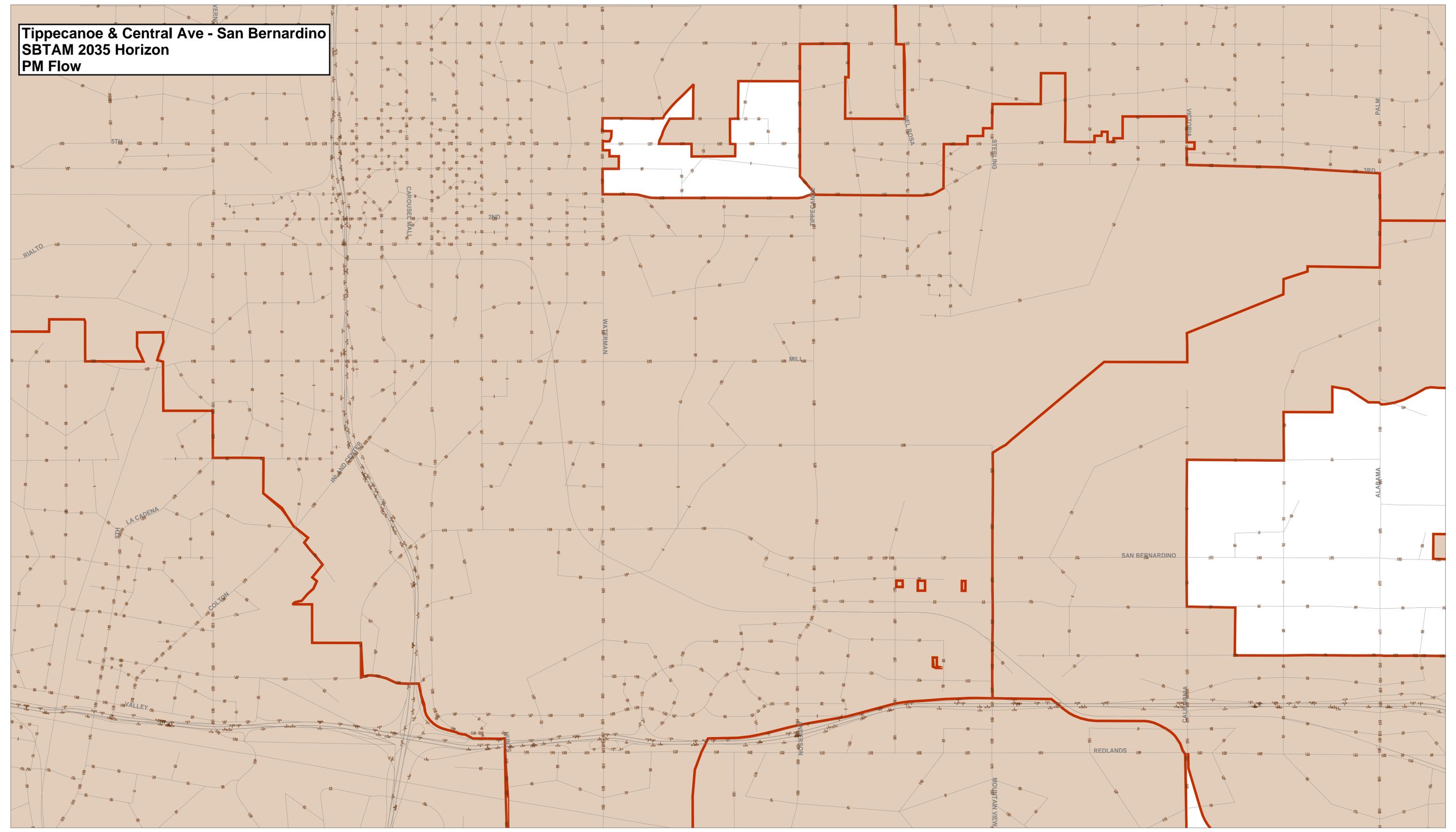
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**AM Flow**



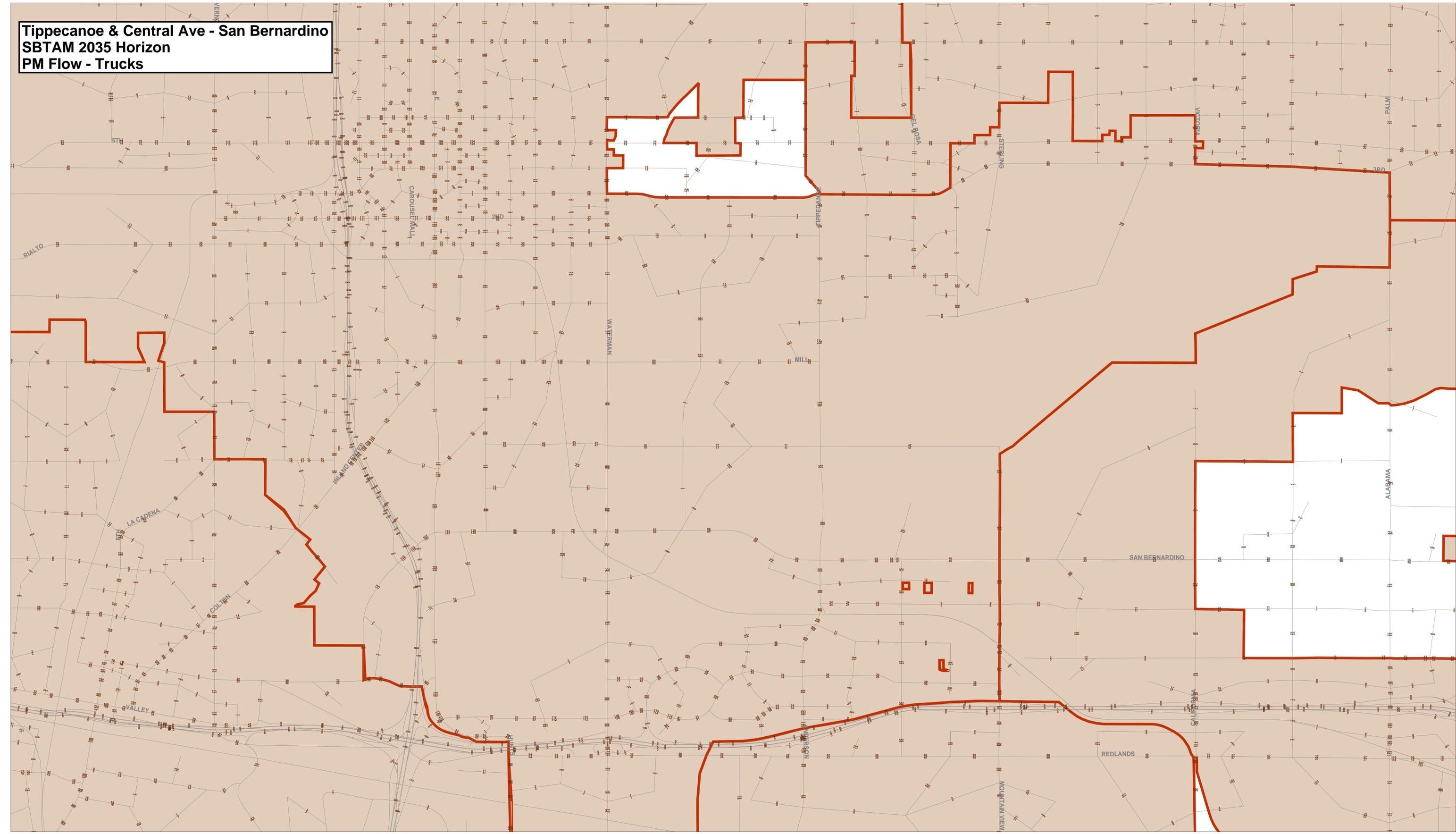
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**AM Flow - Trucks**



**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**PM Flow**



**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**PM Flow - Trucks**



**APPENDIX F**

**Explanation and Calculation of Intersection Delay**

## **EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY**

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)
9. Right turns
10. Left turns

11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

## LEVEL OF SERVICE DESCRIPTION<sup>1</sup>

| Level Of Service | Description  | Average Total Delay Per Vehicle (Seconds) |                |
|------------------|--|---|----------------|
|                  |  | Signalized                                | Unsignalized   |
| A                | Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.   | 0 to 10.00                                | 0 to 10.00     |
| B                | Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.  | 10.01 to 20.00                            | 10.01 to 15.00 |
| C                | Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.  | 20.01 to 35.00                            | 15.01 to 25.00 |
| D                | Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.   | 35.01 to 55.00                            | 25.01 to 35.00 |
| E                | Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.   | 55.01 to 80.00                            | 35.01 to 50.00 |
| F                | Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. | 80.01 and up                              | 50.01 and up   |

<sup>1</sup> Source: [Highway Capacity Manual](#) Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2000.

**Existing**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.398 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 97       | 88     | 41     | 51       | 124    | 57     | 221            | 801    | 337    | 76             | 385    | 27     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 97       | 88     | 41     | 51       | 124    | 57     | 221            | 801    | 337    | 76             | 385    | 27     |
| Peak Hour Factor                        | 0.8860   | 0.8860 | 0.8860 | 0.8860   | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 27       | 25     | 12     | 14       | 35     | 16     | 62             | 226    | 95     | 21             | 109    | 8      |
| Total Analysis Volume [veh/h]           | 109      | 99     | 46     | 58       | 140    | 64     | 249            | 904    | 380    | 86             | 435    | 30     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 19    | 19    | 3     | 18    | 18    | 6     | 18    | 18    | 4     | 15    | 15    |
| g / C, Green / Cycle                    | 0.07  | 0.32  | 0.32  | 0.05  | 0.30  | 0.30  | 0.10  | 0.30  | 0.30  | 0.06  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.04  | 0.02  | 0.04  | 0.04  | 0.07  | 0.25  | 0.24  | 0.02  | 0.12  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1704  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 252   | 610   | 547   | 190   | 1096  | 489   | 372   | 1064  | 475   | 231   | 918   | 410   |
| d1, Uniform Delay [s]                   | 26.80 | 14.47 | 14.51 | 27.43 | 15.23 | 15.25 | 25.94 | 20.03 | 19.65 | 26.98 | 19.08 | 17.10 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.22  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.16  | 0.41  | 0.49  | 0.90  | 0.24  | 0.55  | 2.09  | 2.01  | 6.35  | 1.00  | 0.38  | 0.07  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

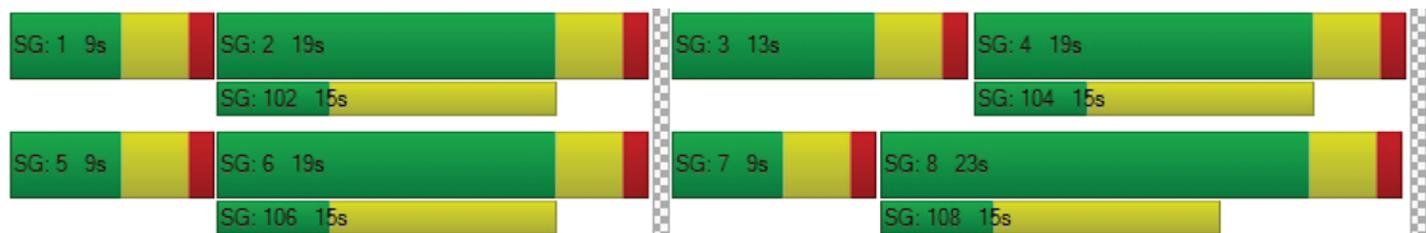
|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.43  | 0.12  | 0.13  | 0.31  | 0.13  | 0.13  | 0.67  | 0.85   | 0.80   | 0.37  | 0.47   | 0.07  |
| d, Delay for Lane Group [s/veh]    | 27.97 | 14.88 | 15.00 | 28.32 | 15.47 | 15.80 | 28.03 | 22.04  | 26.00  | 27.97 | 19.46  | 17.18 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes   | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.73  | 0.69  | 0.66  | 0.39  | 0.64  | 0.63  | 1.67  | 5.38   | 5.03   | 0.57  | 2.30   | 0.29  |
| 50th-Percentile Queue Length [ft]  | 18.16 | 17.23 | 16.61 | 9.80  | 16.04 | 15.72 | 41.63 | 134.46 | 125.71 | 14.34 | 57.47  | 7.17  |
| 95th-Percentile Queue Length [veh] | 1.31  | 1.24  | 1.20  | 0.71  | 1.15  | 1.13  | 3.00  | 9.18   | 8.71   | 1.03  | 4.14   | 0.52  |
| 95th-Percentile Queue Length [ft]  | 32.68 | 31.01 | 29.90 | 17.63 | 28.87 | 28.30 | 74.93 | 229.54 | 217.65 | 25.81 | 103.44 | 12.90 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 27.97 | 14.91 | 15.00 | 28.32 | 15.47 | 15.80 | 28.03 | 22.04 | 26.00 | 27.97 | 19.46 | 17.18 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 20.53 |       |       | 18.40 |       |       | 24.00 |       |       | 20.66 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.39 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.398 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 19.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.307 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 836    | 12     | 3              | 378    | 11     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 836    | 12     | 3              | 378    | 11     |
| Peak Hour Factor                        | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2              | 1      | 1      | 2              | 0      | 3      | 10             | 235    | 3      | 1              | 106    | 3      |
| Total Analysis Volume [veh/h]           | 7              | 3      | 2      | 7              | 0      | 11     | 38             | 941    | 14     | 3              | 426    | 12     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 29    | 29   | 29    | 29   | 23    | 19    | 19    | 23    | 17    | 17    |
| g / C, Green / Cycle                    | 0.48  | 0.48 | 0.48  | 0.48 | 0.39  | 0.32  | 0.32  | 0.39  | 0.28  | 0.28  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.03  | 0.26  | 0.01  | 0.00  | 0.12  | 0.01  |
| s, saturation flow rate [veh/h]         | 650   | 1615 | 552   | 1615 | 1135  | 3618  | 1615  | 726   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 411   | 768  | 382   | 768  | 532   | 1154  | 515   | 319   | 1027  | 458   |
| d1, Uniform Delay [s]                   | 10.69 | 8.29 | 20.20 | 8.33 | 11.66 | 18.85 | 14.07 | 12.90 | 17.49 | 15.55 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.11  | 0.01 | 0.09  | 0.03 | 0.06  | 1.46  | 0.02  | 0.01  | 0.27  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |        |       |       |       |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|-------|-------|
| X, volume / capacity               | 0.02  | 0.00 | 0.02  | 0.01 | 0.07  | 0.82   | 0.03  | 0.01  | 0.41  | 0.03  |
| d, Delay for Lane Group [s/veh]    | 10.80 | 8.29 | 20.28 | 8.37 | 11.71 | 20.32  | 14.09 | 12.91 | 17.76 | 15.57 |
| Lane Group LOS                     | B     | A    | C     | A    | B     | C      | B     | B     | B     | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.07  | 0.01 | 0.08  | 0.07 | 0.27  | 5.35   | 0.12  | 0.02  | 2.12  | 0.11  |
| 50th-Percentile Queue Length [ft]  | 1.78  | 0.33 | 2.12  | 1.80 | 6.85  | 133.64 | 2.91  | 0.54  | 53.01 | 2.68  |
| 95th-Percentile Queue Length [veh] | 0.13  | 0.02 | 0.15  | 0.13 | 0.49  | 9.14   | 0.21  | 0.04  | 3.82  | 0.19  |
| 95th-Percentile Queue Length [ft]  | 3.21  | 0.59 | 3.82  | 3.24 | 12.32 | 228.44 | 5.24  | 0.97  | 95.43 | 4.82  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 10.80 | 10.80 | 8.29 | 20.28 | 20.28 | 8.37 | 11.71 | 20.32 | 14.09 | 12.91 | 17.76 | 15.57 |
| Movement LOS                    | B     | B     | A    | C     | C     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 10.38 |       |      | 13.00 |       |      | 19.90 |       |       | 17.67 |       |       |
| Approach LOS                    | B     |       |      | B     |       |      | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.06 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.307 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.6  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.525 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 63           | 593    | 54     | 48           | 512    | 80     | 160            | 381    | 270    | 75             | 256    | 67     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 63           | 593    | 54     | 48           | 512    | 80     | 160            | 381    | 270    | 75             | 256    | 67     |
| Peak Hour Factor                        | 0.8780       | 0.8780 | 0.8780 | 0.8780       | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 18           | 169    | 15     | 14           | 146    | 23     | 46             | 108    | 77     | 21             | 73     | 19     |
| Total Analysis Volume [veh/h]           | 72           | 675    | 62     | 55           | 583    | 91     | 182            | 434    | 308    | 85             | 292    | 76     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 23    | 23    | 3     | 23    | 23    | 8     | 14    | 14    | 4     | 10    | 10    |
| g / C, Green / Cycle                    | 0.06  | 0.38  | 0.38  | 0.05  | 0.38  | 0.38  | 0.13  | 0.24  | 0.24  | 0.06  | 0.17  | 0.17  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.04  | 0.03  | 0.16  | 0.06  | 0.10  | 0.12  | 0.19  | 0.05  | 0.08  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 108   | 1384  | 618   | 93    | 1355  | 605   | 230   | 852   | 380   | 117   | 625   | 279   |
| d1, Uniform Delay [s]                   | 27.70 | 14.09 | 11.92 | 27.91 | 14.03 | 12.47 | 25.48 | 19.97 | 21.71 | 27.62 | 22.38 | 21.59 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.15  | 0.11  | 0.12  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.96  | 1.23  | 0.32  | 5.89  | 1.00  | 0.53  | 8.04  | 0.47  | 4.72  | 8.41  | 0.54  | 0.52  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.67  | 0.49   | 0.10  | 0.59  | 0.43   | 0.15  | 0.79   | 0.51   | 0.81   | 0.73  | 0.47  | 0.27  |
| d, Delay for Lane Group [s/veh]    | 34.66 | 15.32  | 12.24 | 33.80 | 15.03  | 13.00 | 33.52  | 20.44  | 26.44  | 36.03 | 22.93 | 22.11 |
| Lane Group LOS                     | C     | B      | B     | C     | B      | B     | C      | C      | C      | D     | C     | C     |
| Critical Lane Group                | No    | Yes    | No    | Yes   | No     | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.10  | 2.93   | 0.47  | 0.84  | 2.49   | 0.73  | 2.79   | 2.38   | 4.09   | 1.37  | 1.71  | 0.88  |
| 50th-Percentile Queue Length [ft]  | 27.53 | 73.22  | 11.85 | 20.88 | 62.26  | 18.18 | 69.71  | 59.49  | 102.14 | 34.20 | 42.74 | 21.88 |
| 95th-Percentile Queue Length [veh] | 1.98  | 5.27   | 0.85  | 1.50  | 4.48   | 1.31  | 5.02   | 4.28   | 7.35   | 2.46  | 3.08  | 1.58  |
| 95th-Percentile Queue Length [ft]  | 49.56 | 131.79 | 21.33 | 37.59 | 112.07 | 32.73 | 125.48 | 107.09 | 183.86 | 61.56 | 76.94 | 39.38 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.66 | 15.32 | 12.24 | 33.80 | 15.03 | 13.00 | 33.52 | 20.44 | 26.44 | 36.03 | 22.93 | 22.11 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | D     | C     | C     |
| d_A, Approach Delay [s/veh]     | 16.81 |       |       | 16.19 |       |       | 25.02 |       |       | 25.25 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 20.57 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.525 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 19.8  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.024 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 3            | 716    | 838          | 8      | 5        | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 3            | 716    | 838          | 8      | 5        | 6      |
| Peak Hour Factor                        | 0.8593       | 0.8593 | 0.8593       | 0.8593 | 0.8593   | 0.8593 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 208    | 244          | 2      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 3            | 833    | 975          | 9      | 6        | 7      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.00  | 0.01 | 0.01 | 0.00 | 0.02  | 0.01  |
| d_M, Delay for Movement [s/veh]    | 10.09 | 0.00 | 0.00 | 0.00 | 19.77 | 12.17 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.01  | 0.00 | 0.00 | 0.00 | 0.12  | 0.12  |
| 95th-Percentile Queue Length [ft]  | 0.32  | 0.00 | 0.00 | 0.00 | 2.88  | 2.88  |
| d_A, Approach Delay [s/veh]        | 0.04  |      | 0.00 |      | 15.68 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.13  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 20.8  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 711          | 27     | 77           | 749    | 1                    | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 711          | 27     | 77           | 749    | 1                    | 6      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587       | 0.8587 | 0.8587               | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 207          | 8      | 22           | 218    | 0                    | 2      |
| Total Analysis Volume [veh/h]           | 828          | 31     | 90           | 872    | 1                    | 7      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |       |      |       |       |
|------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.11  | 0.01 | 0.00  | 0.01  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 10.14 | 0.00 | 20.79 | 11.14 |
| Movement LOS                       | A    | A    | B     | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.38  | 0.00 | 0.01  | 0.04  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 9.59  | 0.00 | 0.33  | 0.90  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.95  |      | 12.35 |       |
| Approach LOS                       | A    |      | A     |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.55 |      |       |      |       |       |
| Intersection LOS                   | C    |      |       |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.6   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.412 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | \| \| |  |  | \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 5            | 704    | 161    | 21           | 726    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 5            | 704    | 161    | 21           | 726    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Peak Hour Factor                        | 0.8960       | 0.8960 | 0.8960 | 0.8960       | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 196    | 45     | 6            | 203    | 2      | 2                        | 1      | 3      | 6                        | 0      | 2      |
| Total Analysis Volume [veh/h]           | 6            | 786    | 180    | 23           | 810    | 8      | 9                        | 4      | 12     | 26                       | 0      | 8      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 24      | 0       | 9        | 24      | 0       | 0       | 32      | 0       | 0       | 32      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 55   | 49   | 49   | 55   | 50   | 50   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.84 | 0.75 | 0.75 | 0.84 | 0.77 | 0.77 | 0.04  | 0.04  | 0.04  | 0.04  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.22 | 0.11 | 0.03 | 0.22 | 0.00 | 0.09  | 0.01  | 0.15  | 0.00  |
| s, saturation flow rate [veh/h]         | 738  | 3618 | 1615 | 777  | 3618 | 1615 | 140   | 1615  | 174   | 1615  |
| c, Capacity [veh/h]                     | 732  | 2715 | 1212 | 762  | 2781 | 1242 | 99    | 60    | 117   | 60    |
| d1, Uniform Delay [s]                   | 1.05 | 2.59 | 2.28 | 1.07 | 2.24 | 1.75 | 32.53 | 30.42 | 32.54 | 30.34 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.02 | 0.27 | 0.26 | 0.02 | 0.27 | 0.01 | 0.60  | 1.60  | 0.95  | 0.99  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.29  | 0.15  | 0.03 | 0.29  | 0.01 | 0.13  | 0.20  | 0.22  | 0.13  |
| d, Delay for Lane Group [s/veh]    | 1.07 | 2.86  | 2.54  | 1.09 | 2.51  | 1.76 | 33.12 | 32.02 | 33.48 | 31.33 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | Yes  | No    | No    | No   | Yes   | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 0.46  | 0.23  | 0.00 | 0.30  | 0.01 | 0.21  | 0.20  | 0.43  | 0.13  |
| 50th-Percentile Queue Length [ft]  | 0.10 | 11.46 | 5.78  | 0.08 | 7.51  | 0.16 | 5.37  | 5.06  | 10.77 | 3.33  |
| 95th-Percentile Queue Length [veh] | 0.01 | 0.83  | 0.42  | 0.01 | 0.54  | 0.01 | 0.39  | 0.36  | 0.78  | 0.24  |
| 95th-Percentile Queue Length [ft]  | 0.19 | 20.63 | 10.40 | 0.15 | 13.52 | 0.28 | 9.66  | 9.10  | 19.38 | 5.99  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.07  | 2.86 | 2.54 | 1.09 | 2.51 | 1.76 | 33.12 | 33.12 | 32.02 | 33.48 | 33.48 | 31.33 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 2.79  |      |      | 2.46 |      |      | 32.59 |       |       | 32.98 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 3.59  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.412 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 16.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⏏            |        |        | ⏏            |        |        | +              |        |        | ⏏              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 24           | 657    | 371    | 246          | 505    | 4      | 3              | 2      | 2      | 61             | 1      | 221    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 24           | 657    | 371    | 246          | 505    | 4      | 3              | 2      | 2      | 61             | 1      | 221    |
| Peak Hour Factor                        | 0.8826       | 0.8826 | 0.8826 | 0.8826       | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 186    | 105    | 70           | 143    | 1      | 1              | 1      | 1      | 17             | 0      | 63     |
| Total Analysis Volume [veh/h]           | 27           | 744    | 420    | 279          | 572    | 5      | 3              | 2      | 2      | 69             | 1      | 250    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 20       | 30      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 26    | 26    | 11    | 35   | 35   | 11    | 11    | 11    | 11    |
| g / C, Green / Cycle                    | 0.03  | 0.42  | 0.42  | 0.19  | 0.58 | 0.58 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.21  | 0.26  | 0.15  | 0.10 | 0.10 | 0.00  | 0.02  | 0.03  | 0.15  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1892 | 1623  | 1435  | 1521  | 1615  |
| c, Capacity [veh/h]                     | 59    | 1531  | 683   | 338   | 2090 | 1093 | 395   | 346   | 408   | 308   |
| d1, Uniform Delay [s]                   | 28.59 | 12.60 | 13.53 | 23.51 | 5.99 | 5.99 | 19.79 | 21.79 | 20.13 | 23.33 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.12  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.54  | 1.11  | 4.10  | 5.61  | 0.19 | 0.36 | 0.02  | 0.11  | 0.10  | 5.18  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.46  | 0.49   | 0.61   | 0.82   | 0.18  | 0.18  | 0.02  | 0.09  | 0.10  | 0.81   |
| d, Delay for Lane Group [s/veh]    | 34.13 | 13.71  | 17.63  | 29.11  | 6.18  | 6.36  | 19.81 | 21.90 | 20.23 | 28.51  |
| Lane Group LOS                     | C     | B      | B      | C      | A     | A     | B     | C     | C     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.43  | 2.96   | 4.08   | 3.76   | 0.74  | 0.83  | 0.08  | 0.36  | 0.44  | 3.59   |
| 50th-Percentile Queue Length [ft]  | 10.73 | 73.90  | 101.91 | 93.91  | 18.45 | 20.63 | 1.92  | 9.08  | 10.92 | 89.75  |
| 95th-Percentile Queue Length [veh] | 0.77  | 5.32   | 7.34   | 6.76   | 1.33  | 1.49  | 0.14  | 0.65  | 0.79  | 6.46   |
| 95th-Percentile Queue Length [ft]  | 19.32 | 133.01 | 183.44 | 169.05 | 33.20 | 37.13 | 3.45  | 16.34 | 19.66 | 161.55 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.13 | 13.71 | 17.63 | 29.11 | 6.24 | 6.36 | 19.81 | 19.81 | 19.81 | 21.90 | 20.23 | 28.51 |
| Movement LOS                    | C     | B     | B     | C     | A    | A    | B     | B     | B     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 15.56 |       |       | 13.70 |      |      | 19.81 |       |       | 26.86 |       |       |
| Approach LOS                    | B     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 16.42 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.632 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 26.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.710 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⚡          |        |        | ⚡          |        |        | ⚡              |        |        | ⚡              |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 457      | 288    | 128    | 145      | 157    | 258    | 120            | 893    | 299    | 143            | 776    | 42     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 457      | 288    | 128    | 145      | 157    | 258    | 120            | 893    | 299    | 143            | 776    | 42     |
| Peak Hour Factor                        | 0.9275   | 0.9275 | 0.9275 | 0.9275   | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 123      | 78     | 35     | 39       | 42     | 70     | 32             | 241    | 81     | 39             | 209    | 11     |
| Total Analysis Volume [veh/h]           | 493      | 311    | 138    | 156      | 169    | 278    | 129            | 963    | 322    | 154            | 837    | 45     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 14       | 24      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 10    | 21    | 21    | 5     | 15    | 15    | 5     | 19    | 19    | 5     | 19    | 19    |
| g / C, Green / Cycle                    | 0.15  | 0.32  | 0.32  | 0.07  | 0.24  | 0.24  | 0.07  | 0.29  | 0.29  | 0.07  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.14  | 0.12  | 0.12  | 0.04  | 0.05  | 0.17  | 0.04  | 0.27  | 0.20  | 0.04  | 0.23  | 0.03  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1705  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 541   | 605   | 543   | 256   | 859   | 383   | 246   | 1050  | 469   | 255   | 1059  | 473   |
| d1, Uniform Delay [s]                   | 27.09 | 17.25 | 17.25 | 29.27 | 19.85 | 22.85 | 29.22 | 22.34 | 20.48 | 29.27 | 21.17 | 16.74 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.19  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.36  | 1.89  | 2.11  | 2.35  | 0.51  | 11.34 | 1.74  | 3.75  | 3.22  | 2.29  | 1.36  | 0.09  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

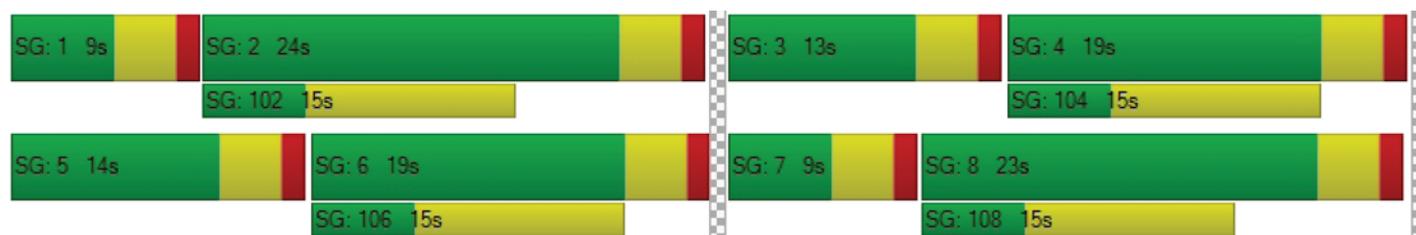
|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.91   | 0.39   | 0.39   | 0.61  | 0.20  | 0.72   | 0.53  | 0.92   | 0.69   | 0.60  | 0.79   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 33.44  | 19.15  | 19.36  | 31.62 | 20.36 | 34.19  | 30.96 | 26.09  | 23.69  | 31.56 | 22.53  | 16.82 |
| Lane Group LOS                     | C      | B      | B      | C     | C     | C      | C     | C      | C      | C     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 3.90   | 2.75   | 2.50   | 1.18  | 0.99  | 4.72   | 0.96  | 6.75   | 4.22   | 1.16  | 5.33   | 0.45  |
| 50th-Percentile Queue Length [ft]  | 97.58  | 68.73  | 62.48  | 29.46 | 24.71 | 118.00 | 24.03 | 168.87 | 105.59 | 29.05 | 133.14 | 11.18 |
| 95th-Percentile Queue Length [veh] | 7.03   | 4.95   | 4.50   | 2.12  | 1.78  | 8.28   | 1.73  | 11.02  | 7.59   | 2.09  | 9.11   | 0.80  |
| 95th-Percentile Queue Length [ft]  | 175.64 | 123.71 | 112.46 | 53.04 | 44.48 | 207.08 | 43.25 | 275.42 | 189.86 | 52.29 | 227.76 | 20.12 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.44 | 19.20 | 19.36 | 31.62 | 20.36 | 34.19 | 30.96 | 26.09 | 23.69 | 31.56 | 22.53 | 16.82 |
| Movement LOS                    | C     | B     | B     | C     | C     | C     | C     | C     | C     | C     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.68 |       |       | 29.65 |       |       | 25.99 |       |       | 23.63 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.09 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.710 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.386 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 2              | 2      | 1      | 4              | 0      | 11     | 29             | 1120   | 12     | 6              | 934    | 15     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 2              | 2      | 1      | 4              | 0      | 11     | 29             | 1120   | 12     | 6              | 934    | 15     |
| Peak Hour Factor                        | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1              | 1      | 0      | 1              | 0      | 3      | 8              | 305    | 3      | 2              | 255    | 4      |
| Total Analysis Volume [veh/h]           | 2              | 2      | 1      | 4              | 0      | 12     | 32             | 1221   | 13     | 7              | 1018   | 16     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 23    | 23    | 23    | 23    | 29    | 24    | 24    | 29    | 23    | 23    |
| g / C, Green / Cycle                    | 0.39  | 0.39  | 0.39  | 0.39  | 0.48  | 0.40  | 0.40  | 0.48  | 0.38  | 0.38  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.00  | 0.01  | 0.01  | 0.04  | 0.34  | 0.01  | 0.01  | 0.28  | 0.01  |
| s, saturation flow rate [veh/h]         | 775   | 1615  | 540   | 1615  | 744   | 3618  | 1615  | 589   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 389   | 624   | 328   | 624   | 395   | 1457  | 650   | 318   | 1365  | 609   |
| d1, Uniform Delay [s]                   | 12.66 | 11.32 | 22.04 | 11.40 | 10.31 | 16.20 | 10.82 | 11.14 | 16.23 | 11.78 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.05  | 0.00  | 0.07  | 0.06  | 0.09  | 1.36  | 0.01  | 0.03  | 0.83  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.01  | 0.00  | 0.01  | 0.02  | 0.08  | 0.84   | 0.02  | 0.02  | 0.75   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 12.71 | 11.33 | 22.11 | 11.46 | 10.39 | 17.56  | 10.83 | 11.16 | 17.07  | 11.80 |
| Lane Group LOS                     | B     | B     | C     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | No    | No    | No    | Yes   | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.03  | 0.01  | 0.05  | 0.10  | 0.18  | 6.39   | 0.09  | 0.04  | 5.16   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 0.87  | 0.20  | 1.29  | 2.46  | 4.60  | 159.71 | 2.23  | 1.00  | 128.91 | 2.92  |
| 95th-Percentile Queue Length [veh] | 0.06  | 0.01  | 0.09  | 0.18  | 0.33  | 10.53  | 0.16  | 0.07  | 8.88   | 0.21  |
| 95th-Percentile Queue Length [ft]  | 1.56  | 0.37  | 2.33  | 4.43  | 8.28  | 263.34 | 4.01  | 1.80  | 222.02 | 5.26  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.71 | 12.71 | 11.33 | 22.11 | 22.11 | 11.46 | 10.39 | 17.56 | 10.83 | 11.16 | 17.07 | 11.80 |
| Movement LOS                    | B     | B     | B     | C     | C     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 12.43 |       |       | 14.12 |       |       | 17.31 |       |       | 16.94 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.11 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.386 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 26.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.717 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | ⇐⇐⇐            |        |        | ⇐⇐⇐            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 188          | 549    | 110    | 99           | 692    | 91     | 126            | 746    | 209    | 156            | 679    | 85     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 188          | 549    | 110    | 99           | 692    | 91     | 126            | 746    | 209    | 156            | 679    | 85     |
| Peak Hour Factor                        | 0.9468       | 0.9468 | 0.9468 | 0.9468       | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 50           | 145    | 29     | 26           | 183    | 24     | 33             | 197    | 55     | 41             | 179    | 22     |
| Total Analysis Volume [veh/h]           | 199          | 580    | 116    | 105          | 731    | 96     | 133            | 788    | 221    | 165            | 717    | 90     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 12       | 19      | 0       | 12       | 19      | 0       | 10       | 19      | 0       | 10       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 8     | 19    | 19    | 5     | 15    | 15    | 6     | 15    | 15    | 6     | 15    | 15    |
| g / C, Green / Cycle                    | 0.13  | 0.31  | 0.31  | 0.08  | 0.25  | 0.25  | 0.09  | 0.25  | 0.25  | 0.10  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.11  | 0.16  | 0.07  | 0.06  | 0.20  | 0.06  | 0.07  | 0.22  | 0.14  | 0.09  | 0.20  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 242   | 1133  | 506   | 138   | 925   | 413   | 171   | 884   | 395   | 181   | 904   | 404   |
| d1, Uniform Delay [s]                   | 25.34 | 16.88 | 15.27 | 27.22 | 20.86 | 17.70 | 26.58 | 21.93 | 19.87 | 26.76 | 21.07 | 17.89 |
| k, delay calibration                    | 0.23  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.15  | 0.11  | 0.11  | 0.25  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 13.86 | 1.66  | 1.06  | 8.45  | 6.85  | 1.32  | 9.94  | 3.39  | 1.25  | 29.30 | 1.62  | 0.28  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

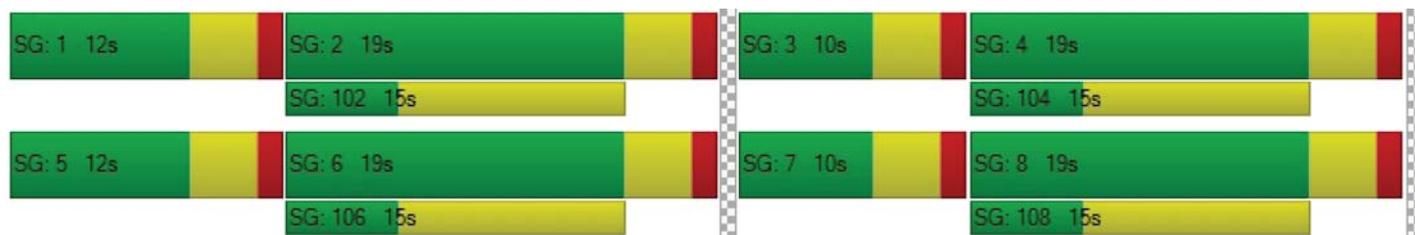
|                                    |        |        |       |       |        |       |       |        |        |        |        |       |
|------------------------------------|--------|--------|-------|-------|--------|-------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.82   | 0.51   | 0.23  | 0.76  | 0.79   | 0.23  | 0.78  | 0.89   | 0.56   | 0.91   | 0.79   | 0.22  |
| d, Delay for Lane Group [s/veh]    | 39.20  | 18.54  | 16.33 | 35.67 | 27.71  | 19.01 | 36.52 | 25.32  | 21.12  | 56.06  | 22.69  | 18.17 |
| Lane Group LOS                     | D      | B      | B     | D     | C      | B     | D     | C      | C      | E      | C      | B     |
| Critical Lane Group                | Yes    | No     | No    | No    | Yes    | No    | No    | Yes    | No     | Yes    | No     | No    |
| 50th-Percentile Queue Length [veh] | 3.31   | 2.91   | 1.11  | 1.62  | 4.84   | 1.03  | 2.16  | 5.07   | 2.50   | 3.60   | 4.29   | 0.90  |
| 50th-Percentile Queue Length [ft]  | 82.83  | 72.77  | 27.69 | 40.46 | 120.92 | 25.82 | 54.05 | 126.85 | 62.61  | 89.89  | 107.34 | 22.57 |
| 95th-Percentile Queue Length [veh] | 5.96   | 5.24   | 1.99  | 2.91  | 8.44   | 1.86  | 3.89  | 8.77   | 4.51   | 6.47   | 7.69   | 1.63  |
| 95th-Percentile Queue Length [ft]  | 149.10 | 130.99 | 49.84 | 72.83 | 211.09 | 46.47 | 97.29 | 219.21 | 112.70 | 161.80 | 192.30 | 40.63 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 39.20 | 18.54 | 16.33 | 35.67 | 27.71 | 19.01 | 36.52 | 25.32 | 21.12 | 56.06 | 22.69 | 18.17 |
| Movement LOS                    | D     | B     | B     | D     | C     | B     | D     | C     | C     | E     | C     | B     |
| d_A, Approach Delay [s/veh]     | 22.84 |       |       | 27.71 |       |       | 25.81 |       |       | 27.93 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.11 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.717 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 20.8  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.021 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 2            | 869    | 1085         | 5      | 5        | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 2            | 869    | 1085         | 5      | 5        | 7      |
| Peak Hour Factor                        | 0.9233       | 0.9233 | 0.9233       | 0.9233 | 0.9233   | 0.9233 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 235    | 294          | 1      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 2            | 941    | 1175         | 5      | 5        | 8      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 2    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.00  | 0.01 | 0.01 | 0.00 | 0.02  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 11.03 | 0.00 | 0.00 | 0.00 | 20.84 | 13.30 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.01  | 0.00 | 0.00 | 0.00 | 0.12  | 0.12  |
| 95th-Percentile Queue Length [ft]  | 0.25  | 0.00 | 0.00 | 0.00 | 3.03  | 3.03  |
| d_A, Approach Delay [s/veh]        | 0.02  |      | 0.00 |      | 16.20 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.11  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 19.0  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.034 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 717          | 2      | 9            | 1151   | 8                    | 63     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 717          | 2      | 9            | 1151   | 8                    | 63     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342       | 0.9342 | 0.9342               | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 192          | 1      | 2            | 308    | 2                    | 17     |
| Total Analysis Volume [veh/h]           | 768          | 2      | 10           | 1232   | 9                    | 67     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |       |       |
|------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.01 | 0.01 | 0.03  | 0.11  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 9.27 | 0.00 | 19.04 | 11.51 |
| Movement LOS                       | A    | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.04 | 0.00 | 0.10  | 0.36  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 0.89 | 0.00 | 2.62  | 9.04  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.07 |      | 12.40 |       |
| Approach LOS                       | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.50 |      |      |      |       |       |
| Intersection LOS                   | C    |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 8.9   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.487 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | ⇐⇐                       |        |        | ⇐⇐                       |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 9            | 693    | 17     | 6            | 1087   | 7      | 1                        | 0      | 10     | 170                      | 0      | 25     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 9            | 693    | 17     | 6            | 1087   | 7      | 1                        | 0      | 10     | 170                      | 0      | 25     |
| Peak Hour Factor                        | 0.9583       | 0.9583 | 0.9583 | 0.9583       | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 181    | 4      | 2            | 284    | 2      | 0                        | 0      | 3      | 44                       | 0      | 7      |
| Total Analysis Volume [veh/h]           | 9            | 723    | 18     | 6            | 1134   | 7      | 1                        | 0      | 10     | 177                      | 0      | 26     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 32      | 0       | 0       | 32      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 41   | 36   | 36   | 41   | 36   | 36   | 11    | 11    | 11    | 11    |
| g / C, Green / Cycle                    | 0.68 | 0.60 | 0.60 | 0.68 | 0.60 | 0.60 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.20 | 0.01 | 0.01 | 0.31 | 0.00 | 0.00  | 0.01  | 0.12  | 0.02  |
| s, saturation flow rate [veh/h]         | 591  | 3618 | 1615 | 807  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 493  | 2193 | 979  | 660  | 2179 | 973  | 335   | 300   | 335   | 300   |
| d1, Uniform Delay [s]                   | 4.03 | 5.82 | 4.71 | 3.33 | 6.91 | 4.77 | 21.73 | 20.04 | 24.76 | 20.24 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.07 | 0.40 | 0.03 | 0.01 | 0.89 | 0.01 | 0.00  | 0.04  | 1.29  | 0.12  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |      |      |        |      |       |       |        |       |
|------------------------------------|------|-------|------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.02 | 0.33  | 0.02 | 0.01 | 0.52   | 0.01 | 0.00  | 0.03  | 0.53   | 0.09  |
| d, Delay for Lane Group [s/veh]    | 4.10 | 6.22  | 4.74 | 3.34 | 7.80   | 4.78 | 21.73 | 20.08 | 26.05  | 20.36 |
| Lane Group LOS                     | A    | A     | A    | A    | A      | A    | C     | C     | C      | C     |
| Critical Lane Group                | Yes  | No    | No   | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.02 | 1.38  | 0.06 | 0.01 | 2.63   | 0.02 | 0.01  | 0.11  | 2.39   | 0.29  |
| 50th-Percentile Queue Length [ft]  | 0.58 | 34.62 | 1.51 | 0.26 | 65.70  | 0.59 | 0.29  | 2.78  | 59.87  | 7.31  |
| 95th-Percentile Queue Length [veh] | 0.04 | 2.49  | 0.11 | 0.02 | 4.73   | 0.04 | 0.02  | 0.20  | 4.31   | 0.53  |
| 95th-Percentile Queue Length [ft]  | 1.05 | 62.32 | 2.71 | 0.46 | 118.26 | 1.07 | 0.52  | 5.00  | 107.77 | 13.15 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 4.10  | 6.22 | 4.74 | 3.34 | 7.80 | 4.78 | 21.73 | 0.00 | 20.08 | 26.05 | 0.00 | 20.36 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     |      | C     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 6.16  |      |      | 7.76 |      |      | 20.23 |      |       | 25.32 |      |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 8.95  |      |      |      |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |      |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.487 |      |      |      |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 21.0  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.786 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⌈⌋⌋⌈         |        |        | ⌈⌋⌋⌈         |        |        | +              |        |        | ⌈⌋⌋⌈           |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 40           | 510    | 147    | 175          | 1059   | 13     | 10             | 4      | 15     | 313            | 2      | 229    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 40           | 510    | 147    | 175          | 1059   | 13     | 10             | 4      | 15     | 313            | 2      | 229    |
| Peak Hour Factor                        | 0.9266       | 0.9266 | 0.9266 | 0.9266       | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 11           | 138    | 40     | 47           | 286    | 4      | 3              | 1      | 4      | 84             | 1      | 62     |
| Total Analysis Volume [veh/h]           | 43           | 550    | 159    | 189          | 1143   | 14     | 11             | 4      | 16     | 338            | 2      | 247    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 17       | 27      | 0       | 0       | 24      | 0       | 0       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 8     | 26    | 26    | 20    | 20    | 20    | 20    |
| g / C, Green / Cycle                    | 0.04  | 0.34  | 0.34  | 0.13  | 0.42  | 0.42  | 0.33  | 0.33  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.15  | 0.10  | 0.10  | 0.21  | 0.21  | 0.09  | 0.01  | 0.45  | 0.15  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1888  | 340   | 1414  | 710   | 1615  |
| c, Capacity [veh/h]                     | 81    | 1219  | 544   | 242   | 1540  | 804   | 193   | 134   | 354   | 533   |
| d1, Uniform Delay [s]                   | 28.11 | 15.59 | 14.66 | 25.22 | 12.56 | 12.56 | 15.91 | 29.85 | 23.05 | 15.95 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.27  | 1.21  | 1.36  | 5.47  | 1.13  | 2.16  | 0.38  | 0.50  | 28.96 | 0.63  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

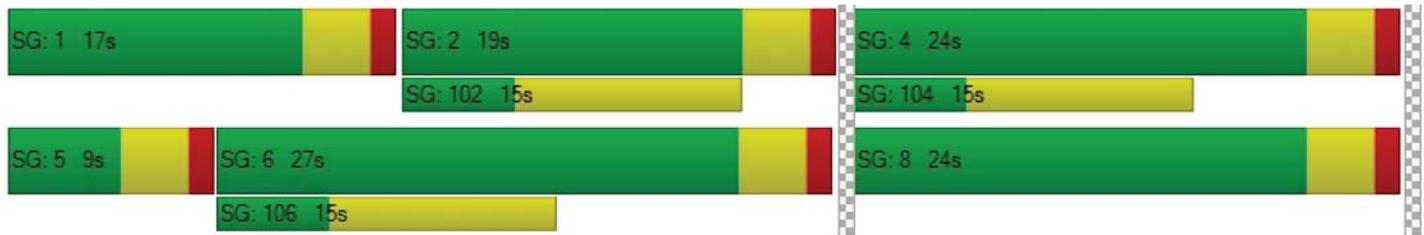
|                                    |       |        |       |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.53  | 0.45   | 0.29  | 0.78   | 0.49   | 0.49   | 0.16  | 0.15  | 0.91   | 0.46   |
| d, Delay for Lane Group [s/veh]    | 33.39 | 16.80  | 16.02 | 30.69  | 13.69  | 14.72  | 16.29 | 30.35 | 52.00  | 16.57  |
| Lane Group LOS                     | C     | B      | B     | C      | B      | B      | B     | C     | D      | B      |
| Critical Lane Group                | No    | Yes    | No    | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.65  | 2.57   | 1.49  | 2.62   | 3.04   | 3.40   | 0.28  | 0.29  | 7.26   | 2.50   |
| 50th-Percentile Queue Length [ft]  | 16.37 | 64.20  | 37.27 | 65.55  | 75.91  | 84.99  | 7.04  | 7.34  | 181.58 | 62.62  |
| 95th-Percentile Queue Length [veh] | 1.18  | 4.62   | 2.68  | 4.72   | 5.47   | 6.12   | 0.51  | 0.53  | 11.68  | 4.51   |
| 95th-Percentile Queue Length [ft]  | 29.46 | 115.56 | 67.08 | 117.99 | 136.63 | 152.97 | 12.67 | 13.21 | 292.08 | 112.72 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.39 | 16.80 | 16.02 | 30.69 | 14.04 | 14.72 | 16.29 | 16.29 | 16.29 | 50.72 | 52.00 | 16.57 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | B     | B     | B     | D     | D     | B     |
| d_A, Approach Delay [s/veh]     | 17.58 |       |       | 16.38 |       |       | 16.29 |       |       | 36.36 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 21.03 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.786 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Existing Plus Project**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.6  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.408 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 97       | 88     | 41     | 51       | 124    | 57     | 221            | 832    | 337    | 76             | 396    | 27     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 97       | 88     | 41     | 51       | 124    | 57     | 221            | 832    | 337    | 76             | 396    | 27     |
| Peak Hour Factor                        | 0.8860   | 0.8860 | 0.8860 | 0.8860   | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 27       | 25     | 12     | 14       | 35     | 16     | 62             | 235    | 95     | 21             | 112    | 8      |
| Total Analysis Volume [veh/h]           | 109      | 99     | 46     | 58       | 140    | 64     | 249            | 939    | 380    | 86             | 447    | 30     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 20    | 20    | 3     | 19    | 19    | 6     | 18    | 18    | 4     | 16    | 16    |
| g / C, Green / Cycle                    | 0.07  | 0.32  | 0.32  | 0.05  | 0.30  | 0.30  | 0.10  | 0.30  | 0.30  | 0.06  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.04  | 0.02  | 0.04  | 0.04  | 0.07  | 0.26  | 0.24  | 0.02  | 0.12  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1704  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 246   | 611   | 548   | 185   | 1100  | 491   | 366   | 1086  | 485   | 225   | 941   | 420   |
| d1, Uniform Delay [s]                   | 27.28 | 14.65 | 14.68 | 27.90 | 15.41 | 15.42 | 26.41 | 20.22 | 19.58 | 27.45 | 19.10 | 17.05 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.23  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.25  | 0.41  | 0.49  | 0.96  | 0.24  | 0.55  | 2.23  | 2.21  | 5.80  | 1.06  | 0.37  | 0.07  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.44  | 0.12  | 0.13  | 0.31  | 0.13  | 0.13  | 0.68  | 0.86   | 0.78   | 0.38  | 0.48   | 0.07  |
| d, Delay for Lane Group [s/veh]    | 28.53 | 15.05 | 15.17 | 28.86 | 15.65 | 15.97 | 28.64 | 22.43  | 25.38  | 28.52 | 19.47  | 17.12 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes   | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.74  | 0.70  | 0.68  | 0.40  | 0.65  | 0.64  | 1.70  | 5.73   | 5.01   | 0.59  | 2.39   | 0.29  |
| 50th-Percentile Queue Length [ft]  | 18.57 | 17.54 | 16.91 | 10.01 | 16.34 | 15.99 | 42.60 | 143.36 | 125.37 | 14.66 | 59.85  | 7.24  |
| 95th-Percentile Queue Length [veh] | 1.34  | 1.26  | 1.22  | 0.72  | 1.18  | 1.15  | 3.07  | 9.66   | 8.69   | 1.06  | 4.31   | 0.52  |
| 95th-Percentile Queue Length [ft]  | 33.42 | 31.57 | 30.44 | 18.02 | 29.41 | 28.78 | 76.68 | 241.54 | 217.18 | 26.39 | 107.74 | 13.03 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 28.53 | 15.08 | 15.17 | 28.86 | 15.65 | 15.97 | 28.64 | 22.43 | 25.38 | 28.52 | 19.47 | 17.12 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 20.87 |       |       | 18.65 |       |       | 24.13 |       |       | 20.73 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.55 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.408 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 19.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.322 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 10             | 4      | 2      | 6              | 2      | 10     | 34             | 855    | 24     | 3              | 385    | 11     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10             | 4      | 2      | 6              | 2      | 10     | 34             | 855    | 24     | 3              | 385    | 11     |
| Peak Hour Factor                        | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3              | 1      | 1      | 2              | 1      | 3      | 10             | 241    | 7      | 1              | 108    | 3      |
| Total Analysis Volume [veh/h]           | 11             | 5      | 2      | 7              | 2      | 11     | 38             | 963    | 27     | 3              | 433    | 12     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 62                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 30    | 30   | 30    | 30   | 24    | 20    | 20    | 24    | 18    | 18    |
| g / C, Green / Cycle                    | 0.48  | 0.48 | 0.48  | 0.48 | 0.39  | 0.32  | 0.32  | 0.39  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.03  | 0.27  | 0.02  | 0.00  | 0.12  | 0.01  |
| s, saturation flow rate [veh/h]         | 669   | 1615 | 630   | 1615 | 1126  | 3618  | 1615  | 710   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 417   | 771  | 403   | 771  | 524   | 1171  | 523   | 308   | 1045  | 467   |
| d1, Uniform Delay [s]                   | 10.95 | 8.51 | 11.01 | 8.55 | 11.96 | 19.37 | 14.45 | 13.33 | 17.85 | 15.83 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.17  | 0.01 | 0.10  | 0.03 | 0.06  | 1.51  | 0.04  | 0.01  | 0.26  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |        |       |       |        |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.04  | 0.00 | 0.02  | 0.01 | 0.07  | 0.82   | 0.05  | 0.01  | 0.41   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 11.12 | 8.51 | 11.11 | 8.59 | 12.01 | 20.87  | 14.49 | 13.34 | 18.11  | 15.85 |
| Lane Group LOS                     | B     | A    | B     | A    | B     | C      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.12  | 0.01 | 0.07  | 0.07 | 0.29  | 5.71   | 0.23  | 0.02  | 2.23   | 0.11  |
| 50th-Percentile Queue Length [ft]  | 2.96  | 0.34 | 1.67  | 1.87 | 7.13  | 142.79 | 5.87  | 0.56  | 55.87  | 2.77  |
| 95th-Percentile Queue Length [veh] | 0.21  | 0.02 | 0.12  | 0.13 | 0.51  | 9.63   | 0.42  | 0.04  | 4.02   | 0.20  |
| 95th-Percentile Queue Length [ft]  | 5.34  | 0.61 | 3.00  | 3.37 | 12.84 | 240.78 | 10.56 | 1.01  | 100.56 | 4.99  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.12 | 11.12 | 8.51 | 11.11 | 11.11 | 8.59 | 12.01 | 20.87 | 14.49 | 13.34 | 18.11 | 15.85 |
| Movement LOS                    | B     | B     | A    | B     | B     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 10.83 |       |      | 9.72  |       |      | 20.38 |       |       | 18.02 |       |       |
| Approach LOS                    | B     |       |      | A     |       |      | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.42 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.322 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.8   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 4                     | 1      | 11       | 14     | 8            | 12     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 4                     | 1      | 11       | 14     | 8            | 12     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200   | 0.9200 | 0.9200       | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1                     | 0      | 3        | 4      | 2            | 3      |
| Total Analysis Volume [veh/h]           | 4                     | 1      | 12       | 15     | 9            | 13     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.78 | 8.40 | 0.00 | 0.00 | 7.26 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.02 | 0.02 | 0.00 | 0.00 | 0.04 | 0.04 |
| 95th-Percentile Queue Length [ft]  | 0.39 | 0.39 | 0.00 | 0.00 | 1.05 | 1.05 |
| d_A, Approach Delay [s/veh]        | 8.70 |      | 0.00 |      | 2.97 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.02 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.003 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration     | ↻                     |        | ↑            |        | ↶         |        |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 3      | 12           | 0      | 18       | 20     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 3      | 12           | 0      | 18       | 20     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200       | 0.9200 | 0.9200   | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 1      | 3            | 0      | 5        | 5      |
| Total Analysis Volume [veh/h]           | 0                     | 3      | 13           | 0      | 20       | 22     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.36 | 0.00 | 0.00 | 7.25 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.21 | 0.00 | 0.00 | 2.00 | 2.00 |
| d_A, Approach Delay [s/veh]        | 8.36 |      | 0.00 |      | 3.45 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.93 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 21.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.548 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 70           | 596    | 57     | 48           | 522    | 80     | 160            | 381    | 289    | 85             | 256    | 67     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 70           | 596    | 57     | 48           | 522    | 80     | 160            | 381    | 289    | 85             | 256    | 67     |
| Peak Hour Factor                        | 0.8780       | 0.8780 | 0.8780 | 0.8780       | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 20           | 170    | 16     | 14           | 149    | 23     | 46             | 108    | 82     | 24             | 73     | 19     |
| Total Analysis Volume [veh/h]           | 80           | 679    | 65     | 55           | 595    | 91     | 182            | 434    | 329    | 97             | 292    | 76     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 22    | 22    | 3     | 21    | 21    | 8     | 15    | 15    | 4     | 11    | 11    |
| g / C, Green / Cycle                    | 0.06  | 0.37  | 0.37  | 0.05  | 0.36  | 0.36  | 0.13  | 0.25  | 0.25  | 0.07  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.04  | 0.03  | 0.16  | 0.06  | 0.10  | 0.12  | 0.20  | 0.05  | 0.08  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 113   | 1322  | 590   | 93    | 1281  | 572   | 230   | 893   | 399   | 128   | 688   | 307   |
| d1, Uniform Delay [s]                   | 27.65 | 14.91 | 12.62 | 27.91 | 15.02 | 13.30 | 25.48 | 19.39 | 21.43 | 27.45 | 21.45 | 20.70 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.15  | 0.11  | 0.16  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 7.77  | 1.43  | 0.38  | 5.89  | 1.21  | 0.60  | 8.04  | 0.41  | 6.30  | 8.92  | 0.42  | 0.42  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.71  | 0.51   | 0.11  | 0.59  | 0.46   | 0.16  | 0.79   | 0.49   | 0.83   | 0.76  | 0.42  | 0.25  |
| d, Delay for Lane Group [s/veh]    | 35.42 | 16.34  | 13.00 | 33.80 | 16.23  | 13.89 | 33.52  | 19.80  | 27.73  | 36.37 | 21.87 | 21.11 |
| Lane Group LOS                     | D     | B      | B     | C     | B      | B     | C      | B      | C      | D     | C     | C     |
| Critical Lane Group                | No    | Yes    | No    | Yes   | No     | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.24  | 3.10   | 0.52  | 0.84  | 2.70   | 0.77  | 2.79   | 2.33   | 4.51   | 1.56  | 1.66  | 0.85  |
| 50th-Percentile Queue Length [ft]  | 30.93 | 77.38  | 13.02 | 20.88 | 67.41  | 19.16 | 69.71  | 58.20  | 112.83 | 39.12 | 41.41 | 21.18 |
| 95th-Percentile Queue Length [veh] | 2.23  | 5.57   | 0.94  | 1.50  | 4.85   | 1.38  | 5.02   | 4.19   | 8.00   | 2.82  | 2.98  | 1.53  |
| 95th-Percentile Queue Length [ft]  | 55.68 | 139.28 | 23.44 | 37.59 | 121.34 | 34.49 | 125.48 | 104.76 | 199.93 | 70.42 | 74.53 | 38.13 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 35.42 | 16.34 | 13.00 | 33.80 | 16.23 | 13.89 | 33.52 | 19.80 | 27.73 | 36.37 | 21.87 | 21.11 |
| Movement LOS                    | D     | B     | B     | C     | B     | B     | C     | B     | C     | D     | C     | C     |
| d_A, Approach Delay [s/veh]     | 17.93 |       |       | 17.25 |       |       | 25.20 |       |       | 24.77 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 21.14 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.548 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 20.9  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 14           | 730    | 862          | 22     | 5        | 10     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 14           | 730    | 862          | 22     | 5        | 10     |
| Peak Hour Factor                        | 0.8593       | 0.8593 | 0.8593       | 0.8593 | 0.8593   | 0.8593 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4            | 212    | 251          | 6      | 1        | 3      |
| Total Analysis Volume [veh/h]           | 16           | 850    | 1003         | 26     | 6        | 12     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.02  | 0.01 | 0.01 | 0.00 | 0.03  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 10.40 | 0.00 | 0.00 | 0.00 | 20.86 | 12.41 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.07  | 0.00 | 0.00 | 0.00 | 0.15  | 0.15  |
| 95th-Percentile Queue Length [ft]  | 1.80  | 0.00 | 0.00 | 0.00 | 3.82  | 3.82  |
| d_A, Approach Delay [s/veh]        | 0.19  |      | 0.00 |      | 15.23 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.23  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 67.3  |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.218 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 722    | 27     | 77           | 753    | 24     | 14               | 0      | 6      | 1                    | 0      | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 722    | 27     | 77           | 753    | 24     | 14               | 0      | 6      | 1                    | 0      | 6      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587 | 0.8587       | 0.8587 | 0.8587 | 0.8587           | 0.8587 | 0.8587 | 0.8587               | 0.8587 | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 210    | 8      | 22           | 219    | 7      | 4                | 0      | 2      | 0                    | 0      | 2      |
| Total Analysis Volume [veh/h]           | 21           | 841    | 31     | 90           | 877    | 28     | 16               | 0      | 7      | 1                    | 0      | 7      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |       |      |      |       |      |       |       |      |       |
|------------------------------------|------|------|------|-------|------|------|-------|------|-------|-------|------|-------|
| V/C, Movement V/C Ratio            | 0.03 | 0.01 | 0.00 | 0.12  | 0.01 | 0.00 | 0.22  | 0.00 | 0.01  | 0.01  | 0.00 | 0.01  |
| d_M, Delay for Movement [s/veh]    | 9.87 | 0.00 | 0.00 | 10.20 | 0.00 | 0.00 | 67.34 | 0.00 | 11.38 | 53.28 | 0.00 | 11.20 |
| Movement LOS                       | A    | A    | A    | B     | A    | A    | F     |      | B     | F     |      | B     |
| 95th-Percentile Queue Length [veh] | 0.09 | 0.00 | 0.00 | 0.39  | 0.00 | 0.00 | 0.76  | 0.00 | 0.04  | 0.04  | 0.00 | 0.04  |
| 95th-Percentile Queue Length [ft]  | 2.13 | 0.00 | 0.00 | 9.71  | 0.00 | 0.00 | 18.94 | 0.00 | 0.93  | 1.00  | 0.00 | 0.90  |
| d_A, Approach Delay [s/veh]        | 0.23 |      |      | 0.92  |      |      | 50.31 |      |       | 16.46 |      |       |
| Approach LOS                       | A    |      |      | A     |      |      | F     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh]    | 1.26 |      |      |       |      |      |       |      |       |       |      |       |
| Intersection LOS                   | F    |      |      |       |      |      |       |      |       |       |      |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.7   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.604 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     | ⇌⇌⇌          |        |        | ⇌⇌⇌          |        |        | ⇌⇌                       |        |        | ⇌⇌                       |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 5            | 733    | 161    | 21           | 737    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 5            | 733    | 161    | 21           | 737    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Peak Hour Factor                        | 0.8960       | 0.8960 | 0.8960 | 0.8960       | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 205    | 45     | 6            | 206    | 2      | 2                        | 1      | 3      | 6                        | 0      | 2      |
| Total Analysis Volume [veh/h]           | 6            | 818    | 180    | 23           | 823    | 8      | 9                        | 4      | 12     | 26                       | 0      | 8      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 47      | 0       | 9        | 47      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 50   | 44   | 44   | 50   | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.83 | 0.73 | 0.73 | 0.83 | 0.75 | 0.75 | 0.04  | 0.04  | 0.04  | 0.04  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.23 | 0.11 | 0.03 | 0.23 | 0.00 | 0.17  | 0.01  | 0.31  | 0.00  |
| s, saturation flow rate [veh/h]         | 735  | 3618 | 1615 | 764  | 3618 | 1615 | 78    | 1615  | 83    | 1615  |
| c, Capacity [veh/h]                     | 729  | 2647 | 1182 | 749  | 2715 | 1212 | 104   | 65    | 123   | 65    |
| d1, Uniform Delay [s]                   | 1.13 | 2.80 | 2.44 | 1.17 | 2.43 | 1.88 | 30.07 | 27.92 | 30.07 | 27.85 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.18  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.02 | 0.30 | 0.27 | 0.02 | 0.29 | 0.01 | 0.87  | 1.36  | 3.88  | 0.84  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

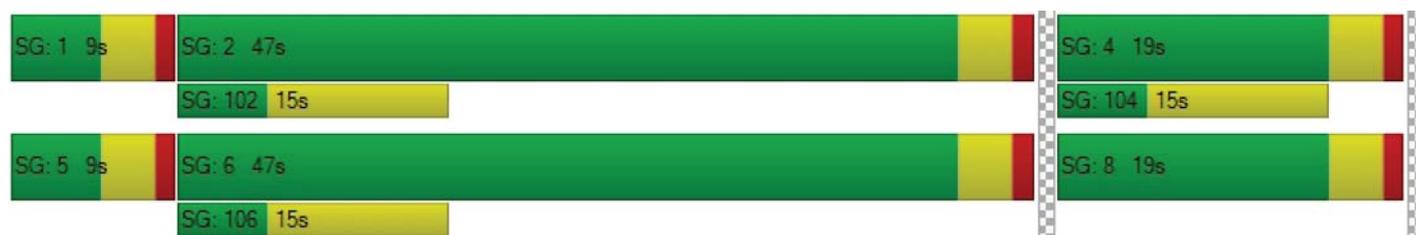
|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.31  | 0.15  | 0.03 | 0.30  | 0.01 | 0.12  | 0.18  | 0.21  | 0.12  |
| d, Delay for Lane Group [s/veh]    | 1.15 | 3.10  | 2.71  | 1.19 | 2.71  | 1.89 | 30.93 | 29.28 | 33.95 | 28.69 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | No   | Yes   | No    | Yes  | No    | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 0.47  | 0.23  | 0.00 | 0.31  | 0.01 | 0.21  | 0.18  | 0.50  | 0.12  |
| 50th-Percentile Queue Length [ft]  | 0.10 | 11.85 | 5.72  | 0.09 | 7.69  | 0.16 | 5.14  | 4.58  | 12.42 | 3.02  |
| 95th-Percentile Queue Length [veh] | 0.01 | 0.85  | 0.41  | 0.01 | 0.55  | 0.01 | 0.37  | 0.33  | 0.89  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 0.19 | 21.32 | 10.29 | 0.15 | 13.83 | 0.28 | 9.25  | 8.24  | 22.36 | 5.43  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.15  | 3.10 | 2.71 | 1.19 | 2.71 | 1.89 | 30.93 | 30.93 | 29.28 | 33.95 | 33.95 | 28.69 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 3.02  |      |      | 2.67 |      |      | 30.14 |       |       | 32.72 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 3.74  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.604 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 16.6  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.631 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | +              |        |        | ⇐⇐⇐            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 24           | 686    | 371    | 246          | 516    | 4      | 3              | 2      | 2      | 61             | 1      | 221    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 24           | 686    | 371    | 246          | 516    | 4      | 3              | 2      | 2      | 61             | 1      | 221    |
| Peak Hour Factor                        | 0.8826       | 0.8826 | 0.8826 | 0.8826       | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 194    | 105    | 70           | 146    | 1      | 1              | 1      | 1      | 17             | 0      | 63     |
| Total Analysis Volume [veh/h]           | 27           | 777    | 420    | 279          | 585    | 5      | 3              | 2      | 2      | 69             | 1      | 250    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 20       | 30      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 26    | 26    | 11    | 36   | 36   | 12    | 12    | 12    | 12    |
| g / C, Green / Cycle                    | 0.03  | 0.43  | 0.43  | 0.19  | 0.58 | 0.58 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.21  | 0.26  | 0.15  | 0.11 | 0.11 | 0.00  | 0.02  | 0.03  | 0.15  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1892 | 1620  | 1435  | 1437  | 1615  |
| c, Capacity [veh/h]                     | 58    | 1547  | 691   | 337   | 2105 | 1101 | 391   | 316   | 389   | 306   |
| d1, Uniform Delay [s]                   | 29.07 | 12.76 | 13.54 | 23.93 | 5.99 | 5.99 | 20.15 | 23.19 | 20.65 | 23.75 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.13  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.61  | 1.17  | 3.96  | 6.01  | 0.19 | 0.37 | 0.02  | 0.13  | 0.12  | 5.29  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

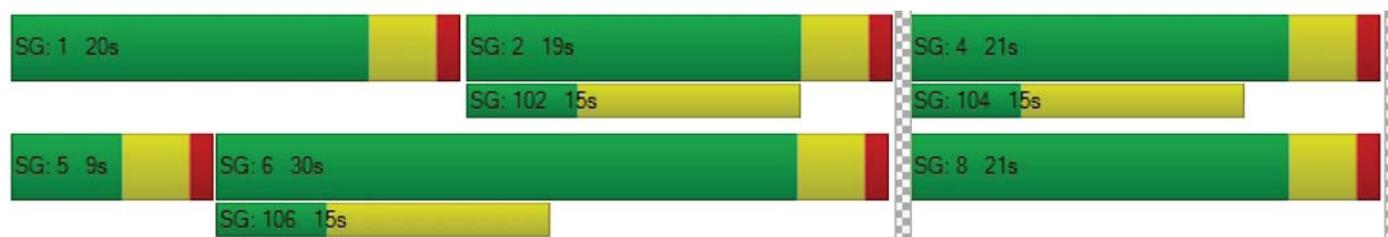
|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.46  | 0.50   | 0.61   | 0.83   | 0.18  | 0.18  | 0.02  | 0.09  | 0.10  | 0.82   |
| d, Delay for Lane Group [s/veh]    | 34.69 | 13.93  | 17.49  | 29.94  | 6.18  | 6.36  | 20.17 | 23.32 | 20.77 | 29.04  |
| Lane Group LOS                     | C     | B      | B      | C      | A     | A     | C     | C     | C     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.44  | 3.17   | 4.10   | 3.87   | 0.77  | 0.86  | 0.08  | 0.36  | 0.47  | 3.67   |
| 50th-Percentile Queue Length [ft]  | 10.94 | 79.18  | 102.61 | 96.75  | 19.17 | 21.41 | 1.96  | 9.12  | 11.65 | 91.68  |
| 95th-Percentile Queue Length [veh] | 0.79  | 5.70   | 7.39   | 6.97   | 1.38  | 1.54  | 0.14  | 0.66  | 0.84  | 6.60   |
| 95th-Percentile Queue Length [ft]  | 19.69 | 142.52 | 184.69 | 174.16 | 34.50 | 38.53 | 3.53  | 16.42 | 20.97 | 165.02 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.69 | 13.93 | 17.49 | 29.94 | 6.24 | 6.36 | 20.17 | 20.17 | 20.17 | 23.32 | 20.77 | 29.04 |
| Movement LOS                    | C     | B     | B     | C     | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 15.61 |       |       | 13.85 |      |      | 20.17 |       |       | 27.46 |       |       |
| Approach LOS                    | B     |       |       | B     |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 16.56 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.631 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 6.4   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.392 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 722    | 27     | 77           | 753    | 24     | 14               | 0      | 6      | 1                    | 0      | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 722    | 27     | 77           | 753    | 24     | 14               | 0      | 6      | 1                    | 0      | 6      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587 | 0.8587       | 0.8587 | 0.8587 | 0.8587           | 0.8587 | 0.8587 | 0.8587               | 0.8587 | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 210    | 8      | 22           | 219    | 7      | 4                | 0      | 2      | 0                    | 0      | 2      |
| Total Analysis Volume [veh/h]           | 21           | 841    | 31     | 90           | 877    | 28     | 16               | 0      | 7      | 1                    | 0      | 7      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 130                          |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 96       | 32      | 0       | 83       | 19      | 0       | 15      | 0       | 0       | 15      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | L     | R     | L     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 1     | 9    | 9    | 2     | 10   | 10   | 1     | 1     | 1     | 1     |
| g / C, Green / Cycle                    | 0.03  | 0.37 | 0.37 | 0.10  | 0.44 | 0.44 | 0.03  | 0.03  | 0.03  | 0.03  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.23 | 0.02 | 0.05  | 0.24 | 0.02 | 0.01  | 0.00  | 0.00  | 0.00  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 51    | 1345 | 600  | 174   | 1591 | 710  | 301   | 50    | 301   | 50    |
| d1, Uniform Delay [s]                   | 11.44 | 6.16 | 4.82 | 10.29 | 4.96 | 3.82 | 11.97 | 11.30 | 11.97 | 11.30 |
| k, delay calibration                    | 0.11  | 0.11 | 0.11 | 0.11  | 0.11 | 0.11 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.18  | 0.48 | 0.04 | 2.36  | 0.30 | 0.02 | 0.07  | 1.28  | 0.00  | 1.28  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

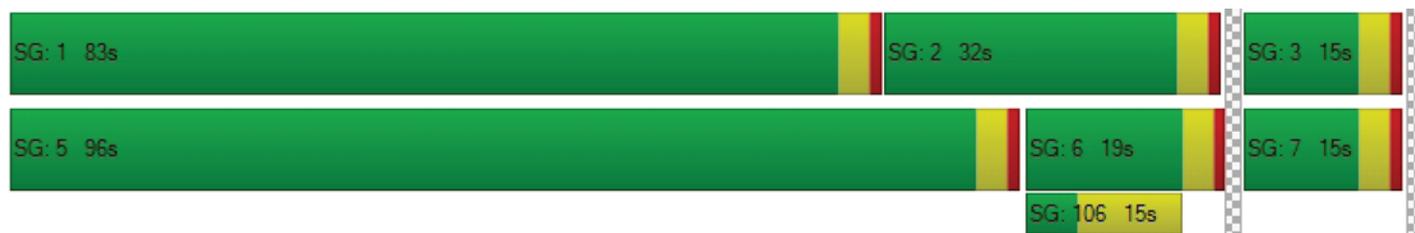
|                                    |       |       |      |       |      |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.41  | 0.63  | 0.05 | 0.52  | 0.55 | 0.04 | 0.05  | 0.14  | 0.00  | 0.14  |
| d, Delay for Lane Group [s/veh]    | 16.61 | 6.64  | 4.85 | 12.65 | 5.26 | 3.85 | 12.05 | 12.57 | 11.97 | 12.57 |
| Lane Group LOS                     | B     | A     | A    | B     | A    | A    | B     | B     | B     | B     |
| Critical Lane Group                | No    | Yes   | No   | Yes   | No   | No   | Yes   | No    | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.13  | 0.30  | 0.02 | 0.32  | 0.07 | 0.00 | 0.07  | 0.04  | 0.00  | 0.04  |
| 50th-Percentile Queue Length [ft]  | 3.25  | 7.38  | 0.44 | 8.06  | 1.66 | 0.11 | 1.66  | 1.06  | 0.10  | 1.06  |
| 95th-Percentile Queue Length [veh] | 0.23  | 0.53  | 0.03 | 0.58  | 0.12 | 0.01 | 0.12  | 0.08  | 0.01  | 0.08  |
| 95th-Percentile Queue Length [ft]  | 5.85  | 13.28 | 0.80 | 14.51 | 2.98 | 0.20 | 3.00  | 1.91  | 0.18  | 1.91  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|-------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 16.61 | 6.64 | 4.85 | 12.65 | 5.26 | 3.85 | 12.05 | 0.00 | 12.57 | 11.97 | 0.00 | 12.57 |
| Movement LOS                    | B     | A    | A    | B     | A    | A    | B     |      | B     | B     |      | B     |
| d_A, Approach Delay [s/veh]     | 6.81  |      |      | 5.89  |      |      | 12.21 |      |       | 12.50 |      |       |
| Approach LOS                    | A     |      |      | A     |      |      | B     |      |       | B     |      |       |
| d_I, Intersection Delay [s/veh] | 6.42  |      |      |       |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |       |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.392 |      |      |       |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 26.2  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | T O R      |        |        | O L R      |        |        | O L R          |        |        | O L R          |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 457      | 288    | 128    | 145      | 157    | 258    | 120            | 906    | 299    | 143            | 807    | 42     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 457      | 288    | 128    | 145      | 157    | 258    | 120            | 906    | 299    | 143            | 807    | 42     |
| Peak Hour Factor                        | 0.9275   | 0.9275 | 0.9275 | 0.9275   | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 123      | 78     | 35     | 39       | 42     | 70     | 32             | 244    | 81     | 39             | 218    | 11     |
| Total Analysis Volume [veh/h]           | 493      | 311    | 138    | 156      | 169    | 278    | 129            | 977    | 322    | 154            | 870    | 45     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 14       | 19      | 0       | 14       | 19      | 0       | 11       | 23      | 0       | 9        | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 10    | 20    | 20    | 5     | 15    | 15    | 5     | 19    | 19    | 5     | 19    | 19    |
| g / C, Green / Cycle                    | 0.15  | 0.32  | 0.32  | 0.07  | 0.23  | 0.23  | 0.07  | 0.29  | 0.29  | 0.07  | 0.30  | 0.30  |
| (v / s)_i Volume / Saturation Flow Rate | 0.14  | 0.12  | 0.12  | 0.04  | 0.05  | 0.17  | 0.04  | 0.27  | 0.20  | 0.04  | 0.24  | 0.03  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1705  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 541   | 600   | 538   | 255   | 848   | 379   | 245   | 1061  | 474   | 254   | 1071  | 478   |
| d1, Uniform Delay [s]                   | 27.08 | 17.39 | 17.39 | 29.27 | 19.99 | 23.02 | 29.22 | 22.25 | 20.29 | 29.26 | 21.22 | 16.58 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.19  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.38  | 1.94  | 2.16  | 2.37  | 0.53  | 11.95 | 1.75  | 3.85  | 3.06  | 2.32  | 1.55  | 0.08  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.91   | 0.39   | 0.39   | 0.61  | 0.20  | 0.73   | 0.53  | 0.92   | 0.68   | 0.61  | 0.81   | 0.09  |
| d, Delay for Lane Group [s/veh]    | 33.46  | 19.33  | 19.55  | 31.64 | 20.52 | 34.97  | 30.97 | 26.10  | 23.35  | 31.58 | 22.77  | 16.66 |
| Lane Group LOS                     | C      | B      | B      | C     | C     | C      | C     | C      | C      | C     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 3.90   | 2.76   | 2.51   | 1.18  | 0.99  | 4.78   | 0.96  | 6.87   | 4.19   | 1.16  | 5.59   | 0.44  |
| 50th-Percentile Queue Length [ft]  | 97.60  | 69.12  | 62.85  | 29.47 | 24.83 | 119.58 | 24.03 | 171.65 | 104.71 | 29.06 | 139.81 | 11.12 |
| 95th-Percentile Queue Length [veh] | 7.03   | 4.98   | 4.52   | 2.12  | 1.79  | 8.37   | 1.73  | 11.16  | 7.54   | 2.09  | 9.47   | 0.80  |
| 95th-Percentile Queue Length [ft]  | 175.68 | 124.42 | 113.12 | 53.05 | 44.69 | 209.25 | 43.26 | 279.08 | 188.47 | 52.31 | 236.77 | 20.01 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.46 | 19.39 | 19.55 | 31.64 | 20.52 | 34.97 | 30.97 | 26.10 | 23.35 | 31.58 | 22.77 | 16.66 |
| Movement LOS                    | C     | B     | B     | C     | C     | C     | C     | C     | C     | C     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.78 |       |       | 30.06 |       |       | 25.92 |       |       | 23.78 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.17 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.714 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.415 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 14             | 4      | 1      | 4              | 1      | 11     | 29             | 1130   | 16     | 6              | 953    | 15     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 14             | 4      | 1      | 4              | 1      | 11     | 29             | 1130   | 16     | 6              | 953    | 15     |
| Peak Hour Factor                        | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4              | 1      | 0      | 1              | 0      | 3      | 8              | 308    | 4      | 2              | 260    | 4      |
| Total Analysis Volume [veh/h]           | 15             | 4      | 1      | 4              | 1      | 12     | 32             | 1232   | 17     | 7              | 1039   | 16     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 24    | 24    | 24    | 24    | 29    | 25    | 25    | 29    | 23    | 23    |
| g / C, Green / Cycle                    | 0.39  | 0.39  | 0.39  | 0.39  | 0.48  | 0.40  | 0.40  | 0.48  | 0.38  | 0.38  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.00  | 0.01  | 0.01  | 0.04  | 0.34  | 0.01  | 0.01  | 0.29  | 0.01  |
| s, saturation flow rate [veh/h]         | 601   | 1615  | 592   | 1615  | 733   | 3618  | 1615  | 583   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 339   | 627   | 336   | 627   | 386   | 1462  | 653   | 312   | 1371  | 612   |
| d1, Uniform Delay [s]                   | 13.29 | 11.45 | 13.21 | 11.52 | 10.59 | 16.46 | 10.97 | 11.39 | 16.55 | 11.91 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.32  | 0.00  | 0.08  | 0.06  | 0.09  | 1.40  | 0.02  | 0.03  | 0.88  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.06  | 0.00  | 0.01  | 0.02  | 0.08  | 0.84   | 0.03  | 0.02  | 0.76   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 13.60 | 11.45 | 13.29 | 11.58 | 10.68 | 17.86  | 10.99 | 11.42 | 17.43  | 11.93 |
| Lane Group LOS                     | B     | B     | B     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.17  | 0.01  | 0.05  | 0.10  | 0.19  | 6.61   | 0.12  | 0.04  | 5.42   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 4.33  | 0.21  | 1.13  | 2.50  | 4.71  | 165.24 | 2.98  | 1.03  | 135.39 | 2.98  |
| 95th-Percentile Queue Length [veh] | 0.31  | 0.01  | 0.08  | 0.18  | 0.34  | 10.83  | 0.21  | 0.07  | 9.23   | 0.21  |
| 95th-Percentile Queue Length [ft]  | 7.79  | 0.37  | 2.03  | 4.51  | 8.49  | 270.64 | 5.37  | 1.85  | 230.80 | 5.37  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 13.60 | 13.60 | 11.45 | 13.29 | 13.29 | 11.58 | 10.68 | 17.86 | 10.99 | 11.42 | 17.43 | 11.93 |
| Movement LOS                    | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 13.50 |       |       | 12.08 |       |       | 17.59 |       |       | 17.31 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.39 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.415 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.8   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.015 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 14                    | 4      | 10       | 4      | 4            | 16     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 14                    | 4      | 10       | 4      | 4            | 16     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200   | 0.9200 | 0.9200       | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4                     | 1      | 3        | 1      | 1            | 4      |
| Total Analysis Volume [veh/h]           | 15                    | 4      | 11       | 4      | 4            | 17     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.76 | 8.43 | 0.00 | 0.00 | 7.23 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.06 | 0.06 | 0.00 | 0.00 | 0.04 | 0.04 |
| 95th-Percentile Queue Length [ft]  | 1.46 | 1.46 | 0.00 | 0.00 | 0.99 | 0.99 |
| d_A, Approach Delay [s/veh]        | 8.69 |      | 0.00 |      | 1.38 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 3.53 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration     | ↻                     |        | ↑            |        | ↶         |        |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 7      | 14           | 0      | 9        | 20     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 7      | 14           | 0      | 9        | 20     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200       | 0.9200 | 0.9200   | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 2      | 4            | 0      | 2        | 5      |
| Total Analysis Volume [veh/h]           | 0                     | 8      | 15           | 0      | 10       | 22     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.39 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.02 | 0.00 | 0.00 | 0.06 | 0.06 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.56 | 0.00 | 0.00 | 1.51 | 1.51 |
| d_A, Approach Delay [s/veh]        | 8.39 |      | 0.00 |      | 2.26 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.54 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 27.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.733 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 207          | 559    | 120    | 99           | 696    | 91     | 126            | 746    | 219    | 160            | 679    | 85     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 207          | 559    | 120    | 99           | 696    | 91     | 126            | 746    | 219    | 160            | 679    | 85     |
| Peak Hour Factor                        | 0.9468       | 0.9468 | 0.9468 | 0.9468       | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 55           | 148    | 32     | 26           | 184    | 24     | 33             | 197    | 58     | 42             | 179    | 22     |
| Total Analysis Volume [veh/h]           | 219          | 590    | 127    | 105          | 735    | 96     | 133            | 788    | 231    | 169            | 717    | 90     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 12       | 19      | 0       | 12       | 19      | 0       | 10       | 19      | 0       | 10       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 8     | 19    | 19    | 5     | 15    | 15    | 6     | 15    | 15    | 6     | 15    | 15    |
| g / C, Green / Cycle                    | 0.13  | 0.31  | 0.31  | 0.08  | 0.25  | 0.25  | 0.09  | 0.25  | 0.25  | 0.10  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.12  | 0.16  | 0.08  | 0.06  | 0.20  | 0.06  | 0.07  | 0.22  | 0.14  | 0.09  | 0.20  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 242   | 1133  | 506   | 138   | 925   | 413   | 171   | 884   | 395   | 181   | 904   | 404   |
| d1, Uniform Delay [s]                   | 25.66 | 16.94 | 15.38 | 27.22 | 20.89 | 17.70 | 26.58 | 21.93 | 20.02 | 26.82 | 21.07 | 17.89 |
| k, delay calibration                    | 0.29  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.15  | 0.11  | 0.11  | 0.27  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 25.65 | 1.71  | 1.19  | 8.45  | 7.02  | 1.32  | 9.94  | 3.38  | 1.45  | 34.07 | 1.62  | 0.28  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |       |        |       |       |        |        |        |        |       |
|------------------------------------|--------|--------|-------|-------|--------|-------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.91   | 0.52   | 0.25  | 0.76  | 0.80   | 0.23  | 0.78  | 0.89   | 0.59   | 0.93   | 0.79   | 0.22  |
| d, Delay for Lane Group [s/veh]    | 51.30  | 18.65  | 16.57 | 35.67 | 27.91  | 19.02 | 36.52 | 25.31  | 21.47  | 60.89  | 22.69  | 18.17 |
| Lane Group LOS                     | D      | B      | B     | D     | C      | B     | D     | C      | C      | E      | C      | B     |
| Critical Lane Group                | Yes    | No     | No    | No    | Yes    | No    | No    | Yes    | No     | Yes    | No     | No    |
| 50th-Percentile Queue Length [veh] | 4.38   | 2.97   | 1.22  | 1.62  | 4.89   | 1.03  | 2.16  | 5.07   | 2.65   | 3.89   | 4.29   | 0.90  |
| 50th-Percentile Queue Length [ft]  | 109.43 | 74.37  | 30.62 | 40.46 | 122.13 | 25.82 | 54.05 | 126.84 | 66.29  | 97.30  | 107.34 | 22.57 |
| 95th-Percentile Queue Length [veh] | 7.81   | 5.35   | 2.20  | 2.91  | 8.51   | 1.86  | 3.89  | 8.77   | 4.77   | 7.01   | 7.69   | 1.63  |
| 95th-Percentile Queue Length [ft]  | 195.21 | 133.87 | 55.12 | 72.83 | 212.75 | 46.47 | 97.29 | 219.19 | 119.33 | 175.15 | 192.29 | 40.63 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 51.30 | 18.65 | 16.57 | 35.67 | 27.91 | 19.02 | 36.52 | 25.31 | 21.47 | 60.89 | 22.69 | 18.17 |
| Movement LOS                    | D     | B     | B     | D     | C     | B     | D     | C     | C     | E     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.01 |       |       | 27.87 |       |       | 25.84 |       |       | 28.88 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 27.10 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.733 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 24.6  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 7            | 907    | 1096         | 12     | 5        | 18     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 7            | 907    | 1096         | 12     | 5        | 18     |
| Peak Hour Factor                        | 0.9233       | 0.9233 | 0.9233       | 0.9233 | 0.9233   | 0.9233 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 246    | 297          | 3      | 1        | 5      |
| Total Analysis Volume [veh/h]           | 8            | 982    | 1187         | 13     | 5        | 19     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01  | 0.01 | 0.01 | 0.00 | 0.03  | 0.04  |
| d_M, Delay for Movement [s/veh]    | 11.20 | 0.00 | 0.00 | 0.00 | 24.60 | 13.68 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.04  | 0.00 | 0.00 | 0.00 | 0.22  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 1.03  | 0.00 | 0.00 | 0.00 | 5.45  | 5.45  |
| d_A, Approach Delay [s/veh]        | 0.09  |      | 0.00 |      | 15.96 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.21  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 165.9 |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.731 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 722    | 2      | 9            | 1162   | 11     | 38               | 0      | 18     | 8                    | 0      | 63     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 722    | 2      | 9            | 1162   | 11     | 38               | 0      | 18     | 8                    | 0      | 63     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342 | 0.9342       | 0.9342 | 0.9342 | 0.9342           | 0.9342 | 0.9342 | 0.9342               | 0.9342 | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 193    | 1      | 2            | 311    | 3      | 10               | 0      | 5      | 2                    | 0      | 17     |
| Total Analysis Volume [veh/h]           | 9            | 773    | 2      | 10           | 1244   | 12     | 41               | 0      | 19     | 9                    | 0      | 67     |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |      |      |        |      |       |       |      |       |
|------------------------------------|-------|------|------|------|------|------|--------|------|-------|-------|------|-------|
| V/C, Movement V/C Ratio            | 0.02  | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.73   | 0.00 | 0.04  | 0.10  | 0.00 | 0.11  |
| d_M, Delay for Movement [s/veh]    | 11.53 | 0.00 | 0.00 | 9.29 | 0.00 | 0.00 | 165.91 | 0.00 | 13.66 | 49.32 | 0.00 | 11.54 |
| Movement LOS                       | B     | A    | A    | A    | A    | A    | F      |      | B     | E     |      | B     |
| 95th-Percentile Queue Length [veh] | 0.05  | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 3.09   | 0.00 | 0.14  | 0.32  | 0.00 | 0.36  |
| 95th-Percentile Queue Length [ft]  | 1.22  | 0.00 | 0.00 | 0.89 | 0.00 | 0.00 | 77.21  | 0.00 | 3.42  | 8.06  | 0.00 | 9.08  |
| d_A, Approach Delay [s/veh]        | 0.13  |      |      | 0.07 |      |      | 117.70 |      |       | 16.01 |      |       |
| Approach LOS                       | A     |      |      | A    |      |      | F      |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh]    | 3.88  |      |      |      |      |      |        |      |       |       |      |       |
| Intersection LOS                   | F     |      |      |      |      |      |        |      |       |       |      |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 9.0   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.496 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     |              |        |        |              |        |        |                          |        |        |                          |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 9            | 706    | 17     | 6            | 1116   | 7      | 1                        | 0      | 10     | 170                      | 0      | 25     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 9            | 706    | 17     | 6            | 1116   | 7      | 1                        | 0      | 10     | 170                      | 0      | 25     |
| Peak Hour Factor                        | 0.9583       | 0.9583 | 0.9583 | 0.9583       | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 184    | 4      | 2            | 291    | 2      | 0                        | 0      | 3      | 44                       | 0      | 7      |
| Total Analysis Volume [veh/h]           | 9            | 737    | 18     | 6            | 1165   | 7      | 1                        | 0      | 10     | 177                      | 0      | 26     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 32      | 0       | 0       | 32      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 41   | 36   | 36   | 41   | 36   | 36   | 11    | 11    | 11    | 11    |
| g / C, Green / Cycle                    | 0.68 | 0.60 | 0.60 | 0.68 | 0.60 | 0.60 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.20 | 0.01 | 0.01 | 0.32 | 0.00 | 0.00  | 0.01  | 0.12  | 0.02  |
| s, saturation flow rate [veh/h]         | 578  | 3618 | 1615 | 798  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 483  | 2193 | 979  | 653  | 2179 | 973  | 335   | 300   | 335   | 300   |
| d1, Uniform Delay [s]                   | 4.11 | 5.85 | 4.71 | 3.35 | 7.00 | 4.77 | 21.73 | 20.04 | 24.76 | 20.24 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.07 | 0.41 | 0.03 | 0.01 | 0.94 | 0.01 | 0.00  | 0.04  | 1.29  | 0.12  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |      |      |        |      |       |       |        |       |
|------------------------------------|------|-------|------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.02 | 0.34  | 0.02 | 0.01 | 0.53   | 0.01 | 0.00  | 0.03  | 0.53   | 0.09  |
| d, Delay for Lane Group [s/veh]    | 4.18 | 6.26  | 4.74 | 3.35 | 7.94   | 4.78 | 21.73 | 20.08 | 26.05  | 20.36 |
| Lane Group LOS                     | A    | A     | A    | A    | A      | A    | C     | C     | C      | C     |
| Critical Lane Group                | Yes  | No    | No   | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.02 | 1.42  | 0.06 | 0.01 | 2.74   | 0.02 | 0.01  | 0.11  | 2.39   | 0.29  |
| 50th-Percentile Queue Length [ft]  | 0.59 | 35.48 | 1.51 | 0.26 | 68.47  | 0.59 | 0.29  | 2.78  | 59.87  | 7.31  |
| 95th-Percentile Queue Length [veh] | 0.04 | 2.55  | 0.11 | 0.02 | 4.93   | 0.04 | 0.02  | 0.20  | 4.31   | 0.53  |
| 95th-Percentile Queue Length [ft]  | 1.06 | 63.86 | 2.71 | 0.46 | 123.24 | 1.07 | 0.52  | 5.00  | 107.77 | 13.15 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 4.18  | 6.26 | 4.74 | 3.35 | 7.94 | 4.78 | 21.73 | 0.00 | 20.08 | 26.05 | 0.00 | 20.36 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     |      | C     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 6.20  |      |      | 7.90 |      |      | 20.23 |      |       | 25.32 |      |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 9.00  |      |      |      |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |      |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.496 |      |      |      |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 21.5  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.792 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⌊⌋⌊          |        |        | ⌊⌋⌊          |        |        | +              |        |        | ⌊⌋⌊            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 40           | 523    | 147    | 175          | 1088   | 13     | 10             | 4      | 15     | 313            | 2      | 229    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 40           | 523    | 147    | 175          | 1088   | 13     | 10             | 4      | 15     | 313            | 2      | 229    |
| Peak Hour Factor                        | 0.9266       | 0.9266 | 0.9266 | 0.9266       | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 11           | 141    | 40     | 47           | 294    | 4      | 3              | 1      | 4      | 84             | 1      | 62     |
| Total Analysis Volume [veh/h]           | 43           | 564    | 159    | 189          | 1174   | 14     | 11             | 4      | 16     | 338            | 2      | 247    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 17       | 27      | 0       | 0       | 24      | 0       | 0       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 21    | 21    | 8     | 26    | 26    | 20    | 20    | 20    | 20    |
| g / C, Green / Cycle                    | 0.04  | 0.34  | 0.34  | 0.13  | 0.43  | 0.43  | 0.33  | 0.33  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.16  | 0.10  | 0.10  | 0.22  | 0.22  | 0.09  | 0.01  | 0.45  | 0.15  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1889  | 338   | 1414  | 708   | 1615  |
| c, Capacity [veh/h]                     | 81    | 1250  | 558   | 241   | 1571  | 820   | 190   | 131   | 348   | 525   |
| d1, Uniform Delay [s]                   | 28.59 | 15.51 | 14.52 | 25.66 | 12.48 | 12.48 | 16.32 | 30.37 | 23.67 | 16.45 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.37  | 1.18  | 1.28  | 5.55  | 1.13  | 2.15  | 0.40  | 0.49  | 32.50 | 0.66  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.53  | 0.45   | 0.28  | 0.78   | 0.50   | 0.50   | 0.16  | 0.14  | 0.92   | 0.47   |
| d, Delay for Lane Group [s/veh]    | 33.97 | 16.69  | 15.80 | 31.20  | 13.61  | 14.63  | 16.72 | 30.86 | 56.17  | 17.11  |
| Lane Group LOS                     | C     | B      | B     | C      | B      | B      | B     | C     | E      | B      |
| Critical Lane Group                | No    | Yes    | No    | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.67  | 2.65   | 1.49  | 2.68   | 3.14   | 3.51   | 0.29  | 0.28  | 7.66   | 2.59   |
| 50th-Percentile Queue Length [ft]  | 16.70 | 66.27  | 37.25 | 66.95  | 78.51  | 87.79  | 7.27  | 6.98  | 191.61 | 64.68  |
| 95th-Percentile Queue Length [veh] | 1.20  | 4.77   | 2.68  | 4.82   | 5.65   | 6.32   | 0.52  | 0.50  | 12.20  | 4.66   |
| 95th-Percentile Queue Length [ft]  | 30.06 | 119.29 | 67.04 | 120.51 | 141.32 | 158.03 | 13.08 | 12.57 | 305.11 | 116.43 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.97 | 16.69 | 15.80 | 31.20 | 13.95 | 14.63 | 16.72 | 16.72 | 16.72 | 54.77 | 56.17 | 17.11 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | B     | B     | B     | D     | E     | B     |
| d_A, Approach Delay [s/veh]     | 17.48 |       |       | 16.32 |       |       | 16.72 |       |       | 38.93 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 21.46 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.792 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 5.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.434 |

**Intersection Setup**

| Name                   | Waterman Ave  |        |        | Waterman Ave  |        |        | Project Driveway  |        |        | Park Center Circle N  |        |        |
|------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach               | Northbound  |        |        | Southbound  |        |        | Eastbound   |        |        | Westbound   |        |        |
| Lane Configuration     |  |        |        |  |        |        |  |        |        |  |        |        |
| Turning Movement       | Left  | Thru   | Right  | Left  | Thru   | Right  | Left  | Thru   | Right  | Left  | Thru   | Right  |
| Lane Width [ft]        | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0   | 0      | 0      | 1   | 0      | 0      | 0   | 0      | 0      | 0   | 0      | 0      |
| Pocket Length [ft]     | 100.00  | 100.00 | 100.00 | 215.00  | 100.00 | 100.00 | 100.00  | 100.00 | 100.00 | 100.00  | 100.00 | 100.00 |
| Speed [mph]            | 50.00   |        |        | 50.00   |        |        | 30.00   |        |        | 30.00   |        |        |
| Grade [%]              | 0.00  |        |        | 0.00  |        |        | 0.00  |        |        | 0.00  |        |        |
| Crosswalk              | No  |        |        | No  |        |        | Yes   |        |        | No  |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 722    | 2      | 9            | 1162   | 11     | 38               | 0      | 18     | 8                    | 0      | 63     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 722    | 2      | 9            | 1162   | 11     | 38               | 0      | 18     | 8                    | 0      | 63     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342 | 0.9342       | 0.9342 | 0.9342 | 0.9342           | 0.9342 | 0.9342 | 0.9342               | 0.9342 | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 193    | 1      | 2            | 311    | 3      | 10               | 0      | 5      | 2                    | 0      | 17     |
| Total Analysis Volume [veh/h]           | 9            | 773    | 2      | 10           | 1244   | 12     | 41               | 0      | 19     | 9                    | 0      | 67     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 26       | 36      | 0       | 9        | 19      | 0       | 15      | 0       | 0       | 15      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | L     | R     | L     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 1     | 44   | 44   | 1     | 44   | 44   | 4     | 4     | 4     | 4     |
| g / C, Green / Cycle                    | 0.01  | 0.73 | 0.73 | 0.01  | 0.73 | 0.73 | 0.06  | 0.06  | 0.06  | 0.06  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.21 | 0.00 | 0.01  | 0.34 | 0.01 | 0.03  | 0.01  | 0.01  | 0.04  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 25    | 2617 | 1168 | 27    | 2621 | 1170 | 171   | 101   | 171   | 101   |
| d1, Uniform Delay [s]                   | 29.41 | 2.93 | 2.30 | 29.36 | 3.48 | 2.30 | 28.79 | 26.77 | 28.15 | 27.60 |
| k, delay calibration                    | 0.11  | 0.50 | 0.50 | 0.11  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 8.71  | 0.29 | 0.00 | 8.29  | 0.62 | 0.02 | 0.72  | 0.90  | 0.13  | 7.36  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |      |       |       |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.36  | 0.30  | 0.00 | 0.37  | 0.47  | 0.01 | 0.24  | 0.19  | 0.05  | 0.67  |
| d, Delay for Lane Group [s/veh]    | 38.12 | 3.22  | 2.31 | 37.65 | 4.10  | 2.31 | 29.51 | 27.67 | 28.27 | 34.96 |
| Lane Group LOS                     | D     | A     | A    | D     | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | Yes   | No    | No   | No    | Yes   | No   | No    | No    | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.17  | 0.49  | 0.00 | 0.19  | 0.96  | 0.01 | 0.59  | 0.27  | 0.13  | 1.10  |
| 50th-Percentile Queue Length [ft]  | 4.37  | 12.34 | 0.06 | 4.73  | 23.92 | 0.36 | 14.81 | 6.77  | 3.15  | 27.48 |
| 95th-Percentile Queue Length [veh] | 0.31  | 0.89  | 0.00 | 0.34  | 1.72  | 0.03 | 1.07  | 0.49  | 0.23  | 1.98  |
| 95th-Percentile Queue Length [ft]  | 7.86  | 22.22 | 0.11 | 8.52  | 43.05 | 0.65 | 26.65 | 12.19 | 5.66  | 49.47 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|-------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 38.12 | 3.22 | 2.31 | 37.65 | 4.10 | 2.31 | 29.51 | 0.00 | 27.67 | 28.27 | 0.00 | 34.96 |
| Movement LOS                    | D     | A    | A    | D     | A    | A    | C     |      | C     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 3.61  |      |      | 4.34  |      |      | 28.92 |      |       | 34.17 |      |       |
| Approach LOS                    | A     |      |      | A     |      |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 5.79  |      |      |       |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |       |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.434 |      |      |       |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Existing Plus Ambient Growth**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.6  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.409 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 99       | 89     | 42     | 53       | 129    | 58     | 224            | 825    | 351    | 79             | 393    | 27     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 99       | 89     | 42     | 53       | 129    | 58     | 224            | 825    | 351    | 79             | 393    | 27     |
| Peak Hour Factor                        | 0.8860   | 0.8860 | 0.8860 | 0.8860   | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 28       | 25     | 12     | 15       | 36     | 16     | 63             | 233    | 99     | 22             | 111    | 8      |
| Total Analysis Volume [veh/h]           | 112      | 100    | 47     | 60       | 146    | 65     | 253            | 931    | 396    | 89             | 444    | 30     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 19    | 19    | 3     | 18    | 18    | 6     | 18    | 18    | 4     | 16    | 16    |
| g / C, Green / Cycle                    | 0.07  | 0.31  | 0.31  | 0.05  | 0.30  | 0.30  | 0.11  | 0.30  | 0.30  | 0.07  | 0.26  | 0.26  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.04  | 0.02  | 0.04  | 0.04  | 0.07  | 0.26  | 0.25  | 0.03  | 0.12  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1703  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 255   | 596   | 534   | 194   | 1072  | 479   | 376   | 1082  | 483   | 234   | 936   | 418   |
| d1, Uniform Delay [s]                   | 26.79 | 14.78 | 14.82 | 27.38 | 15.55 | 15.55 | 25.90 | 19.95 | 19.62 | 26.95 | 18.89 | 16.88 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.25  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.19  | 0.44  | 0.52  | 0.90  | 0.26  | 0.59  | 2.09  | 2.14  | 7.65  | 1.01  | 0.37  | 0.07  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.44  | 0.13  | 0.13  | 0.31  | 0.14  | 0.14  | 0.67  | 0.86   | 0.82   | 0.38  | 0.47   | 0.07  |
| d, Delay for Lane Group [s/veh]    | 27.98 | 15.22 | 15.34 | 28.28 | 15.82 | 16.14 | 28.00 | 22.09  | 27.27  | 27.96 | 19.26  | 16.95 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | Yes   | No    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.75  | 0.71  | 0.69  | 0.40  | 0.68  | 0.65  | 1.69  | 5.55   | 5.40   | 0.59  | 2.33   | 0.28  |
| 50th-Percentile Queue Length [ft]  | 18.66 | 17.78 | 17.13 | 10.12 | 17.01 | 16.23 | 42.27 | 138.78 | 135.07 | 14.83 | 58.25  | 7.10  |
| 95th-Percentile Queue Length [veh] | 1.34  | 1.28  | 1.23  | 0.73  | 1.22  | 1.17  | 3.04  | 9.42   | 9.21   | 1.07  | 4.19   | 0.51  |
| 95th-Percentile Queue Length [ft]  | 33.59 | 32.00 | 30.83 | 18.21 | 30.62 | 29.21 | 76.09 | 235.38 | 230.37 | 26.70 | 104.85 | 12.78 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 27.98 | 15.25 | 15.34 | 28.28 | 15.82 | 16.14 | 28.00 | 22.09 | 27.27 | 27.96 | 19.26 | 16.95 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 20.77 |       |       | 18.65 |       |       | 24.33 |       |       | 20.51 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.61 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.409 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 19.5  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.313 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ←r             |        |        | ←r             |        |        | ←r             |        |        | ←r             |        |        |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 850    | 23     | 7              | 380    | 11     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 850    | 23     | 7              | 380    | 11     |
| Peak Hour Factor                        | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2              | 1      | 1      | 2              | 0      | 3      | 10             | 239    | 6      | 2              | 107    | 3      |
| Total Analysis Volume [veh/h]           | 7              | 3      | 2      | 7              | 0      | 11     | 38             | 957    | 26     | 8              | 428    | 12     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 62                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 29    | 29   | 29    | 29   | 25    | 20    | 20    | 25    | 18    | 18    |
| g / C, Green / Cycle                    | 0.47  | 0.47 | 0.47  | 0.47 | 0.40  | 0.32  | 0.32  | 0.40  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.03  | 0.26  | 0.02  | 0.01  | 0.12  | 0.01  |
| s, saturation flow rate [veh/h]         | 651   | 1615 | 555   | 1615 | 1128  | 3618  | 1615  | 732   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 407   | 764  | 378   | 764  | 531   | 1164  | 520   | 319   | 1061  | 474   |
| d1, Uniform Delay [s]                   | 11.09 | 8.65 | 20.86 | 8.69 | 11.78 | 19.44 | 14.53 | 13.20 | 17.61 | 15.64 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.11  | 0.01 | 0.09  | 0.03 | 0.06  | 1.52  | 0.04  | 0.03  | 0.25  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |        |       |       |       |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|-------|-------|
| X, volume / capacity               | 0.02  | 0.00 | 0.02  | 0.01 | 0.07  | 0.82   | 0.05  | 0.03  | 0.40  | 0.03  |
| d, Delay for Lane Group [s/veh]    | 11.20 | 8.65 | 20.95 | 8.73 | 11.84 | 20.96  | 14.57 | 13.23 | 17.85 | 15.66 |
| Lane Group LOS                     | B     | A    | C     | A    | B     | C      | B     | B     | B     | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.07  | 0.01 | 0.09  | 0.08 | 0.28  | 5.69   | 0.23  | 0.06  | 2.19  | 0.11  |
| 50th-Percentile Queue Length [ft]  | 1.87  | 0.34 | 2.20  | 1.90 | 7.06  | 142.23 | 5.67  | 1.49  | 54.66 | 2.75  |
| 95th-Percentile Queue Length [veh] | 0.13  | 0.02 | 0.16  | 0.14 | 0.51  | 9.60   | 0.41  | 0.11  | 3.94  | 0.20  |
| 95th-Percentile Queue Length [ft]  | 3.37  | 0.62 | 3.97  | 3.41 | 12.71 | 240.02 | 10.21 | 2.68  | 98.39 | 4.95  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.20 | 11.20 | 8.65 | 20.95 | 20.95 | 8.73 | 11.84 | 20.96 | 14.57 | 13.23 | 17.85 | 15.66 |
| Movement LOS                    | B     | B     | A    | C     | C     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 10.78 |       |      | 13.48 |       |      | 20.46 |       |       | 17.71 |       |       |
| Approach LOS                    | B     |       |      | B     |       |      | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.48 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.313 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.8  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.532 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | 三            |        |        | 三            |        |        | 三              |        |        | 三              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 63           | 596    | 54     | 50           | 538    | 84     | 164            | 386    | 274    | 78             | 264    | 70     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 63           | 596    | 54     | 50           | 538    | 84     | 164            | 386    | 274    | 78             | 264    | 70     |
| Peak Hour Factor                        | 0.8780       | 0.8780 | 0.8780 | 0.8780       | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 18           | 170    | 15     | 14           | 153    | 24     | 47             | 110    | 78     | 22             | 75     | 20     |
| Total Analysis Volume [veh/h]           | 72           | 679    | 62     | 57           | 613    | 96     | 187            | 440    | 312    | 89             | 301    | 80     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 23    | 23    | 3     | 22    | 22    | 8     | 14    | 14    | 4     | 10    | 10    |
| g / C, Green / Cycle                    | 0.06  | 0.38  | 0.38  | 0.05  | 0.37  | 0.37  | 0.13  | 0.24  | 0.24  | 0.07  | 0.17  | 0.17  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.04  | 0.03  | 0.17  | 0.06  | 0.10  | 0.12  | 0.19  | 0.05  | 0.08  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 108   | 1367  | 610   | 95    | 1342  | 599   | 235   | 861   | 384   | 119   | 628   | 280   |
| d1, Uniform Delay [s]                   | 27.70 | 14.33 | 12.10 | 27.88 | 14.33 | 12.66 | 25.38 | 19.89 | 21.65 | 27.61 | 22.41 | 21.61 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.16  | 0.11  | 0.13  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.96  | 1.29  | 0.33  | 5.98  | 1.12  | 0.57  | 8.60  | 0.47  | 5.00  | 8.99  | 0.57  | 0.55  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

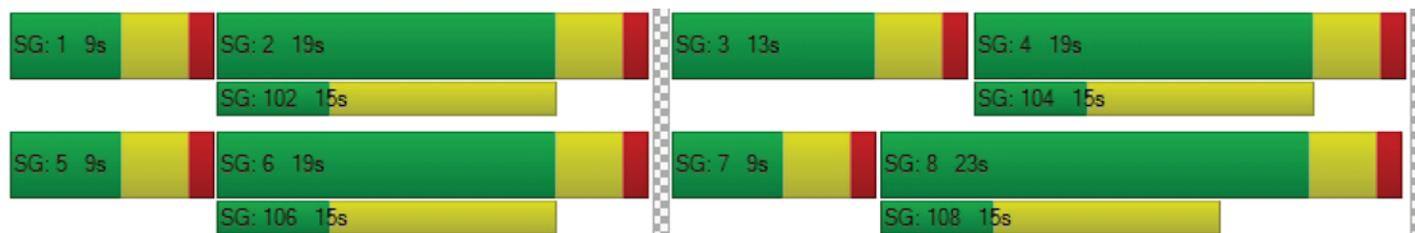
|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.67  | 0.50   | 0.10  | 0.60  | 0.46   | 0.16  | 0.79   | 0.51   | 0.81   | 0.75  | 0.48  | 0.29  |
| d, Delay for Lane Group [s/veh]    | 34.66 | 15.62  | 12.44 | 33.86 | 15.46  | 13.23 | 33.98  | 20.36  | 26.65  | 36.59 | 22.97 | 22.16 |
| Lane Group LOS                     | C     | B      | B     | C     | B      | B     | C      | C      | C      | D     | C     | C     |
| Critical Lane Group                | No    | Yes    | No    | Yes   | No     | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.10  | 2.99   | 0.48  | 0.87  | 2.68   | 0.78  | 2.90   | 2.41   | 4.16   | 1.44  | 1.77  | 0.92  |
| 50th-Percentile Queue Length [ft]  | 27.53 | 74.75  | 12.00 | 21.64 | 66.92  | 19.44 | 72.41  | 60.17  | 104.08 | 36.12 | 44.15 | 23.08 |
| 95th-Percentile Queue Length [veh] | 1.98  | 5.38   | 0.86  | 1.56  | 4.82   | 1.40  | 5.21   | 4.33   | 7.49   | 2.60  | 3.18  | 1.66  |
| 95th-Percentile Queue Length [ft]  | 49.56 | 134.55 | 21.60 | 38.95 | 120.46 | 35.00 | 130.34 | 108.31 | 187.34 | 65.02 | 79.48 | 41.54 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.66 | 15.62 | 12.44 | 33.86 | 15.46 | 13.23 | 33.98 | 20.36 | 26.65 | 36.59 | 22.97 | 22.16 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | D     | C     | C     |
| d_A, Approach Delay [s/veh]     | 17.06 |       |       | 16.55 |       |       | 25.16 |       |       | 25.42 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 20.79 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.532 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 20.5  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.025 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 3            | 726    | 874          | 8      | 5        | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 3            | 726    | 874          | 8      | 5        | 6      |
| Peak Hour Factor                        | 0.8593       | 0.8593 | 0.8593       | 0.8593 | 0.8593   | 0.8593 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 211    | 254          | 2      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 3            | 845    | 1017         | 9      | 6        | 7      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.00  | 0.01 | 0.01 | 0.00 | 0.03  | 0.01  |
| d_M, Delay for Movement [s/veh]    | 10.28 | 0.00 | 0.00 | 0.00 | 20.50 | 12.42 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.01  | 0.00 | 0.00 | 0.00 | 0.12  | 0.12  |
| 95th-Percentile Queue Length [ft]  | 0.33  | 0.00 | 0.00 | 0.00 | 3.01  | 3.01  |
| d_A, Approach Delay [s/veh]        | 0.04  |      | 0.00 |      | 16.15 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.13  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 21.2  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 721          | 27     | 78           | 779    | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 721          | 27     | 78           | 779    | 1                    | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587       | 0.8587 | 0.8587               | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 210          | 8      | 23           | 227    | 0                    | 3      |
| Total Analysis Volume [veh/h]           | 840          | 31     | 91           | 907    | 1                    | 10     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |       |      |       |       |
|------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.12  | 0.01 | 0.00  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 10.20 | 0.00 | 21.22 | 11.23 |
| Movement LOS                       | A    | A    | B     | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.39  | 0.00 | 0.01  | 0.05  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 9.82  | 0.00 | 0.34  | 1.30  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.93  |      | 12.14 |       |
| Approach LOS                       | A    |      | A     |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.56 |      |       |      |       |       |
| Intersection LOS                   | C    |      |       |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.606 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | \| \| |  |  | \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 5            | 715    | 163    | 23           | 748    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 5            | 715    | 163    | 23           | 748    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Peak Hour Factor                        | 0.8960       | 0.8960 | 0.8960 | 0.8960       | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 199    | 45     | 6            | 209    | 2      | 2                        | 1      | 3      | 6                        | 0      | 2      |
| Total Analysis Volume [veh/h]           | 6            | 798    | 182    | 26           | 835    | 8      | 9                        | 4      | 12     | 26                       | 0      | 8      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 47      | 0       | 9        | 47      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 50   | 44   | 44   | 50   | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.83 | 0.73 | 0.73 | 0.83 | 0.75 | 0.75 | 0.04  | 0.04  | 0.04  | 0.04  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.22 | 0.11 | 0.03 | 0.23 | 0.00 | 0.17  | 0.01  | 0.31  | 0.00  |
| s, saturation flow rate [veh/h]         | 728  | 3618 | 1615 | 779  | 3618 | 1615 | 78    | 1615  | 83    | 1615  |
| c, Capacity [veh/h]                     | 723  | 2637 | 1177 | 762  | 2715 | 1212 | 104   | 65    | 123   | 65    |
| d1, Uniform Delay [s]                   | 1.14 | 2.84 | 2.49 | 1.17 | 2.44 | 1.88 | 30.07 | 27.92 | 30.07 | 27.85 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.18  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.02 | 0.30 | 0.28 | 0.02 | 0.29 | 0.01 | 0.87  | 1.36  | 3.88  | 0.84  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

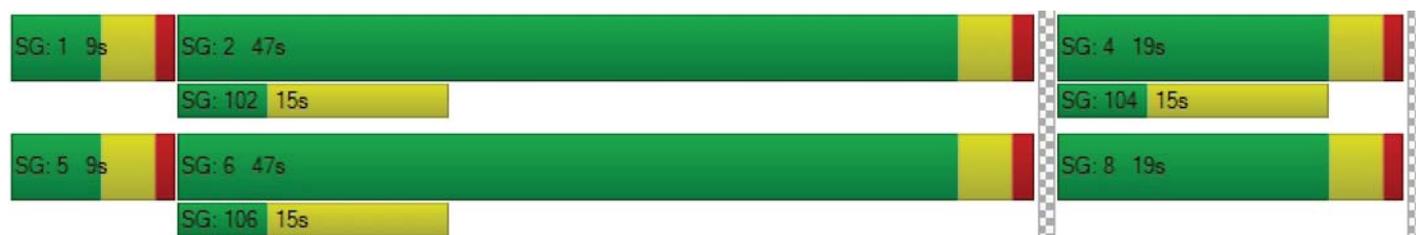
|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.30  | 0.15  | 0.03 | 0.31  | 0.01 | 0.12  | 0.18  | 0.21  | 0.12  |
| d, Delay for Lane Group [s/veh]    | 1.16 | 3.13  | 2.77  | 1.18 | 2.73  | 1.89 | 30.93 | 29.28 | 33.95 | 28.69 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | Yes  | No    | No    | No   | Yes   | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 0.48  | 0.24  | 0.00 | 0.31  | 0.01 | 0.21  | 0.18  | 0.50  | 0.12  |
| 50th-Percentile Queue Length [ft]  | 0.10 | 12.07 | 6.04  | 0.10 | 7.84  | 0.16 | 5.14  | 4.58  | 12.42 | 3.02  |
| 95th-Percentile Queue Length [veh] | 0.01 | 0.87  | 0.43  | 0.01 | 0.56  | 0.01 | 0.37  | 0.33  | 0.89  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 0.19 | 21.73 | 10.86 | 0.17 | 14.11 | 0.28 | 9.25  | 8.24  | 22.36 | 5.43  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.16  | 3.13 | 2.77 | 1.18 | 2.73 | 1.89 | 30.93 | 30.93 | 29.28 | 33.95 | 33.95 | 28.69 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 3.05  |      |      | 2.68 |      |      | 30.14 |       |       | 32.72 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 3.76  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.606 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 16.7  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.643 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | +              |        |        | ⇐⇐⇐            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 25           | 661    | 374    | 253          | 533    | 4      | 4              | 3      | 3      | 64             | 1      | 225    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 25           | 661    | 374    | 253          | 533    | 4      | 4              | 3      | 3      | 64             | 1      | 225    |
| Peak Hour Factor                        | 0.8826       | 0.8826 | 0.8826 | 0.8826       | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 187    | 106    | 72           | 151    | 1      | 1              | 1      | 1      | 18             | 0      | 64     |
| Total Analysis Volume [veh/h]           | 28           | 749    | 424    | 287          | 604    | 5      | 5              | 3      | 3      | 73             | 1      | 255    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 21       | 31      | 0       | 0       | 20      | 0       | 0       | 20      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 25    | 25    | 11    | 35   | 35   | 12    | 12    | 12    | 12    |
| g / C, Green / Cycle                    | 0.03  | 0.42  | 0.42  | 0.19  | 0.58 | 0.58 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.21  | 0.26  | 0.16  | 0.11 | 0.11 | 0.01  | 0.02  | 0.03  | 0.16  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1892 | 1488  | 1432  | 1333  | 1615  |
| c, Capacity [veh/h]                     | 60    | 1504  | 671   | 347   | 2078 | 1087 | 374   | 286   | 375   | 312   |
| d1, Uniform Delay [s]                   | 28.56 | 12.95 | 13.93 | 23.34 | 6.13 | 6.13 | 19.73 | 23.98 | 20.36 | 23.27 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.13  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.49  | 1.18  | 4.48  | 5.07  | 0.21 | 0.39 | 0.03  | 0.15  | 0.14  | 6.28  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.47  | 0.50   | 0.63   | 0.83   | 0.19  | 0.19  | 0.03  | 0.10  | 0.12  | 0.82   |
| d, Delay for Lane Group [s/veh]    | 34.05 | 14.14  | 18.41  | 28.41  | 6.33  | 6.52  | 19.76 | 24.13 | 20.50 | 29.56  |
| Lane Group LOS                     | C     | B      | B      | C      | A     | A     | B     | C     | C     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.44  | 3.05   | 4.25   | 3.80   | 0.80  | 0.89  | 0.12  | 0.36  | 0.51  | 3.75   |
| 50th-Percentile Queue Length [ft]  | 11.08 | 76.24  | 106.17 | 95.02  | 19.93 | 22.28 | 3.01  | 9.11  | 12.76 | 93.84  |
| 95th-Percentile Queue Length [veh] | 0.80  | 5.49   | 7.63   | 6.84   | 1.44  | 1.60  | 0.22  | 0.66  | 0.92  | 6.76   |
| 95th-Percentile Queue Length [ft]  | 19.95 | 137.23 | 190.66 | 171.04 | 35.88 | 40.11 | 5.43  | 16.39 | 22.96 | 168.92 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.05 | 14.14 | 18.41 | 28.41 | 6.40 | 6.52 | 19.76 | 19.76 | 19.76 | 24.13 | 20.50 | 29.56 |
| Movement LOS                    | C     | B     | B     | C     | A    | A    | B     | B     | B     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 16.11 |       |       | 13.45 |      |      | 19.76 |       |       | 27.84 |       |       |
| Approach LOS                    | B     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 16.73 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.643 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 4.1   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.321 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 721          | 27     | 78           | 779    | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 721          | 27     | 78           | 779    | 1                    | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587       | 0.8587 | 0.8587               | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 210          | 8      | 23           | 227    | 0                    | 3      |
| Total Analysis Volume [veh/h]           | 840          | 31     | 91           | 907    | 1                    | 10     |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 15         | 0          | 30        | 45         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 43   | 4     | 51   | 1     | 1     |
| g / C, Green / Cycle                    | 0.72 | 0.72 | 0.07  | 0.85 | 0.02  | 0.02  |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.02 | 0.05  | 0.25 | 0.00  | 0.01  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2589 | 1156 | 124   | 3078 | 29    | 26    |
| d1, Uniform Delay [s]                   | 3.17 | 2.48 | 27.47 | 0.89 | 29.14 | 29.31 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.33 | 0.04 | 7.98  | 0.24 | 0.48  | 9.12  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |       |
|------------------------------------|-------|------|-------|------|-------|-------|
| X, volume / capacity               | 0.32  | 0.03 | 0.73  | 0.29 | 0.03  | 0.39  |
| d, Delay for Lane Group [s/veh]    | 3.50  | 2.52 | 35.45 | 1.14 | 29.62 | 38.42 |
| Lane Group LOS                     | A     | A    | D     | A    | C     | D     |
| Critical Lane Group                | Yes   | No   | Yes   | No   | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.62  | 0.04 | 1.40  | 0.10 | 0.02  | 0.20  |
| 50th-Percentile Queue Length [ft]  | 15.60 | 1.07 | 35.08 | 2.61 | 0.44  | 5.05  |
| 95th-Percentile Queue Length [veh] | 1.12  | 0.08 | 2.53  | 0.19 | 0.03  | 0.36  |
| 95th-Percentile Queue Length [ft]  | 28.07 | 1.93 | 63.15 | 4.70 | 0.78  | 9.09  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.50  | 2.52 | 35.45 | 1.14 | 29.62 | 38.42 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.46  |      | 4.26  |      | 37.62 |       |
| Approach LOS                    | A     |      | A     |      | D     |       |
| d_I, Intersection Delay [s/veh] | 4.09  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.321 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 26.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.723 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 459      | 292    | 129    | 148      | 159    | 263    | 124            | 913    | 303    | 148            | 808    | 44     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 459      | 292    | 129    | 148      | 159    | 263    | 124            | 913    | 303    | 148            | 808    | 44     |
| Peak Hour Factor                        | 0.9275   | 0.9275 | 0.9275 | 0.9275   | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 124      | 79     | 35     | 40       | 43     | 71     | 33             | 246    | 82     | 40             | 218    | 12     |
| Total Analysis Volume [veh/h]           | 495      | 315    | 139    | 160      | 171    | 284    | 134            | 984    | 327    | 160            | 871    | 47     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 14       | 24      | 0       | 9        | 19      | 0       | 11       | 23      | 0       | 9        | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 10    | 20    | 20    | 5     | 15    | 15    | 5     | 19    | 19    | 5     | 19    | 19    |
| g / C, Green / Cycle                    | 0.15  | 0.31  | 0.31  | 0.07  | 0.23  | 0.23  | 0.07  | 0.29  | 0.29  | 0.07  | 0.30  | 0.30  |
| (v / s)_i Volume / Saturation Flow Rate | 0.14  | 0.13  | 0.13  | 0.05  | 0.05  | 0.18  | 0.04  | 0.27  | 0.20  | 0.05  | 0.24  | 0.03  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1705  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 541   | 598   | 536   | 256   | 845   | 377   | 247   | 1062  | 474   | 256   | 1071  | 478   |
| d1, Uniform Delay [s]                   | 27.09 | 17.48 | 17.48 | 29.28 | 20.05 | 23.18 | 29.22 | 22.29 | 20.34 | 29.28 | 21.22 | 16.59 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.20  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.61  | 1.99  | 2.22  | 2.49  | 0.54  | 13.01 | 1.85  | 4.10  | 3.33  | 2.49  | 1.55  | 0.09  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.92   | 0.40   | 0.40   | 0.62  | 0.20  | 0.75   | 0.54  | 0.93   | 0.69   | 0.62  | 0.81   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 33.71  | 19.47  | 19.70  | 31.78 | 20.59 | 36.19  | 31.07 | 26.39  | 23.67  | 31.78 | 22.77  | 16.68 |
| Lane Group LOS                     | C      | B      | B      | C     | C     | D      | C     | C      | C      | C     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 3.94   | 2.81   | 2.56   | 1.21  | 1.01  | 4.99   | 1.00  | 6.96   | 4.29   | 1.21  | 5.60   | 0.46  |
| 50th-Percentile Queue Length [ft]  | 98.44  | 70.25  | 63.90  | 30.31 | 25.19 | 124.73 | 25.02 | 173.96 | 107.32 | 30.31 | 139.91 | 11.62 |
| 95th-Percentile Queue Length [veh] | 7.09   | 5.06   | 4.60   | 2.18  | 1.81  | 8.65   | 1.80  | 11.28  | 7.69   | 2.18  | 9.48   | 0.84  |
| 95th-Percentile Queue Length [ft]  | 177.19 | 126.46 | 115.02 | 54.56 | 45.34 | 216.32 | 45.03 | 282.11 | 192.27 | 54.56 | 236.91 | 20.91 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.71 | 19.52 | 19.70 | 31.78 | 20.59 | 36.19 | 31.07 | 26.39 | 23.67 | 31.78 | 22.77 | 16.68 |
| Movement LOS                    | C     | B     | B     | C     | C     | D     | C     | C     | C     | C     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.95 |       |       | 30.70 |       |       | 26.21 |       |       | 23.84 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.43 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.723 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.407 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 8              | 8      | 4      | 4              | 0      | 15     | 29             | 1130   | 13     | 7              | 957    | 15     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8              | 8      | 4      | 4              | 0      | 15     | 29             | 1130   | 13     | 7              | 957    | 15     |
| Peak Hour Factor                        | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2              | 2      | 1      | 1              | 0      | 4      | 8              | 308    | 4      | 2              | 261    | 4      |
| Total Analysis Volume [veh/h]           | 9              | 9      | 4      | 4              | 0      | 16     | 32             | 1232   | 14     | 8              | 1043   | 16     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 24    | 24    | 24    | 24    | 29    | 25    | 25    | 29    | 23    | 23    |
| g / C, Green / Cycle                    | 0.39  | 0.39  | 0.39  | 0.39  | 0.48  | 0.40  | 0.40  | 0.48  | 0.38  | 0.38  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00  | 0.01  | 0.01  | 0.04  | 0.34  | 0.01  | 0.01  | 0.29  | 0.01  |
| s, saturation flow rate [veh/h]         | 755   | 1615  | 519   | 1615  | 730   | 3618  | 1615  | 586   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 381   | 626   | 319   | 626   | 385   | 1461  | 652   | 314   | 1374  | 614   |
| d1, Uniform Delay [s]                   | 13.00 | 11.50 | 22.64 | 11.59 | 10.57 | 16.47 | 10.96 | 11.37 | 16.52 | 11.87 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.23  | 0.02  | 0.07  | 0.08  | 0.09  | 1.40  | 0.01  | 0.03  | 0.88  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

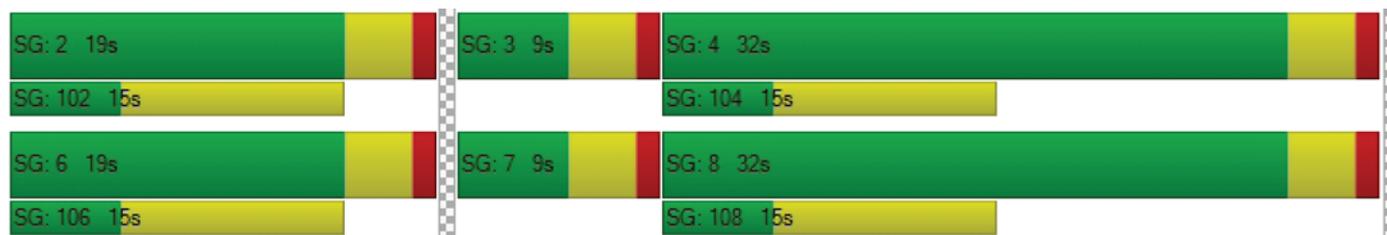
|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.05  | 0.01  | 0.01  | 0.03  | 0.08  | 0.84   | 0.02  | 0.03  | 0.76   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 13.24 | 11.52 | 22.72 | 11.67 | 10.66 | 17.87  | 10.97 | 11.41 | 17.40  | 11.89 |
| Lane Group LOS                     | B     | B     | C     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.16  | 0.03  | 0.05  | 0.13  | 0.19  | 6.61   | 0.10  | 0.05  | 5.43   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 4.03  | 0.83  | 1.33  | 3.36  | 4.70  | 165.35 | 2.45  | 1.17  | 135.80 | 2.97  |
| 95th-Percentile Queue Length [veh] | 0.29  | 0.06  | 0.10  | 0.24  | 0.34  | 10.83  | 0.18  | 0.08  | 9.25   | 0.21  |
| 95th-Percentile Queue Length [ft]  | 7.25  | 1.50  | 2.40  | 6.04  | 8.46  | 270.79 | 4.41  | 2.11  | 231.36 | 5.35  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 13.24 | 13.24 | 11.52 | 22.72 | 22.72 | 11.67 | 10.66 | 17.87 | 10.97 | 11.41 | 17.40 | 11.89 |
| Movement LOS                    | B     | B     | B     | C     | C     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 12.93 |       |       | 13.88 |       |       | 17.62 |       |       | 17.28 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.39 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.407 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 26.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.732 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 194          | 574    | 114    | 102          | 708    | 92     | 128            | 754    | 211    | 161            | 694    | 88     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 194          | 574    | 114    | 102          | 708    | 92     | 128            | 754    | 211    | 161            | 694    | 88     |
| Peak Hour Factor                        | 0.9468       | 0.9468 | 0.9468 | 0.9468       | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 51           | 152    | 30     | 27           | 187    | 24     | 34             | 199    | 56     | 43             | 183    | 23     |
| Total Analysis Volume [veh/h]           | 205          | 606    | 120    | 108          | 748    | 97     | 135            | 796    | 223    | 170            | 733    | 93     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 12       | 19      | 0       | 12       | 19      | 0       | 10       | 19      | 0       | 10       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 8     | 19    | 19    | 5     | 15    | 15    | 6     | 15    | 15    | 6     | 15    | 15    |
| g / C, Green / Cycle                    | 0.13  | 0.31  | 0.31  | 0.08  | 0.25  | 0.25  | 0.10  | 0.25  | 0.25  | 0.10  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.11  | 0.17  | 0.07  | 0.06  | 0.21  | 0.06  | 0.07  | 0.22  | 0.14  | 0.09  | 0.20  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 242   | 1121  | 501   | 141   | 921   | 411   | 173   | 887   | 396   | 181   | 903   | 403   |
| d1, Uniform Delay [s]                   | 25.43 | 17.18 | 15.45 | 27.15 | 21.04 | 17.75 | 26.53 | 21.94 | 19.85 | 26.84 | 21.21 | 17.94 |
| k, delay calibration                    | 0.25  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.16  | 0.11  | 0.11  | 0.27  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 16.72 | 1.87  | 1.13  | 8.26  | 7.74  | 1.35  | 10.26 | 3.55  | 1.26  | 35.34 | 1.82  | 0.29  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |       |        |       |       |        |        |        |        |       |
|------------------------------------|--------|--------|-------|-------|--------|-------|-------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.85   | 0.54   | 0.24  | 0.76  | 0.81   | 0.24  | 0.78  | 0.90   | 0.56   | 0.94   | 0.81   | 0.23  |
| d, Delay for Lane Group [s/veh]    | 42.15  | 19.05  | 16.58 | 35.40 | 28.77  | 19.10 | 36.79 | 25.49  | 21.11  | 62.18  | 23.02  | 18.23 |
| Lane Group LOS                     | D      | B      | B     | D     | C      | B     | D     | C      | C      | E      | C      | B     |
| Critical Lane Group                | Yes    | No     | No    | No    | Yes    | No    | No    | Yes    | No     | Yes    | No     | No    |
| 50th-Percentile Queue Length [veh] | 3.59   | 3.10   | 1.16  | 1.66  | 5.07   | 1.05  | 2.21  | 5.15   | 2.53   | 3.97   | 4.43   | 0.94  |
| 50th-Percentile Queue Length [ft]  | 89.66  | 77.61  | 28.98 | 41.38 | 126.80 | 26.18 | 55.20 | 128.66 | 63.14  | 99.27  | 110.84 | 23.38 |
| 95th-Percentile Queue Length [veh] | 6.46   | 5.59   | 2.09  | 2.98  | 8.77   | 1.89  | 3.97  | 8.87   | 4.55   | 7.15   | 7.89   | 1.68  |
| 95th-Percentile Queue Length [ft]  | 161.39 | 139.70 | 52.16 | 74.48 | 219.14 | 47.13 | 99.35 | 221.67 | 113.66 | 178.68 | 197.17 | 42.09 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 42.15 | 19.05 | 16.58 | 35.40 | 28.77 | 19.10 | 36.79 | 25.49 | 21.11 | 62.18 | 23.02 | 18.23 |
| Movement LOS                    | D     | B     | B     | D     | C     | B     | D     | C     | C     | E     | C     | B     |
| d_A, Approach Delay [s/veh]     | 23.82 |       |       | 28.54 |       |       | 25.97 |       |       | 29.26 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 26.89 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.732 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 24.5  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 3            | 896    | 1114         | 7      | 5        | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 3            | 896    | 1114         | 7      | 5        | 7      |
| Peak Hour Factor                        | 0.9233       | 0.9233 | 0.9233       | 0.9233 | 0.9233   | 0.9233 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 243    | 302          | 2      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 3            | 970    | 1207         | 8      | 5        | 8      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01  | 0.01 | 0.01 | 0.00 | 0.03  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 11.23 | 0.00 | 0.00 | 0.00 | 24.52 | 13.62 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.02  | 0.00 | 0.00 | 0.00 | 0.14  | 0.14  |
| 95th-Percentile Queue Length [ft]  | 0.39  | 0.00 | 0.00 | 0.00 | 3.46  | 3.46  |
| d_A, Approach Delay [s/veh]        | 0.03  |      | 0.00 |      | 17.82 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.12  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 19.7  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.039 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | \|\|\| |  |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 748          | 2      | 9            | 1182   | 9                    | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 748          | 2      | 9            | 1182   | 9                    | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342       | 0.9342 | 0.9342               | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 200          | 1      | 2            | 316    | 2                    | 18     |
| Total Analysis Volume [veh/h]           | 801          | 2      | 10           | 1265   | 10                   | 71     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |       |       |
|------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.01 | 0.01 | 0.04  | 0.12  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 9.39 | 0.00 | 19.71 | 11.74 |
| Movement LOS                       | A    | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.04 | 0.00 | 0.12  | 0.40  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 0.91 | 0.00 | 3.05  | 9.91  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.07 |      | 12.72 |       |
| Approach LOS                       | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.52 |      |      |      |       |       |
| Intersection LOS                   | C    |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 9.4   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.502 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     |              |        |        |              |        |        |                          |        |        |                          |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 10           | 718    | 21     | 9            | 1113   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10           | 718    | 21     | 9            | 1113   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Peak Hour Factor                        | 0.9583       | 0.9583 | 0.9583 | 0.9583       | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3            | 187    | 5      | 2            | 290    | 3      | 0                        | 0      | 3      | 46                       | 0      | 8      |
| Total Analysis Volume [veh/h]           | 10           | 749    | 22     | 9            | 1161   | 10     | 1                        | 0      | 10     | 186                      | 0      | 32     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 32      | 0       | 0       | 32      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 40   | 36   | 36   | 40   | 36   | 36   | 12    | 12    | 12    | 12    |
| g / C, Green / Cycle                    | 0.67 | 0.59 | 0.59 | 0.67 | 0.59 | 0.59 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.21 | 0.01 | 0.01 | 0.32 | 0.01 | 0.00  | 0.01  | 0.13  | 0.02  |
| s, saturation flow rate [veh/h]         | 583  | 3618 | 1615 | 797  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 480  | 2151 | 960  | 643  | 2147 | 959  | 346   | 312   | 346   | 312   |
| d1, Uniform Delay [s]                   | 4.31 | 6.22 | 5.00 | 3.54 | 7.30 | 4.99 | 21.33 | 19.66 | 24.48 | 19.93 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.08 | 0.45 | 0.04 | 0.01 | 0.98 | 0.02 | 0.00  | 0.04  | 1.29  | 0.14  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |      |      |        |      |       |       |        |       |
|------------------------------------|------|-------|------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.02 | 0.35  | 0.02 | 0.01 | 0.54   | 0.01 | 0.00  | 0.03  | 0.54   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 4.39 | 6.67  | 5.04 | 3.54 | 8.29   | 5.01 | 21.34 | 19.70 | 25.78  | 20.07 |
| Lane Group LOS                     | A    | A     | A    | A    | A      | A    | C     | B     | C      | C     |
| Critical Lane Group                | Yes  | No    | No   | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.03 | 1.54  | 0.08 | 0.02 | 2.86   | 0.04 | 0.01  | 0.11  | 2.50   | 0.36  |
| 50th-Percentile Queue Length [ft]  | 0.69 | 38.56 | 1.96 | 0.42 | 71.50  | 0.89 | 0.29  | 2.74  | 62.62  | 8.91  |
| 95th-Percentile Queue Length [veh] | 0.05 | 2.78  | 0.14 | 0.03 | 5.15   | 0.06 | 0.02  | 0.20  | 4.51   | 0.64  |
| 95th-Percentile Queue Length [ft]  | 1.24 | 69.40 | 3.52 | 0.75 | 128.71 | 1.60 | 0.52  | 4.93  | 112.71 | 16.04 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 4.39  | 6.67 | 5.04 | 3.54 | 8.29 | 5.01 | 21.34 | 0.00 | 19.70 | 25.78 | 0.00 | 20.07 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     |      | B     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 6.59  |      |      | 8.22 |      |      | 19.85 |      |       | 24.94 |      |       |
| Approach LOS                    | A     |      |      | A    |      |      | B     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 9.36  |      |      |      |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |      |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.502 |      |      |      |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.825 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⏏            |        |        | ⏏            |        |        | +              |        |        | ⏏              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 44           | 526    | 160    | 186          | 1080   | 14     | 10             | 4      | 15     | 324            | 2      | 234    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 44           | 526    | 160    | 186          | 1080   | 14     | 10             | 4      | 15     | 324            | 2      | 234    |
| Peak Hour Factor                        | 0.9266       | 0.9266 | 0.9266 | 0.9266       | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 12           | 142    | 43     | 50           | 291    | 4      | 3              | 1      | 4      | 87             | 1      | 63     |
| Total Analysis Volume [veh/h]           | 47           | 568    | 173    | 201          | 1166   | 15     | 11             | 4      | 16     | 350            | 2      | 253    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 17       | 27      | 0       | 0       | 24      | 0       | 0       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 8     | 25    | 25    | 20    | 20    | 20    | 20    |
| g / C, Green / Cycle                    | 0.05  | 0.33  | 0.33  | 0.14  | 0.42  | 0.42  | 0.33  | 0.33  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.16  | 0.11  | 0.11  | 0.21  | 0.21  | 0.09  | 0.01  | 0.47  | 0.16  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1888  | 336   | 1414  | 706   | 1615  |
| c, Capacity [veh/h]                     | 86    | 1190  | 531   | 255   | 1527  | 797   | 192   | 132   | 353   | 534   |
| d1, Uniform Delay [s]                   | 28.02 | 16.07 | 15.18 | 24.98 | 12.79 | 12.79 | 15.89 | 29.90 | 23.32 | 15.97 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.34  | 1.37  | 1.63  | 5.40  | 1.21  | 2.31  | 0.39  | 0.44  | 36.50 | 0.65  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

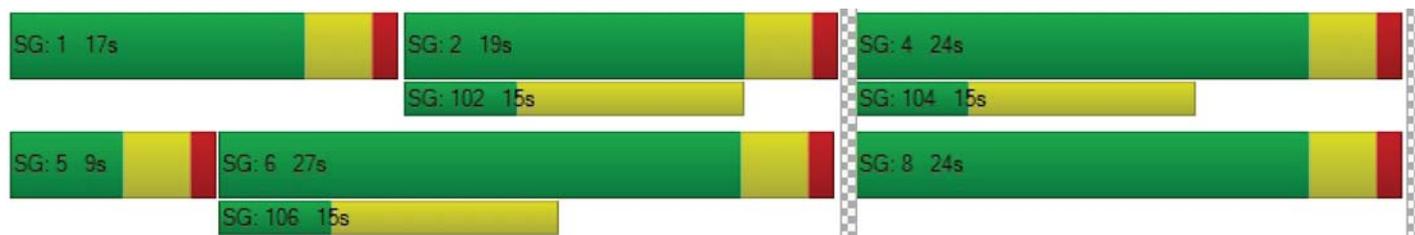
|                                    |       |        |       |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.55  | 0.48   | 0.33  | 0.79   | 0.51   | 0.51   | 0.16  | 0.13  | 0.95   | 0.47   |
| d, Delay for Lane Group [s/veh]    | 33.36 | 17.45  | 16.80 | 30.39  | 14.00  | 15.10  | 16.28 | 30.34 | 59.82  | 16.62  |
| Lane Group LOS                     | C     | B      | B     | C      | B      | B      | B     | C     | E      | B      |
| Critical Lane Group                | No    | Yes    | No    | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.71  | 2.73   | 1.68  | 2.77   | 3.15   | 3.53   | 0.28  | 0.25  | 8.20   | 2.58   |
| 50th-Percentile Queue Length [ft]  | 17.81 | 68.15  | 41.93 | 69.27  | 78.77  | 88.28  | 7.04  | 6.37  | 204.96 | 64.39  |
| 95th-Percentile Queue Length [veh] | 1.28  | 4.91   | 3.02  | 4.99   | 5.67   | 6.36   | 0.51  | 0.46  | 12.89  | 4.64   |
| 95th-Percentile Queue Length [ft]  | 32.05 | 122.67 | 75.48 | 124.69 | 141.78 | 158.91 | 12.67 | 11.47 | 322.35 | 115.90 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.36 | 17.45 | 16.80 | 30.39 | 14.37 | 15.10 | 16.28 | 16.28 | 16.28 | 58.35 | 59.82 | 16.62 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | B     | B     | B     | E     | E     | B     |
| d_A, Approach Delay [s/veh]     | 18.26 |       |       | 16.70 |       |       | 16.28 |       |       | 40.91 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 22.35 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.825 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 4.0   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.437 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 748          | 2      | 9            | 1182   | 9                    | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 748          | 2      | 9            | 1182   | 9                    | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342       | 0.9342 | 0.9342               | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 200          | 1      | 2            | 316    | 2                    | 18     |
| Total Analysis Volume [veh/h]           | 801          | 2      | 10           | 1265   | 10                   | 71     |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 30         | 0          | 15        | 45         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 43   | 1     | 48   | 4     | 4     |
| g / C, Green / Cycle                    | 0.72 | 0.72 | 0.01  | 0.80 | 0.06  | 0.06  |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.00 | 0.01  | 0.35 | 0.01  | 0.04  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2611 | 1166 | 27    | 2906 | 115   | 103   |
| d1, Uniform Delay [s]                   | 2.99 | 2.33 | 29.36 | 1.79 | 26.51 | 27.58 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.30 | 0.00 | 8.29  | 0.48 | 0.32  | 7.92  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |       |
|------------------------------------|-------|------|-------|------|-------|-------|
| X, volume / capacity               | 0.31  | 0.00 | 0.37  | 0.44 | 0.09  | 0.69  |
| d, Delay for Lane Group [s/veh]    | 3.29  | 2.33 | 37.65 | 2.27 | 26.83 | 35.50 |
| Lane Group LOS                     | A     | A    | D     | A    | C     | D     |
| Critical Lane Group                | No    | No   | No    | Yes  | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.53  | 0.00 | 0.19  | 0.19 | 0.14  | 1.17  |
| 50th-Percentile Queue Length [ft]  | 13.31 | 0.06 | 4.73  | 4.81 | 3.46  | 29.35 |
| 95th-Percentile Queue Length [veh] | 0.96  | 0.00 | 0.34  | 0.35 | 0.25  | 2.11  |
| 95th-Percentile Queue Length [ft]  | 23.95 | 0.11 | 8.52  | 8.66 | 6.23  | 52.83 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.29  | 2.33 | 37.65 | 2.27 | 26.83 | 35.50 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.29  |      | 2.55  |      | 34.43 |       |
| Approach LOS                    | A     |      | A     |      | C     |       |
| d_I, Intersection Delay [s/veh] | 4.02  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.437 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Opening Year (2017) Without Project**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.6  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.434 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 109      | 92     | 42     | 54       | 134    | 58     | 224            | 878    | 369    | 79             | 421    | 28     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 109      | 92     | 42     | 54       | 134    | 58     | 224            | 878    | 369    | 79             | 421    | 28     |
| Peak Hour Factor                        | 0.8860   | 0.8860 | 0.8860 | 0.8860   | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 31       | 26     | 12     | 15       | 38     | 16     | 63             | 248    | 104    | 22             | 119    | 8      |
| Total Analysis Volume [veh/h]           | 123      | 104    | 47     | 61       | 151    | 65     | 253            | 991    | 416    | 89             | 475    | 32     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 18    | 18    | 3     | 17    | 17    | 6     | 19    | 19    | 4     | 16    | 16    |
| g / C, Green / Cycle                    | 0.07  | 0.30  | 0.30  | 0.05  | 0.28  | 0.28  | 0.11  | 0.31  | 0.31  | 0.07  | 0.27  | 0.27  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.04  | 0.04  | 0.02  | 0.04  | 0.04  | 0.07  | 0.27  | 0.26  | 0.03  | 0.13  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1707  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 259   | 574   | 516   | 191   | 1023  | 457   | 372   | 1128  | 504   | 231   | 983   | 439   |
| d1, Uniform Delay [s]                   | 26.74 | 15.28 | 15.31 | 27.36 | 16.14 | 16.12 | 25.91 | 19.61 | 19.18 | 26.94 | 18.37 | 16.28 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.27  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.35  | 0.49  | 0.58  | 0.95  | 0.30  | 0.65  | 2.19  | 2.38  | 8.24  | 1.06  | 0.37  | 0.07  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.48  | 0.14  | 0.14  | 0.32  | 0.15  | 0.14  | 0.68  | 0.88   | 0.83   | 0.39  | 0.48   | 0.07  |
| d, Delay for Lane Group [s/veh]    | 28.10 | 15.76 | 15.89 | 28.31 | 16.45 | 16.77 | 28.10 | 22.00  | 27.42  | 28.00 | 18.74  | 16.35 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | Yes   | No    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.82  | 0.75  | 0.72  | 0.41  | 0.72  | 0.67  | 1.69  | 5.92   | 5.70   | 0.59  | 2.45   | 0.30  |
| 50th-Percentile Queue Length [ft]  | 20.54 | 18.75 | 18.05 | 10.29 | 18.10 | 16.70 | 42.34 | 147.92 | 142.61 | 14.84 | 61.36  | 7.39  |
| 95th-Percentile Queue Length [veh] | 1.48  | 1.35  | 1.30  | 0.74  | 1.30  | 1.20  | 3.05  | 9.91   | 9.62   | 1.07  | 4.42   | 0.53  |
| 95th-Percentile Queue Length [ft]  | 36.97 | 33.76 | 32.48 | 18.52 | 32.58 | 30.06 | 76.21 | 247.65 | 240.53 | 26.72 | 110.45 | 13.30 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 28.10 | 15.80 | 15.89 | 28.31 | 16.45 | 16.77 | 28.10 | 22.00 | 27.42 | 28.00 | 18.74 | 16.35 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 21.33 |       |       | 19.13 |       |       | 24.29 |       |       | 19.99 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 22.58 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.434 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.0  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.331 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 906    | 23     | 7              | 410    | 11     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 6              | 3      | 2      | 6              | 0      | 10     | 34             | 906    | 23     | 7              | 410    | 11     |
| Peak Hour Factor                        | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2              | 1      | 1      | 2              | 0      | 3      | 10             | 255    | 6      | 2              | 115    | 3      |
| Total Analysis Volume [veh/h]           | 7              | 3      | 2      | 7              | 0      | 11     | 38             | 1020   | 26     | 8              | 462    | 12     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 30    | 30   | 30    | 30   | 27    | 22    | 22    | 27    | 20    | 20    |
| g / C, Green / Cycle                    | 0.47  | 0.47 | 0.47  | 0.47 | 0.41  | 0.34  | 0.34  | 0.41  | 0.31  | 0.31  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.03  | 0.28  | 0.02  | 0.01  | 0.13  | 0.01  |
| s, saturation flow rate [veh/h]         | 653   | 1615 | 558   | 1615 | 1094  | 3618  | 1615  | 692   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 399   | 753  | 371   | 753  | 517   | 1219  | 544   | 302   | 1118  | 499   |
| d1, Uniform Delay [s]                   | 11.76 | 9.28 | 21.94 | 9.33 | 11.92 | 19.94 | 14.55 | 13.67 | 17.83 | 15.67 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.12  | 0.01 | 0.09  | 0.04 | 0.06  | 1.60  | 0.04  | 0.04  | 0.24  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

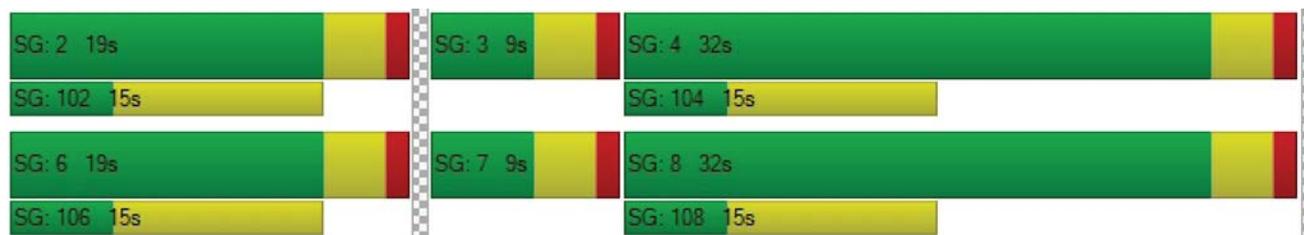
|                                    |       |      |       |      |       |        |       |       |        |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.03  | 0.00 | 0.02  | 0.01 | 0.07  | 0.84   | 0.05  | 0.03  | 0.41   | 0.02  |
| d, Delay for Lane Group [s/veh]    | 11.88 | 9.29 | 22.03 | 9.37 | 11.98 | 21.54  | 14.59 | 13.71 | 18.07  | 15.68 |
| Lane Group LOS                     | B     | A    | C     | A    | B     | C      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.08  | 0.01 | 0.09  | 0.08 | 0.29  | 6.42   | 0.23  | 0.06  | 2.46   | 0.11  |
| 50th-Percentile Queue Length [ft]  | 2.02  | 0.37 | 2.33  | 2.05 | 7.33  | 160.39 | 5.85  | 1.55  | 61.57  | 2.83  |
| 95th-Percentile Queue Length [veh] | 0.15  | 0.03 | 0.17  | 0.15 | 0.53  | 10.57  | 0.42  | 0.11  | 4.43   | 0.20  |
| 95th-Percentile Queue Length [ft]  | 3.63  | 0.67 | 4.20  | 3.69 | 13.20 | 264.24 | 10.53 | 2.79  | 110.82 | 5.10  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.88 | 11.88 | 9.29 | 22.03 | 22.03 | 9.37 | 11.98 | 21.54 | 14.59 | 13.71 | 18.07 | 15.68 |
| Movement LOS                    | B     | B     | A    | C     | C     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 11.45 |       |      | 14.29 |       |      | 21.04 |       |       | 17.94 |       |       |
| Approach LOS                    | B     |       |      | B     |       |      | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.95 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.331 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 21.3  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.554 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 63           | 610    | 102    | 52           | 549    | 84     | 164            | 442    | 274    | 98             | 294    | 71     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 63           | 610    | 102    | 52           | 549    | 84     | 164            | 442    | 274    | 98             | 294    | 71     |
| Peak Hour Factor                        | 0.8780       | 0.8780 | 0.8780 | 0.8780       | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 18           | 174    | 29     | 15           | 156    | 24     | 47             | 126    | 78     | 28             | 84     | 20     |
| Total Analysis Volume [veh/h]           | 72           | 695    | 116    | 59           | 625    | 96     | 187            | 503    | 312    | 112            | 335    | 81     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 22      | 0       | 10       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 22    | 22    | 3     | 21    | 21    | 8     | 14    | 14    | 5     | 11    | 11    |
| g / C, Green / Cycle                    | 0.06  | 0.36  | 0.36  | 0.05  | 0.36  | 0.36  | 0.13  | 0.24  | 0.24  | 0.08  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.07  | 0.03  | 0.17  | 0.06  | 0.10  | 0.14  | 0.19  | 0.06  | 0.09  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 108   | 1308  | 584   | 97    | 1286  | 574   | 235   | 860   | 384   | 147   | 684   | 305   |
| d1, Uniform Delay [s]                   | 27.70 | 15.18 | 13.21 | 27.85 | 15.11 | 13.29 | 25.38 | 20.29 | 21.65 | 27.06 | 21.80 | 20.83 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.16  | 0.11  | 0.15  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.96  | 1.55  | 0.76  | 6.07  | 1.32  | 0.63  | 8.60  | 0.63  | 5.67  | 7.90  | 0.55  | 0.46  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.67  | 0.53   | 0.20  | 0.61  | 0.49   | 0.17  | 0.79   | 0.58   | 0.81   | 0.76  | 0.49  | 0.27  |
| d, Delay for Lane Group [s/veh]    | 34.66 | 16.73  | 13.97 | 33.92 | 16.42  | 13.91 | 33.98  | 20.92  | 27.33  | 34.96 | 22.35 | 21.29 |
| Lane Group LOS                     | C     | B      | B     | C     | B      | B     | C      | C      | C      | C     | C     | C     |
| Critical Lane Group                | No    | Yes    | No    | Yes   | No     | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.10  | 3.23   | 0.98  | 0.90  | 2.86   | 0.81  | 2.90   | 2.82   | 4.23   | 1.76  | 1.93  | 0.91  |
| 50th-Percentile Queue Length [ft]  | 27.53 | 80.63  | 24.48 | 22.40 | 71.46  | 20.23 | 72.41  | 70.41  | 105.84 | 43.90 | 48.36 | 22.72 |
| 95th-Percentile Queue Length [veh] | 1.98  | 5.81   | 1.76  | 1.61  | 5.15   | 1.46  | 5.21   | 5.07   | 7.61   | 3.16  | 3.48  | 1.64  |
| 95th-Percentile Queue Length [ft]  | 49.56 | 145.13 | 44.06 | 40.31 | 128.64 | 36.41 | 130.34 | 126.74 | 190.21 | 79.02 | 87.04 | 40.89 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.66 | 16.73 | 13.97 | 33.92 | 16.42 | 13.91 | 33.98 | 20.92 | 27.33 | 34.96 | 22.35 | 21.29 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 17.83 |       |       | 17.44 |       |       | 25.36 |       |       | 24.86 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 21.26 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.554 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 21.4  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.027 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 3            | 788    | 905          | 8      | 5        | 6      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 3            | 788    | 905          | 8      | 5        | 6      |
| Peak Hour Factor                        | 0.8593       | 0.8593 | 0.8593       | 0.8593 | 0.8593   | 0.8593 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 229    | 263          | 2      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 3            | 917    | 1053         | 9      | 6        | 7      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.00  | 0.01 | 0.01 | 0.00 | 0.03  | 0.01  |
| d_M, Delay for Movement [s/veh]    | 10.45 | 0.00 | 0.00 | 0.00 | 21.40 | 12.65 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.01  | 0.00 | 0.00 | 0.00 | 0.13  | 0.13  |
| 95th-Percentile Queue Length [ft]  | 0.34  | 0.00 | 0.00 | 0.00 | 3.16  | 3.16  |
| d_A, Approach Delay [s/veh]        | 0.03  |      | 0.00 |      | 16.69 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.12  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 22.7  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.005 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 783          | 27     | 78           | 810    | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 783          | 27     | 78           | 810    | 1                    | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587       | 0.8587 | 0.8587               | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 228          | 8      | 23           | 236    | 0                    | 3      |
| Total Analysis Volume [veh/h]           | 912          | 31     | 91           | 943    | 1                    | 10     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |       |      |       |       |
|------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.12  | 0.01 | 0.00  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 10.58 | 0.00 | 22.67 | 11.58 |
| Movement LOS                       | A    | A    | B     | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.42  | 0.00 | 0.01  | 0.05  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 10.53 | 0.00 | 0.37  | 1.37  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.93  |      | 12.59 |       |
| Approach LOS                       | A    |      | A     |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.55 |      |       |      |       |       |
| Intersection LOS                   | C    |      |       |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.626 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     | ⇌⇌⇌          |        |        | ⇌⇌⇌          |        |        | ⇌⇌                       |        |        | ⇌⇌                       |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 5            | 777    | 163    | 23           | 779    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 5            | 777    | 163    | 23           | 779    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Peak Hour Factor                        | 0.8960       | 0.8960 | 0.8960 | 0.8960       | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 217    | 45     | 6            | 217    | 2      | 2                        | 1      | 3      | 6                        | 0      | 2      |
| Total Analysis Volume [veh/h]           | 6            | 867    | 182    | 26           | 869    | 8      | 9                        | 4      | 12     | 26                       | 0      | 8      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 52      | 0       | 9        | 52      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 50   | 44   | 44   | 50   | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.83 | 0.73 | 0.73 | 0.83 | 0.75 | 0.75 | 0.04  | 0.04  | 0.04  | 0.04  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.24 | 0.11 | 0.04 | 0.24 | 0.00 | 0.17  | 0.01  | 0.32  | 0.00  |
| s, saturation flow rate [veh/h]         | 708  | 3618 | 1615 | 739  | 3618 | 1615 | 77    | 1615  | 81    | 1615  |
| c, Capacity [veh/h]                     | 705  | 2635 | 1176 | 727  | 2713 | 1211 | 104   | 66    | 123   | 66    |
| d1, Uniform Delay [s]                   | 1.17 | 2.92 | 2.50 | 1.23 | 2.47 | 1.89 | 30.07 | 27.90 | 30.07 | 27.83 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.19  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.02 | 0.33 | 0.28 | 0.02 | 0.31 | 0.01 | 0.92  | 1.33  | 3.88  | 0.82  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.33  | 0.15  | 0.04 | 0.32  | 0.01 | 0.12  | 0.18  | 0.21  | 0.12  |
| d, Delay for Lane Group [s/veh]    | 1.19 | 3.25  | 2.78  | 1.25 | 2.79  | 1.90 | 30.98 | 29.22 | 33.96 | 28.65 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | No   | Yes   | No    | Yes  | No    | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 0.54  | 0.24  | 0.00 | 0.34  | 0.01 | 0.21  | 0.18  | 0.50  | 0.12  |
| 50th-Percentile Queue Length [ft]  | 0.11 | 13.59 | 6.07  | 0.10 | 8.38  | 0.16 | 5.17  | 4.57  | 12.42 | 3.01  |
| 95th-Percentile Queue Length [veh] | 0.01 | 0.98  | 0.44  | 0.01 | 0.60  | 0.01 | 0.37  | 0.33  | 0.89  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 0.19 | 24.46 | 10.93 | 0.18 | 15.08 | 0.29 | 9.31  | 8.22  | 22.36 | 5.42  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.19  | 3.25 | 2.78 | 1.25 | 2.79 | 1.90 | 30.98 | 30.98 | 29.22 | 33.96 | 33.96 | 28.65 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 3.16  |      |      | 2.73 |      |      | 30.14 |       |       | 32.71 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 3.80  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.626 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.667 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⌊⌋⌊          |        |        | ⌊⌋⌊          |        |        | +              |        |        | ⌊⌋⌊            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 25           | 695    | 374    | 256          | 561    | 4      | 4              | 3      | 3      | 64             | 1      | 253    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 25           | 695    | 374    | 256          | 561    | 4      | 4              | 3      | 3      | 64             | 1      | 253    |
| Peak Hour Factor                        | 0.8826       | 0.8826 | 0.8826 | 0.8826       | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 197    | 106    | 73           | 159    | 1      | 1              | 1      | 1      | 18             | 0      | 72     |
| Total Analysis Volume [veh/h]           | 28           | 787    | 424    | 290          | 636    | 5      | 5              | 3      | 3      | 73             | 1      | 287    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 20       | 30      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 24    | 24    | 12    | 33   | 33   | 13    | 13    | 13    | 13    |
| g / C, Green / Cycle                    | 0.03  | 0.40  | 0.40  | 0.19  | 0.56 | 0.56 | 0.21  | 0.21  | 0.21  | 0.21  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.22  | 0.26  | 0.16  | 0.12 | 0.12 | 0.01  | 0.02  | 0.03  | 0.18  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1892 | 1509  | 1432  | 1345  | 1615  |
| c, Capacity [veh/h]                     | 60    | 1428  | 637   | 349   | 2006 | 1049 | 408   | 315   | 404   | 344   |
| d1, Uniform Delay [s]                   | 28.56 | 14.09 | 14.95 | 23.33 | 6.76 | 6.76 | 18.76 | 22.91 | 19.35 | 22.67 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.14  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.16  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.49  | 1.54  | 5.42  | 6.32  | 0.24 | 0.46 | 0.03  | 0.13  | 0.12  | 7.57  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.47  | 0.55   | 0.67   | 0.83   | 0.21  | 0.21  | 0.03  | 0.10  | 0.11  | 0.84   |
| d, Delay for Lane Group [s/veh]    | 34.05 | 15.62  | 20.36  | 29.65  | 6.99  | 7.21  | 18.79 | 23.04 | 19.47 | 30.24  |
| Lane Group LOS                     | C     | B      | C      | C      | A     | A     | B     | C     | B     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.44  | 3.47   | 4.57   | 3.96   | 0.93  | 1.03  | 0.12  | 0.37  | 0.48  | 4.31   |
| 50th-Percentile Queue Length [ft]  | 11.08 | 86.63  | 114.30 | 99.00  | 23.17 | 25.84 | 2.92  | 9.14  | 12.05 | 107.66 |
| 95th-Percentile Queue Length [veh] | 0.80  | 6.24   | 8.08   | 7.13   | 1.67  | 1.86  | 0.21  | 0.66  | 0.87  | 7.71   |
| 95th-Percentile Queue Length [ft]  | 19.95 | 155.93 | 201.97 | 178.20 | 41.71 | 46.51 | 5.25  | 16.45 | 21.69 | 192.75 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.05 | 15.62 | 20.36 | 29.65 | 7.07 | 7.21 | 18.79 | 18.79 | 18.79 | 23.04 | 19.47 | 30.24 |
| Movement LOS                    | C     | B     | C     | C     | A    | A    | B     | B     | B     | C     | B     | C     |
| d_A, Approach Delay [s/veh]     | 17.66 |       |       | 14.10 |      |      | 18.79 |       |       | 28.33 |       |       |
| Approach LOS                    | B     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 17.88 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.667 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 4.1   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.343 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 783          | 27     | 78           | 810    | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 783          | 27     | 78           | 810    | 1                    | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587       | 0.8587 | 0.8587               | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 228          | 8      | 23           | 236    | 0                    | 3      |
| Total Analysis Volume [veh/h]           | 912          | 31     | 91           | 943    | 1                    | 10     |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 15         | 0          | 30        | 45         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 43   | 4     | 51   | 1     | 1     |
| g / C, Green / Cycle                    | 0.72 | 0.72 | 0.07  | 0.85 | 0.02  | 0.02  |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.02 | 0.05  | 0.26 | 0.00  | 0.01  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2589 | 1156 | 124   | 3078 | 29    | 26    |
| d1, Uniform Delay [s]                   | 3.25 | 2.48 | 27.47 | 0.90 | 29.14 | 29.31 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.38 | 0.04 | 7.98  | 0.26 | 0.48  | 9.12  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |       |
|------------------------------------|-------|------|-------|------|-------|-------|
| X, volume / capacity               | 0.35  | 0.03 | 0.73  | 0.31 | 0.03  | 0.39  |
| d, Delay for Lane Group [s/veh]    | 3.63  | 2.52 | 35.45 | 1.16 | 29.62 | 38.42 |
| Lane Group LOS                     | A     | A    | D     | A    | C     | D     |
| Critical Lane Group                | Yes   | No   | Yes   | No   | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.70  | 0.04 | 1.40  | 0.11 | 0.02  | 0.20  |
| 50th-Percentile Queue Length [ft]  | 17.44 | 1.07 | 35.08 | 2.76 | 0.44  | 5.05  |
| 95th-Percentile Queue Length [veh] | 1.26  | 0.08 | 2.53  | 0.20 | 0.03  | 0.36  |
| 95th-Percentile Queue Length [ft]  | 31.39 | 1.93 | 63.15 | 4.96 | 0.78  | 9.09  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.63  | 2.52 | 35.45 | 1.16 | 29.62 | 38.42 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.59  |      | 4.18  |      | 37.62 |       |
| Approach LOS                    | A     |      | A     |      | D     |       |
| d_I, Intersection Delay [s/veh] | 4.09  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.343 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 27.5  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.731 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 478      | 297    | 129    | 149      | 164    | 263    | 124            | 939    | 321    | 148            | 871    | 46     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 478      | 297    | 129    | 149      | 164    | 263    | 124            | 939    | 321    | 148            | 871    | 46     |
| Peak Hour Factor                        | 0.9275   | 0.9275 | 0.9275 | 0.9275   | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 129      | 80     | 35     | 40       | 44     | 71     | 33             | 253    | 87     | 40             | 235    | 12     |
| Total Analysis Volume [veh/h]           | 515      | 320    | 139    | 161      | 177    | 284    | 134            | 1012   | 346    | 160            | 939    | 50     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 70                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 16       | 23      | 0       | 12       | 19      | 0       | 10       | 26      | 0       | 9        | 25      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 12    | 23    | 23    | 5     | 16    | 16    | 5     | 21    | 21    | 5     | 22    | 22    |
| g / C, Green / Cycle                    | 0.17  | 0.32  | 0.32  | 0.07  | 0.22  | 0.22  | 0.07  | 0.31  | 0.31  | 0.07  | 0.31  | 0.31  |
| (v / s)_i Volume / Saturation Flow Rate | 0.15  | 0.13  | 0.13  | 0.05  | 0.05  | 0.18  | 0.04  | 0.28  | 0.21  | 0.05  | 0.26  | 0.03  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1707  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 602   | 615   | 553   | 253   | 812   | 363   | 234   | 1106  | 494   | 247   | 1119  | 499   |
| d1, Uniform Delay [s]                   | 28.19 | 18.35 | 18.35 | 31.62 | 22.15 | 25.57 | 31.73 | 23.45 | 21.50 | 31.73 | 22.58 | 17.25 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.21  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 3.61  | 1.88  | 2.09  | 2.66  | 0.62  | 15.49 | 2.21  | 3.49  | 3.43  | 2.86  | 1.77  | 0.09  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.86   | 0.39   | 0.39   | 0.64  | 0.22  | 0.78   | 0.57  | 0.92   | 0.70   | 0.65  | 0.84   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 31.80  | 20.23  | 20.44  | 34.28 | 22.77 | 41.06  | 33.94 | 26.94  | 24.92  | 34.59 | 24.35  | 17.34 |
| Lane Group LOS                     | C      | C      | C      | C     | C     | D      | C     | C      | C      | C     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 4.16   | 3.04   | 2.77   | 1.34  | 1.16  | 5.61   | 1.10  | 7.67   | 4.94   | 1.33  | 6.67   | 0.53  |
| 50th-Percentile Queue Length [ft]  | 103.99 | 76.09  | 69.18  | 33.38 | 29.11 | 140.35 | 27.61 | 191.64 | 123.47 | 33.37 | 166.67 | 13.30 |
| 95th-Percentile Queue Length [veh] | 7.49   | 5.48   | 4.98   | 2.40  | 2.10  | 9.50   | 1.99  | 12.21  | 8.58   | 2.40  | 10.90  | 0.96  |
| 95th-Percentile Queue Length [ft]  | 187.19 | 136.96 | 124.52 | 60.09 | 52.39 | 237.50 | 49.69 | 305.15 | 214.59 | 60.06 | 272.54 | 23.94 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 31.80 | 20.28 | 20.44 | 34.28 | 22.77 | 41.06 | 33.94 | 26.94 | 24.92 | 34.59 | 24.35 | 17.34 |
| Movement LOS                    | C     | C     | C     | C     | C     | D     | C     | C     | C     | C     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.39 |       |       | 34.10 |       |       | 27.10 |       |       | 25.47 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 27.52 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.731 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.7  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.415 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 8              | 8      | 4      | 4              | 0      | 15     | 29             | 1158   | 13     | 7              | 1023   | 15     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8              | 8      | 4      | 4              | 0      | 15     | 29             | 1158   | 13     | 7              | 1023   | 15     |
| Peak Hour Factor                        | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2              | 2      | 1      | 1              | 0      | 4      | 8              | 316    | 4      | 2              | 279    | 4      |
| Total Analysis Volume [veh/h]           | 9              | 9      | 4      | 4              | 0      | 16     | 32             | 1262   | 14     | 8              | 1115   | 16     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 62                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 24    | 24    | 24    | 24    | 30    | 25    | 25    | 30    | 24    | 24    |
| g / C, Green / Cycle                    | 0.38  | 0.38  | 0.38  | 0.38  | 0.49  | 0.41  | 0.41  | 0.49  | 0.39  | 0.39  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00  | 0.01  | 0.01  | 0.05  | 0.35  | 0.01  | 0.01  | 0.31  | 0.01  |
| s, saturation flow rate [veh/h]         | 754   | 1615  | 519   | 1615  | 695   | 3618  | 1615  | 571   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 376   | 620   | 315   | 620   | 367   | 1486  | 663   | 307   | 1399  | 625   |
| d1, Uniform Delay [s]                   | 13.33 | 11.83 | 23.07 | 11.92 | 10.98 | 16.57 | 10.89 | 11.57 | 16.89 | 11.80 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.24  | 0.02  | 0.07  | 0.08  | 0.10  | 1.45  | 0.01  | 0.03  | 1.08  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

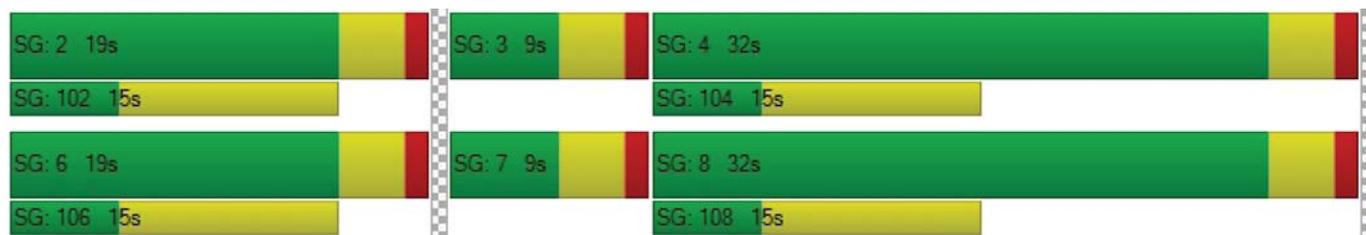
|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.05  | 0.01  | 0.01  | 0.03  | 0.09  | 0.85   | 0.02  | 0.03  | 0.80   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 13.57 | 11.85 | 23.15 | 11.99 | 11.09 | 18.02  | 10.90 | 11.61 | 17.97  | 11.82 |
| Lane Group LOS                     | B     | B     | C     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.17  | 0.03  | 0.05  | 0.14  | 0.19  | 6.91   | 0.10  | 0.05  | 6.04   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 4.14  | 0.86  | 1.36  | 3.45  | 4.75  | 172.75 | 2.47  | 1.18  | 150.99 | 2.99  |
| 95th-Percentile Queue Length [veh] | 0.30  | 0.06  | 0.10  | 0.25  | 0.34  | 11.22  | 0.18  | 0.08  | 10.07  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 7.45  | 1.54  | 2.45  | 6.22  | 8.55  | 280.53 | 4.44  | 2.12  | 251.75 | 5.39  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 13.57 | 13.57 | 11.85 | 23.15 | 23.15 | 11.99 | 11.09 | 18.02 | 10.90 | 11.61 | 17.97 | 11.82 |
| Movement LOS                    | B     | B     | B     | C     | C     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 13.25 |       |       | 14.22 |       |       | 17.77 |       |       | 17.84 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.74 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.415 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 29.5  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.768 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 194          | 584    | 138    | 103          | 724    | 92     | 128            | 782    | 211    | 206            | 760    | 90     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 194          | 584    | 138    | 103          | 724    | 92     | 128            | 782    | 211    | 206            | 760    | 90     |
| Peak Hour Factor                        | 0.9468       | 0.9468 | 0.9468 | 0.9468       | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 51           | 154    | 36     | 27           | 191    | 24     | 34             | 206    | 56     | 54             | 201    | 24     |
| Total Analysis Volume [veh/h]           | 205          | 617    | 146    | 109          | 765    | 97     | 135            | 826    | 223    | 218            | 803    | 95     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 12       | 21      | 0       | 10       | 19      | 0       | 12       | 21      | 0       | 13       | 22      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 8     | 18    | 18    | 5     | 15    | 15    | 6     | 17    | 17    | 9     | 19    | 19    |
| g / C, Green / Cycle                    | 0.12  | 0.28  | 0.28  | 0.08  | 0.24  | 0.24  | 0.10  | 0.26  | 0.26  | 0.14  | 0.30  | 0.30  |
| (v / s)_i Volume / Saturation Flow Rate | 0.11  | 0.17  | 0.09  | 0.06  | 0.21  | 0.06  | 0.07  | 0.23  | 0.14  | 0.12  | 0.22  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 223   | 1023  | 457   | 141   | 860   | 384   | 173   | 921   | 411   | 251   | 1075  | 480   |
| d1, Uniform Delay [s]                   | 28.20 | 20.17 | 18.39 | 29.42 | 23.98 | 20.11 | 28.74 | 23.43 | 20.98 | 27.45 | 20.65 | 17.07 |
| k, delay calibration                    | 0.29  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.27  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 29.67 | 2.63  | 1.84  | 8.56  | 13.31 | 1.58  | 7.34  | 3.43  | 1.12  | 19.63 | 1.06  | 0.20  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |       |        |       |        |        |        |        |        |       |
|------------------------------------|--------|--------|-------|-------|--------|-------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.92   | 0.60   | 0.32  | 0.77  | 0.89   | 0.25  | 0.78   | 0.90   | 0.54   | 0.87   | 0.75   | 0.20  |
| d, Delay for Lane Group [s/veh]    | 57.87  | 22.80  | 20.23 | 37.98 | 37.28  | 21.69 | 36.08  | 26.86  | 22.09  | 47.07  | 21.70  | 17.27 |
| Lane Group LOS                     | E      | C      | C     | D     | D      | C     | D      | C      | C      | D      | C      | B     |
| Critical Lane Group                | Yes    | No     | No    | No    | Yes    | No    | No     | Yes    | No     | Yes    | No     | No    |
| 50th-Percentile Queue Length [veh] | 4.62   | 3.78   | 1.70  | 1.83  | 6.43   | 1.20  | 2.25   | 5.85   | 2.75   | 4.40   | 4.98   | 0.97  |
| 50th-Percentile Queue Length [ft]  | 115.59 | 94.60  | 42.62 | 45.72 | 160.86 | 29.98 | 56.26  | 146.36 | 68.64  | 109.94 | 124.45 | 24.24 |
| 95th-Percentile Queue Length [veh] | 8.15   | 6.81   | 3.07  | 3.29  | 10.59  | 2.16  | 4.05   | 9.82   | 4.94   | 7.84   | 8.64   | 1.75  |
| 95th-Percentile Queue Length [ft]  | 203.75 | 170.28 | 76.72 | 82.29 | 264.86 | 53.96 | 101.27 | 245.56 | 123.55 | 195.92 | 215.93 | 43.63 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 57.87 | 22.80 | 20.23 | 37.98 | 37.28 | 21.69 | 36.08 | 26.86 | 22.09 | 47.07 | 21.70 | 17.27 |
| Movement LOS                    | E     | C     | C     | D     | D     | C     | D     | C     | C     | D     | C     | B     |
| d_A, Approach Delay [s/veh]     | 29.84 |       |       | 35.80 |       |       | 27.02 |       |       | 26.28 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 29.48 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.768 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 22.9  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.024 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 3            | 930    | 1175         | 7      | 5        | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 3            | 930    | 1175         | 7      | 5        | 7      |
| Peak Hour Factor                        | 0.9233       | 0.9233 | 0.9233       | 0.9233 | 0.9233   | 0.9233 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 252    | 318          | 2      | 1        | 2      |
| Total Analysis Volume [veh/h]           | 3            | 1007   | 1273         | 8      | 5        | 8      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 2    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01  | 0.01 | 0.01 | 0.00 | 0.02  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 11.60 | 0.00 | 0.00 | 0.00 | 22.88 | 14.00 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.02  | 0.00 | 0.00 | 0.00 | 0.13  | 0.13  |
| 95th-Percentile Queue Length [ft]  | 0.41  | 0.00 | 0.00 | 0.00 | 3.35  | 3.35  |
| d_A, Approach Delay [s/veh]        | 0.03  |      | 0.00 |      | 17.42 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.11  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 20.6  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.041 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | \|\|\| |  |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 782          | 2      | 9            | 1243   | 9                    | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 782          | 2      | 9            | 1243   | 9                    | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342       | 0.9342 | 0.9342               | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 209          | 1      | 2            | 333    | 2                    | 18     |
| Total Analysis Volume [veh/h]           | 837          | 2      | 10           | 1331   | 10                   | 71     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |       |       |
|------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.01 | 0.01 | 0.04  | 0.12  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 9.53 | 0.00 | 20.57 | 11.95 |
| Movement LOS                       | A    | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.04 | 0.00 | 0.13  | 0.41  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 0.94 | 0.00 | 3.23  | 10.22 |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.07 |      | 13.01 |       |
| Approach LOS                       | A    |      | A    |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.51 |      |      |      |       |       |
| Intersection LOS                   | C    |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 9.4   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.522 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     |              |        |        |              |        |        |                          |        |        |                          |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 10           | 752    | 21     | 9            | 1174   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10           | 752    | 21     | 9            | 1174   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Peak Hour Factor                        | 0.9583       | 0.9583 | 0.9583 | 0.9583       | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3            | 196    | 5      | 2            | 306    | 3      | 0                        | 0      | 3      | 46                       | 0      | 8      |
| Total Analysis Volume [veh/h]           | 10           | 785    | 22     | 9            | 1225   | 10     | 1                        | 0      | 10     | 186                      | 0      | 32     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 32      | 0       | 9        | 32      | 0       | 19      | 0       | 0       | 19      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 41   | 36   | 36   | 41   | 36   | 36   | 11    | 11    | 11    | 11    |
| g / C, Green / Cycle                    | 0.68 | 0.60 | 0.60 | 0.68 | 0.60 | 0.60 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.22 | 0.01 | 0.01 | 0.34 | 0.01 | 0.00  | 0.01  | 0.13  | 0.02  |
| s, saturation flow rate [veh/h]         | 555  | 3618 | 1615 | 774  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 462  | 2164 | 966  | 629  | 2159 | 964  | 342   | 307   | 342   | 307   |
| d1, Uniform Delay [s]                   | 4.40 | 6.19 | 4.91 | 3.50 | 7.37 | 4.91 | 21.50 | 19.81 | 24.67 | 20.08 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.09 | 0.47 | 0.04 | 0.01 | 1.09 | 0.02 | 0.00  | 0.04  | 1.35  | 0.15  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

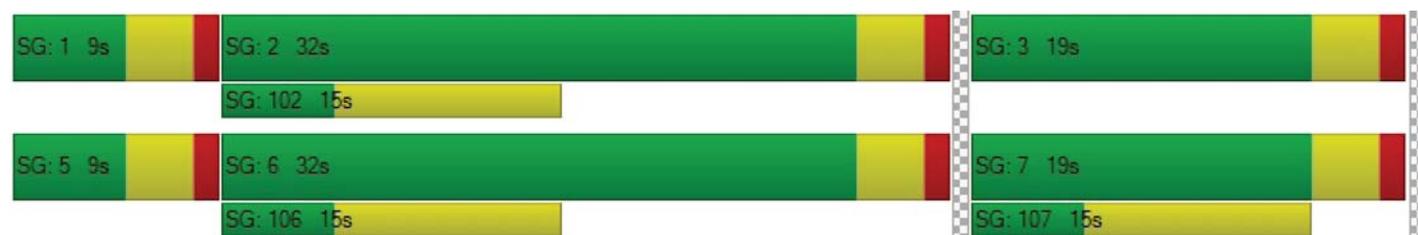
|                                    |      |       |      |      |        |      |       |       |        |       |
|------------------------------------|------|-------|------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.02 | 0.36  | 0.02 | 0.01 | 0.57   | 0.01 | 0.00  | 0.03  | 0.54   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 4.49 | 6.66  | 4.96 | 3.51 | 8.46   | 4.93 | 21.50 | 19.85 | 26.02  | 20.23 |
| Lane Group LOS                     | A    | A     | A    | A    | A      | A    | C     | B     | C      | C     |
| Critical Lane Group                | Yes  | No    | No   | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.03 | 1.61  | 0.08 | 0.02 | 3.05   | 0.03 | 0.01  | 0.11  | 2.52   | 0.36  |
| 50th-Percentile Queue Length [ft]  | 0.68 | 40.19 | 1.92 | 0.40 | 76.30  | 0.87 | 0.29  | 2.76  | 63.02  | 8.96  |
| 95th-Percentile Queue Length [veh] | 0.05 | 2.89  | 0.14 | 0.03 | 5.49   | 0.06 | 0.02  | 0.20  | 4.54   | 0.65  |
| 95th-Percentile Queue Length [ft]  | 1.23 | 72.35 | 3.46 | 0.73 | 137.34 | 1.57 | 0.52  | 4.96  | 113.43 | 16.13 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 4.49  | 6.66 | 4.96 | 3.51 | 8.46 | 4.93 | 21.50 | 0.00 | 19.85 | 26.02 | 0.00 | 20.23 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     |      | B     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 6.59  |      |      | 8.40 |      |      | 20.00 |      |       | 25.17 |      |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 9.40  |      |      |      |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |      |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.522 |      |      |      |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.834 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⏏            |        |        | ⏏            |        |        | +              |        |        | ⏏              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 44           | 543    | 160    | 191          | 1136   | 14     | 10             | 4      | 15     | 324            | 2      | 251    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 44           | 543    | 160    | 191          | 1136   | 14     | 10             | 4      | 15     | 324            | 2      | 251    |
| Peak Hour Factor                        | 0.9266       | 0.9266 | 0.9266 | 0.9266       | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 12           | 147    | 43     | 52           | 306    | 4      | 3              | 1      | 4      | 87             | 1      | 68     |
| Total Analysis Volume [veh/h]           | 47           | 586    | 173    | 206          | 1226   | 15     | 11             | 4      | 16     | 350            | 2      | 271    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 17       | 27      | 0       | 0       | 24      | 0       | 0       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 9     | 25    | 25    | 20    | 20    | 20    | 20    |
| g / C, Green / Cycle                    | 0.05  | 0.33  | 0.33  | 0.14  | 0.42  | 0.42  | 0.33  | 0.33  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.16  | 0.11  | 0.11  | 0.23  | 0.23  | 0.09  | 0.01  | 0.47  | 0.17  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1888  | 335   | 1414  | 706   | 1615  |
| c, Capacity [veh/h]                     | 86    | 1179  | 526   | 260   | 1527  | 797   | 192   | 132   | 353   | 534   |
| d1, Uniform Delay [s]                   | 28.02 | 16.31 | 15.31 | 24.89 | 12.97 | 12.97 | 15.89 | 29.89 | 23.32 | 16.18 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.34  | 1.50  | 1.67  | 5.38  | 1.34  | 2.56  | 0.39  | 0.44  | 36.57 | 0.75  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

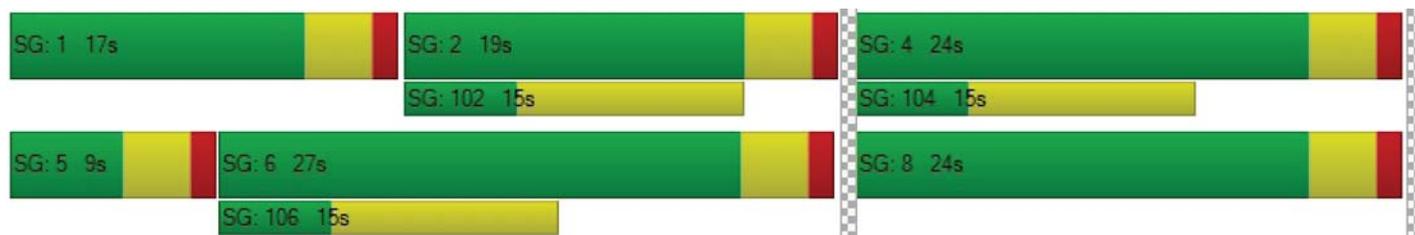
|                                    |       |        |       |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.55  | 0.50   | 0.33  | 0.79   | 0.53   | 0.53   | 0.16  | 0.13  | 0.95   | 0.51   |
| d, Delay for Lane Group [s/veh]    | 33.36 | 17.81  | 16.98 | 30.27  | 14.31  | 15.52  | 16.28 | 30.33 | 59.89  | 16.93  |
| Lane Group LOS                     | C     | B      | B     | C      | B      | B      | B     | C     | E      | B      |
| Critical Lane Group                | No    | Yes    | No    | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.71  | 2.86   | 1.69  | 2.83   | 3.37   | 3.78   | 0.28  | 0.25  | 8.21   | 2.80   |
| 50th-Percentile Queue Length [ft]  | 17.81 | 71.41  | 42.26 | 70.82  | 84.20  | 94.62  | 7.04  | 6.32  | 205.19 | 70.03  |
| 95th-Percentile Queue Length [veh] | 1.28  | 5.14   | 3.04  | 5.10   | 6.06   | 6.81   | 0.51  | 0.45  | 12.91  | 5.04   |
| 95th-Percentile Queue Length [ft]  | 32.05 | 128.53 | 76.06 | 127.48 | 151.55 | 170.31 | 12.67 | 11.37 | 322.65 | 126.06 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.36 | 17.81 | 16.98 | 30.27 | 14.72 | 15.52 | 16.28 | 16.28 | 16.28 | 58.44 | 59.89 | 16.93 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | B     | B     | B     | E     | E     | B     |
| d_A, Approach Delay [s/veh]     | 18.54 |       |       | 16.94 |       |       | 16.28 |       |       | 40.39 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 22.40 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.834 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 4.0   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.459 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 782          | 2      | 9            | 1247   | 9                    | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 782          | 2      | 9            | 1247   | 9                    | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342       | 0.9342 | 0.9342               | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 209          | 1      | 2            | 334    | 2                    | 18     |
| Total Analysis Volume [veh/h]           | 837          | 2      | 10           | 1335   | 10                   | 71     |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 15         | 0          | 30        | 45         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 43   | 1     | 48   | 4     | 4     |
| g / C, Green / Cycle                    | 0.72 | 0.72 | 0.01  | 0.80 | 0.06  | 0.06  |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.00 | 0.01  | 0.37 | 0.01  | 0.04  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2611 | 1166 | 27    | 2906 | 115   | 103   |
| d1, Uniform Delay [s]                   | 3.03 | 2.33 | 29.36 | 1.85 | 26.51 | 27.58 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.32 | 0.00 | 8.29  | 0.53 | 0.32  | 7.92  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |       |
|------------------------------------|-------|------|-------|------|-------|-------|
| X, volume / capacity               | 0.32  | 0.00 | 0.37  | 0.46 | 0.09  | 0.69  |
| d, Delay for Lane Group [s/veh]    | 3.35  | 2.33 | 37.65 | 2.37 | 26.83 | 35.50 |
| Lane Group LOS                     | A     | A    | D     | A    | C     | D     |
| Critical Lane Group                | No    | No   | No    | Yes  | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.56  | 0.00 | 0.19  | 0.21 | 0.14  | 1.17  |
| 50th-Percentile Queue Length [ft]  | 14.11 | 0.06 | 4.73  | 5.30 | 3.46  | 29.35 |
| 95th-Percentile Queue Length [veh] | 1.02  | 0.00 | 0.34  | 0.38 | 0.25  | 2.11  |
| 95th-Percentile Queue Length [ft]  | 25.39 | 0.11 | 8.52  | 9.54 | 6.23  | 52.83 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.35  | 2.33 | 37.65 | 2.37 | 26.83 | 35.50 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.35  |      | 2.63  |      | 34.43 |       |
| Approach LOS                    | A     |      | A     |      | C     |       |
| d_I, Intersection Delay [s/veh] | 4.04  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.459 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Opening Year (2017) With Project**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.444 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 109      | 92     | 42     | 54       | 134    | 58     | 224            | 909    | 369    | 79             | 433    | 28     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 109      | 92     | 42     | 54       | 134    | 58     | 224            | 909    | 369    | 79             | 433    | 28     |
| Peak Hour Factor                        | 0.8860   | 0.8860 | 0.8860 | 0.8860   | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 | 0.8860         | 0.8860 | 0.8860 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 31       | 26     | 12     | 15       | 38     | 16     | 63             | 256    | 104    | 22             | 122    | 8      |
| Total Analysis Volume [veh/h]           | 123      | 104    | 47     | 61       | 151    | 65     | 253            | 1026   | 416    | 89             | 489    | 32     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 19    | 19    | 3     | 17    | 17    | 6     | 19    | 19    | 4     | 17    | 17    |
| g / C, Green / Cycle                    | 0.07  | 0.30  | 0.30  | 0.05  | 0.28  | 0.28  | 0.10  | 0.32  | 0.32  | 0.06  | 0.28  | 0.28  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.04  | 0.04  | 0.02  | 0.04  | 0.04  | 0.07  | 0.28  | 0.26  | 0.03  | 0.14  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1707  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 254   | 577   | 519   | 188   | 1031  | 460   | 368   | 1144  | 511   | 226   | 998   | 446   |
| d1, Uniform Delay [s]                   | 27.23 | 15.42 | 15.46 | 27.84 | 16.29 | 16.26 | 26.38 | 19.93 | 19.23 | 27.42 | 18.51 | 16.33 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.28  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.43  | 0.48  | 0.57  | 0.99  | 0.30  | 0.64  | 2.29  | 2.79  | 7.82  | 1.11  | 0.37  | 0.07  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.48  | 0.13  | 0.14  | 0.32  | 0.15  | 0.14  | 0.69  | 0.90   | 0.81   | 0.39  | 0.49   | 0.07  |
| d, Delay for Lane Group [s/veh]    | 28.66 | 15.91 | 16.03 | 28.83 | 16.59 | 16.90 | 28.67 | 22.72  | 27.05  | 28.53 | 18.89  | 16.40 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | Yes   | No    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.84  | 0.76  | 0.73  | 0.42  | 0.74  | 0.68  | 1.73  | 6.34   | 5.73   | 0.61  | 2.57   | 0.30  |
| 50th-Percentile Queue Length [ft]  | 21.01 | 19.05 | 18.32 | 10.51 | 18.39 | 16.94 | 43.30 | 158.62 | 143.17 | 15.17 | 64.36  | 7.49  |
| 95th-Percentile Queue Length [veh] | 1.51  | 1.37  | 1.32  | 0.76  | 1.32  | 1.22  | 3.12  | 10.48  | 9.65   | 1.09  | 4.63   | 0.54  |
| 95th-Percentile Queue Length [ft]  | 37.82 | 34.29 | 32.98 | 18.92 | 33.10 | 30.49 | 77.94 | 261.90 | 241.29 | 27.31 | 115.85 | 13.48 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 28.66 | 15.94 | 16.03 | 28.83 | 16.59 | 16.90 | 28.67 | 22.72 | 27.05 | 28.53 | 18.89 | 16.40 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 21.67 |       |       | 19.36 |       |       | 24.67 |       |       | 20.16 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.91 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.444 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.3  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.345 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 10             | 4      | 2      | 6              | 2      | 10     | 34             | 925    | 35     | 7              | 417    | 11     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10             | 4      | 2      | 6              | 2      | 10     | 34             | 925    | 35     | 7              | 417    | 11     |
| Peak Hour Factor                        | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 | 0.8882         | 0.8882 | 0.8882 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3              | 1      | 1      | 2              | 1      | 3      | 10             | 260    | 10     | 2              | 117    | 3      |
| Total Analysis Volume [veh/h]           | 11             | 5      | 2      | 7              | 2      | 11     | 38             | 1041   | 39     | 8              | 469    | 12     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 67                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 31    | 31   | 31    | 31   | 28    | 23    | 23    | 28    | 21    | 21    |
| g / C, Green / Cycle                    | 0.47  | 0.47 | 0.47  | 0.47 | 0.41  | 0.34  | 0.34  | 0.41  | 0.31  | 0.31  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.04  | 0.29  | 0.02  | 0.01  | 0.13  | 0.01  |
| s, saturation flow rate [veh/h]         | 671   | 1615 | 633   | 1615 | 1085  | 3618  | 1615  | 678   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 405   | 756  | 392   | 756  | 509   | 1234  | 551   | 292   | 1134  | 506   |
| d1, Uniform Delay [s]                   | 12.04 | 9.51 | 12.09 | 9.57 | 12.22 | 20.46 | 14.93 | 14.13 | 18.17 | 15.94 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.18  | 0.01 | 0.11  | 0.04 | 0.06  | 1.66  | 0.05  | 0.04  | 0.24  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

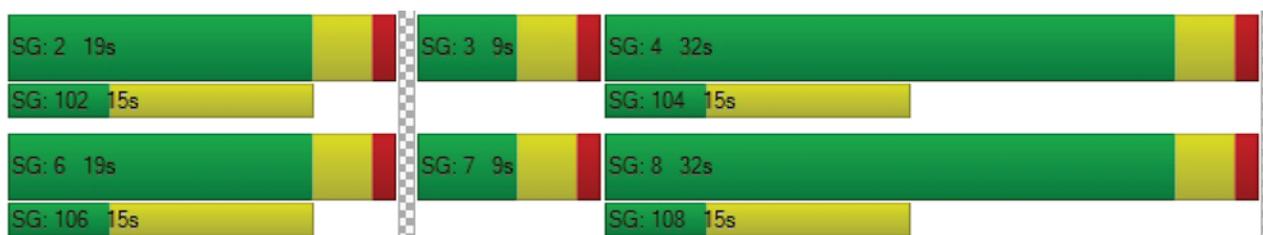
|                                    |       |      |       |      |       |        |       |       |        |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.04  | 0.00 | 0.02  | 0.01 | 0.07  | 0.84   | 0.07  | 0.03  | 0.41   | 0.02  |
| d, Delay for Lane Group [s/veh]    | 12.22 | 9.52 | 12.20 | 9.60 | 12.28 | 22.12  | 14.99 | 14.17 | 18.42  | 15.95 |
| Lane Group LOS                     | B     | A    | B     | A    | B     | C      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.13  | 0.02 | 0.08  | 0.09 | 0.30  | 6.82   | 0.37  | 0.06  | 2.58   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 3.34  | 0.38 | 1.88  | 2.13 | 7.61  | 170.44 | 9.14  | 1.61  | 64.62  | 2.92  |
| 95th-Percentile Queue Length [veh] | 0.24  | 0.03 | 0.14  | 0.15 | 0.55  | 11.10  | 0.66  | 0.12  | 4.65   | 0.21  |
| 95th-Percentile Queue Length [ft]  | 6.02  | 0.69 | 3.38  | 3.83 | 13.70 | 277.49 | 16.45 | 2.89  | 116.32 | 5.26  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.22 | 12.22 | 9.52 | 12.20 | 12.20 | 9.60 | 12.28 | 22.12 | 14.99 | 14.17 | 18.42 | 15.95 |
| Movement LOS                    | B     | B     | A    | B     | B     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 11.92 |       |      | 10.77 |       |      | 21.54 |       |       | 18.29 |       |       |
| Approach LOS                    | B     |       |      | B     |       |      | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 20.33 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | C     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.345 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.8   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 4                     | 1      | 11       | 14     | 8            | 12     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 4                     | 1      | 11       | 14     | 8            | 12     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200   | 0.9200 | 0.9200       | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1                     | 0      | 3        | 4      | 2            | 3      |
| Total Analysis Volume [veh/h]           | 4                     | 1      | 12       | 15     | 9            | 13     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.78 | 8.40 | 0.00 | 0.00 | 7.26 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.02 | 0.02 | 0.00 | 0.00 | 0.04 | 0.04 |
| 95th-Percentile Queue Length [ft]  | 0.39 | 0.39 | 0.00 | 0.00 | 1.05 | 1.05 |
| d_A, Approach Delay [s/veh]        | 8.70 |      | 0.00 |      | 2.97 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.02 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.003 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration     | ↻                     |        | ↑            |        | ↺         |        |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 3      | 12           | 0      | 18       | 20     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 3      | 12           | 0      | 18       | 20     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200       | 0.9200 | 0.9200   | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 1      | 3            | 0      | 5        | 5      |
| Total Analysis Volume [veh/h]           | 0                     | 3      | 13           | 0      | 20       | 22     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.36 | 0.00 | 0.00 | 7.25 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.21 | 0.00 | 0.00 | 2.00 | 2.00 |
| d_A, Approach Delay [s/veh]        | 8.36 |      | 0.00 |      | 3.45 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.93 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 21.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 70           | 614    | 105    | 52           | 559    | 84     | 164            | 442    | 293    | 108            | 294    | 71     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 70           | 614    | 105    | 52           | 559    | 84     | 164            | 442    | 293    | 108            | 294    | 71     |
| Peak Hour Factor                        | 0.8780       | 0.8780 | 0.8780 | 0.8780       | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 | 0.8780         | 0.8780 | 0.8780 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 20           | 175    | 30     | 15           | 159    | 24     | 47             | 126    | 83     | 31             | 84     | 20     |
| Total Analysis Volume [veh/h]           | 80           | 699    | 120    | 59           | 637    | 96     | 187            | 503    | 334    | 123            | 335    | 81     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 21      | 0       | 11       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 21    | 21    | 3     | 20    | 20    | 8     | 15    | 15    | 5     | 12    | 12    |
| g / C, Green / Cycle                    | 0.06  | 0.34  | 0.34  | 0.05  | 0.33  | 0.33  | 0.13  | 0.25  | 0.25  | 0.09  | 0.21  | 0.21  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.07  | 0.03  | 0.18  | 0.06  | 0.10  | 0.14  | 0.21  | 0.07  | 0.09  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 113   | 1241  | 554   | 97    | 1207  | 539   | 235   | 899   | 401   | 161   | 751   | 335   |
| d1, Uniform Delay [s]                   | 27.65 | 16.09 | 14.03 | 27.85 | 16.20 | 14.19 | 25.38 | 19.72 | 21.41 | 26.78 | 20.82 | 19.89 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.16  | 0.11  | 0.19  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 7.77  | 1.85  | 0.90  | 6.07  | 1.65  | 0.72  | 8.60  | 0.55  | 7.68  | 7.32  | 0.42  | 0.37  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.71  | 0.56   | 0.22  | 0.61  | 0.53   | 0.18  | 0.79   | 0.56   | 0.83   | 0.76  | 0.45  | 0.24  |
| d, Delay for Lane Group [s/veh]    | 35.42 | 17.95  | 14.92 | 33.92 | 17.85  | 14.91 | 33.98  | 20.27  | 29.09  | 34.10 | 21.23 | 20.26 |
| Lane Group LOS                     | D     | B      | B     | C     | B      | B     | C      | C      | C      | C     | C     | C     |
| Critical Lane Group                | No    | Yes    | No    | Yes   | No     | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.24  | 3.42   | 1.07  | 0.90  | 3.10   | 0.85  | 2.90   | 2.76   | 4.73   | 1.89  | 1.87  | 0.88  |
| 50th-Percentile Queue Length [ft]  | 30.93 | 85.49  | 26.64 | 22.40 | 77.57  | 21.35 | 72.41  | 68.89  | 118.25 | 47.37 | 46.71 | 21.93 |
| 95th-Percentile Queue Length [veh] | 2.23  | 6.16   | 1.92  | 1.61  | 5.58   | 1.54  | 5.21   | 4.96   | 8.30   | 3.41  | 3.36  | 1.58  |
| 95th-Percentile Queue Length [ft]  | 55.68 | 153.89 | 47.95 | 40.31 | 139.62 | 38.44 | 130.34 | 124.00 | 207.42 | 85.26 | 84.07 | 39.48 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 35.42 | 17.95 | 14.92 | 33.92 | 17.85 | 14.91 | 33.98 | 20.27 | 29.09 | 34.10 | 21.23 | 20.26 |
| Movement LOS                    | D     | B     | B     | C     | B     | B     | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 19.10 |       |       | 18.69 |       |       | 25.65 |       |       | 24.02 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 21.88 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.578 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 22.6  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.028 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 14           | 802    | 930          | 22     | 5        | 10     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 14           | 802    | 930          | 22     | 5        | 10     |
| Peak Hour Factor                        | 0.8593       | 0.8593 | 0.8593       | 0.8593 | 0.8593   | 0.8593 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4            | 233    | 271          | 6      | 1        | 3      |
| Total Analysis Volume [veh/h]           | 16           | 933    | 1082         | 26     | 6        | 12     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.03  | 0.01 | 0.01 | 0.00 | 0.03  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 10.79 | 0.00 | 0.00 | 0.00 | 22.63 | 12.93 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.08  | 0.00 | 0.00 | 0.00 | 0.17  | 0.17  |
| 95th-Percentile Queue Length [ft]  | 1.93  | 0.00 | 0.00 | 0.00 | 4.17  | 4.17  |
| d_A, Approach Delay [s/veh]        | 0.18  |      | 0.00 |      | 16.16 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.22  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 87.0  |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.270 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 794    | 27     | 78           | 814    | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 794    | 27     | 78           | 814    | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587 | 0.8587       | 0.8587 | 0.8587 | 0.8587           | 0.8587 | 0.8587 | 0.8587               | 0.8587 | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 231    | 8      | 23           | 237    | 7      | 4                | 0      | 2      | 0                    | 0      | 3      |
| Total Analysis Volume [veh/h]           | 21           | 925    | 31     | 91           | 948    | 28     | 16               | 0      | 7      | 1                    | 0      | 10     |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |       |      |      |       |      |       |       |      |       |
|------------------------------------|-------|------|------|-------|------|------|-------|------|-------|-------|------|-------|
| V/C, Movement V/C Ratio            | 0.03  | 0.01 | 0.00 | 0.13  | 0.01 | 0.00 | 0.27  | 0.00 | 0.01  | 0.02  | 0.00 | 0.02  |
| d_M, Delay for Movement [s/veh]    | 10.19 | 0.00 | 0.00 | 10.66 | 0.00 | 0.00 | 86.98 | 0.00 | 11.73 | 65.30 | 0.00 | 11.65 |
| Movement LOS                       | B     | A    | A    | B     | A    | A    | F     |      | B     | F     |      | B     |
| 95th-Percentile Queue Length [veh] | 0.09  | 0.00 | 0.00 | 0.43  | 0.00 | 0.00 | 0.95  | 0.00 | 0.04  | 0.05  | 0.00 | 0.06  |
| 95th-Percentile Queue Length [ft]  | 2.27  | 0.00 | 0.00 | 10.67 | 0.00 | 0.00 | 23.64 | 0.00 | 0.98  | 1.25  | 0.00 | 1.38  |
| d_A, Approach Delay [s/veh]        | 0.22  |      |      | 0.91  |      |      | 64.07 |      |       | 16.52 |      |       |
| Approach LOS                       | A     |      |      | A     |      |      | F     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh]    | 1.37  |      |      |       |      |      |       |      |       |       |      |       |
| Intersection LOS                   | F     |      |      |       |      |      |       |      |       |       |      |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.636 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | +\| |  |  | +\| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 5            | 806    | 163    | 23           | 790    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 5            | 806    | 163    | 23           | 790    | 7      | 8                        | 4      | 11     | 23                       | 0      | 7      |
| Peak Hour Factor                        | 0.8960       | 0.8960 | 0.8960 | 0.8960       | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 | 0.8960                   | 0.8960 | 0.8960 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 225    | 45     | 6            | 220    | 2      | 2                        | 1      | 3      | 6                        | 0      | 2      |
| Total Analysis Volume [veh/h]           | 6            | 900    | 182    | 26           | 882    | 8      | 9                        | 4      | 12     | 26                       | 0      | 8      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 52      | 0       | 9        | 52      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 50   | 44   | 44   | 50   | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.83 | 0.73 | 0.73 | 0.83 | 0.75 | 0.75 | 0.04  | 0.04  | 0.04  | 0.04  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.25 | 0.11 | 0.04 | 0.24 | 0.00 | 0.17  | 0.01  | 0.32  | 0.00  |
| s, saturation flow rate [veh/h]         | 701  | 3618 | 1615 | 721  | 3618 | 1615 | 77    | 1615  | 81    | 1615  |
| c, Capacity [veh/h]                     | 699  | 2635 | 1176 | 711  | 2713 | 1211 | 104   | 66    | 123   | 66    |
| d1, Uniform Delay [s]                   | 1.18 | 2.95 | 2.50 | 1.26 | 2.49 | 1.89 | 30.07 | 27.90 | 30.07 | 27.83 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.19  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.02 | 0.35 | 0.28 | 0.02 | 0.32 | 0.01 | 0.92  | 1.33  | 3.88  | 0.82  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.34  | 0.15  | 0.04 | 0.33  | 0.01 | 0.12  | 0.18  | 0.21  | 0.12  |
| d, Delay for Lane Group [s/veh]    | 1.20 | 3.31  | 2.78  | 1.28 | 2.81  | 1.90 | 30.98 | 29.22 | 33.96 | 28.65 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | No   | Yes   | No    | Yes  | No    | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 0.57  | 0.24  | 0.00 | 0.34  | 0.01 | 0.21  | 0.18  | 0.50  | 0.12  |
| 50th-Percentile Queue Length [ft]  | 0.11 | 14.30 | 6.07  | 0.10 | 8.55  | 0.16 | 5.17  | 4.57  | 12.42 | 3.01  |
| 95th-Percentile Queue Length [veh] | 0.01 | 1.03  | 0.44  | 0.01 | 0.62  | 0.01 | 0.37  | 0.33  | 0.89  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 0.19 | 25.74 | 10.93 | 0.18 | 15.39 | 0.29 | 9.31  | 8.22  | 22.36 | 5.42  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.20  | 3.31 | 2.78 | 1.28 | 2.81 | 1.90 | 30.98 | 30.98 | 29.22 | 33.96 | 33.96 | 28.65 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 3.21  |      |      | 2.75 |      |      | 30.14 |       |       | 32.71 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 3.82  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.636 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 18.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.666 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⌈⌋⌋          |        |        | ⌋⌋⌈          |        |        | +              |        |        | ⌋⌋⌈            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 25           | 724    | 374    | 256          | 572    | 4      | 4              | 3      | 3      | 64             | 1      | 253    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 25           | 724    | 374    | 256          | 572    | 4      | 4              | 3      | 3      | 64             | 1      | 253    |
| Peak Hour Factor                        | 0.8826       | 0.8826 | 0.8826 | 0.8826       | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 | 0.8826         | 0.8826 | 0.8826 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 205    | 106    | 73           | 162    | 1      | 1              | 1      | 1      | 18             | 0      | 72     |
| Total Analysis Volume [veh/h]           | 28           | 820    | 424    | 290          | 648    | 5      | 5              | 3      | 3      | 73             | 1      | 287    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 20       | 30      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 24    | 24    | 12    | 34   | 34   | 13    | 13    | 13    | 13    |
| g / C, Green / Cycle                    | 0.03  | 0.40  | 0.40  | 0.19  | 0.56 | 0.56 | 0.21  | 0.21  | 0.21  | 0.21  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.23  | 0.26  | 0.16  | 0.12 | 0.12 | 0.01  | 0.02  | 0.03  | 0.18  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1893 | 1504  | 1432  | 1342  | 1615  |
| c, Capacity [veh/h]                     | 60    | 1444  | 645   | 348   | 2021 | 1057 | 405   | 313   | 401   | 342   |
| d1, Uniform Delay [s]                   | 29.04 | 14.27 | 14.96 | 23.75 | 6.76 | 6.76 | 19.11 | 23.31 | 19.71 | 23.09 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.14  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.16  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.56  | 1.62  | 5.18  | 6.75  | 0.24 | 0.46 | 0.03  | 0.13  | 0.12  | 8.06  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.47  | 0.57   | 0.66   | 0.83   | 0.21  | 0.21  | 0.03  | 0.10  | 0.11  | 0.84   |
| d, Delay for Lane Group [s/veh]    | 34.60 | 15.89  | 20.15  | 30.50  | 7.00  | 7.22  | 19.14 | 23.45 | 19.83 | 31.15  |
| Lane Group LOS                     | C     | B      | C      | C      | A     | A     | B     | C     | B     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.45  | 3.71   | 4.59   | 4.08   | 0.96  | 1.07  | 0.12  | 0.37  | 0.49  | 4.43   |
| 50th-Percentile Queue Length [ft]  | 11.30 | 92.63  | 114.84 | 102.00 | 23.98 | 26.70 | 2.98  | 9.34  | 12.31 | 110.78 |
| 95th-Percentile Queue Length [veh] | 0.81  | 6.67   | 8.11   | 7.34   | 1.73  | 1.92  | 0.21  | 0.67  | 0.89  | 7.88   |
| 95th-Percentile Queue Length [ft]  | 20.33 | 166.74 | 202.72 | 183.60 | 43.16 | 48.07 | 5.36  | 16.81 | 22.15 | 197.08 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.60 | 15.89 | 20.15 | 30.50 | 7.07 | 7.22 | 19.14 | 19.14 | 19.14 | 23.45 | 19.83 | 31.15 |
| Movement LOS                    | C     | B     | C     | C     | A    | A    | B     | B     | B     | C     | B     | C     |
| d_A, Approach Delay [s/veh]     | 17.72 |       |       | 14.28 |      |      | 19.14 |       |       | 29.13 |       |       |
| Approach LOS                    | B     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 18.06 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.666 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 5.6   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.476 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | +\| |  |  | +\| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 794    | 27     | 78           | 814    | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 794    | 27     | 78           | 814    | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Peak Hour Factor                        | 0.8587       | 0.8587 | 0.8587 | 0.8587       | 0.8587 | 0.8587 | 0.8587           | 0.8587 | 0.8587 | 0.8587               | 0.8587 | 0.8587 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 231    | 8      | 23           | 237    | 7      | 4                | 0      | 2      | 0                    | 0      | 3      |
| Total Analysis Volume [veh/h]           | 21           | 925    | 31     | 91           | 948    | 28     | 16               | 0      | 7      | 1                    | 0      | 10     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 15      | 0       | 26       | 32      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | C     | R     | C     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 42   | 42   | 4     | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.03  | 0.71 | 0.71 | 0.07  | 0.75 | 0.75 | 0.03  | 0.03  | 0.03  | 0.03  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.26 | 0.02 | 0.05  | 0.26 | 0.02 | 0.12  | 0.00  | 0.01  | 0.01  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 131   | 1615  | 114   | 1615  |
| c, Capacity [veh/h]                     | 48    | 2544 | 1136 | 124   | 2695 | 1203 | 123   | 46    | 123   | 46    |
| d1, Uniform Delay [s]                   | 28.83 | 3.56 | 2.70 | 27.48 | 2.65 | 1.99 | 30.06 | 28.50 | 29.97 | 28.55 |
| k, delay calibration                    | 0.11  | 0.50 | 0.50 | 0.11  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.00  | 0.40 | 0.04 | 8.07  | 0.36 | 0.04 | 0.47  | 1.48  | 0.03  | 2.28  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

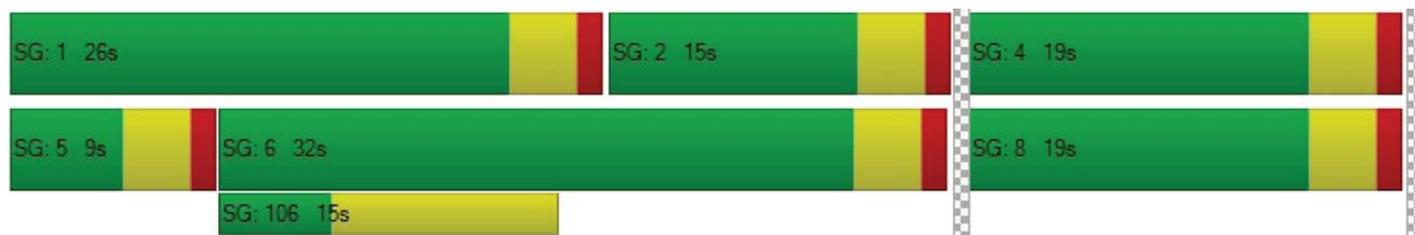
|                                    |       |       |      |       |       |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.43  | 0.36  | 0.03 | 0.73  | 0.35  | 0.02 | 0.13  | 0.15  | 0.01  | 0.22  |
| d, Delay for Lane Group [s/veh]    | 34.82 | 3.96  | 2.75 | 35.55 | 3.01  | 2.03 | 30.53 | 29.98 | 29.99 | 30.83 |
| Lane Group LOS                     | C     | A     | A    | D     | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | No    | Yes   | No   | Yes   | No    | No   | Yes   | No    | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.35  | 0.84  | 0.05 | 1.41  | 0.41  | 0.02 | 0.24  | 0.11  | 0.01  | 0.16  |
| 50th-Percentile Queue Length [ft]  | 8.64  | 21.11 | 1.24 | 35.15 | 10.33 | 0.61 | 5.98  | 2.82  | 0.37  | 4.09  |
| 95th-Percentile Queue Length [veh] | 0.62  | 1.52  | 0.09 | 2.53  | 0.74  | 0.04 | 0.43  | 0.20  | 0.03  | 0.29  |
| 95th-Percentile Queue Length [ft]  | 15.55 | 38.01 | 2.24 | 63.27 | 18.59 | 1.09 | 10.76 | 5.08  | 0.66  | 7.37  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.82 | 3.96 | 2.75 | 35.55 | 3.01 | 2.03 | 30.53 | 30.53 | 29.98 | 29.99 | 29.99 | 30.83 |
| Movement LOS                    | C     | A    | A    | D     | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 4.59  |      |      | 5.76  |      |      | 30.36 |       |       | 30.75 |       |       |
| Approach LOS                    | A     |      |      | A     |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 5.62  |      |      |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.476 |      |      |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 27.8  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.736 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 478      | 297    | 129    | 149      | 164    | 263    | 124            | 953    | 321    | 148            | 907    | 46     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 478      | 297    | 129    | 149      | 164    | 263    | 124            | 953    | 321    | 148            | 907    | 46     |
| Peak Hour Factor                        | 0.9275   | 0.9275 | 0.9275 | 0.9275   | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 | 0.9275         | 0.9275 | 0.9275 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 129      | 80     | 35     | 40       | 44     | 71     | 33             | 257    | 87     | 40             | 244    | 12     |
| Total Analysis Volume [veh/h]           | 515      | 320    | 139    | 161      | 177    | 284    | 134            | 1027   | 346    | 160            | 978    | 50     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 70                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 16       | 23      | 0       | 12       | 19      | 0       | 10       | 26      | 0       | 9        | 25      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 12    | 22    | 22    | 5     | 16    | 16    | 5     | 22    | 22    | 5     | 22    | 22    |
| g / C, Green / Cycle                    | 0.17  | 0.32  | 0.32  | 0.07  | 0.22  | 0.22  | 0.07  | 0.31  | 0.31  | 0.07  | 0.31  | 0.31  |
| (v / s)_i Volume / Saturation Flow Rate | 0.15  | 0.13  | 0.13  | 0.05  | 0.05  | 0.18  | 0.04  | 0.28  | 0.21  | 0.05  | 0.27  | 0.03  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1707  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 602   | 612   | 550   | 253   | 805   | 359   | 234   | 1113  | 497   | 247   | 1126  | 503   |
| d1, Uniform Delay [s]                   | 28.19 | 18.46 | 18.46 | 31.62 | 22.27 | 25.70 | 31.73 | 23.45 | 21.37 | 31.73 | 22.77 | 17.15 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.21  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 3.61  | 1.91  | 2.12  | 2.66  | 0.63  | 16.15 | 2.21  | 3.76  | 3.33  | 2.86  | 2.20  | 0.09  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

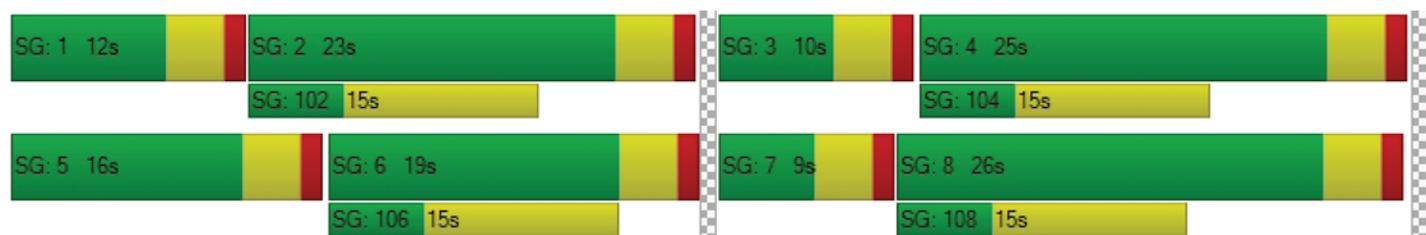
|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.86   | 0.40   | 0.40   | 0.64  | 0.22  | 0.79   | 0.57  | 0.92   | 0.70   | 0.65  | 0.87   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 31.80  | 20.37  | 20.58  | 34.28 | 22.90 | 41.85  | 33.94 | 27.21  | 24.70  | 34.59 | 24.97  | 17.23 |
| Lane Group LOS                     | C      | C      | C      | C     | C     | D      | C     | C      | C      | C     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 4.16   | 3.06   | 2.78   | 1.34  | 1.17  | 5.68   | 1.10  | 7.83   | 4.91   | 1.33  | 7.07   | 0.53  |
| 50th-Percentile Queue Length [ft]  | 103.99 | 76.47  | 69.53  | 33.38 | 29.23 | 142.01 | 27.61 | 195.72 | 122.75 | 33.37 | 176.75 | 13.24 |
| 95th-Percentile Queue Length [veh] | 7.49   | 5.51   | 5.01   | 2.40  | 2.10  | 9.59   | 1.99  | 12.42  | 8.54   | 2.40  | 11.43  | 0.95  |
| 95th-Percentile Queue Length [ft]  | 187.19 | 137.65 | 125.16 | 60.09 | 52.61 | 239.73 | 49.69 | 310.44 | 213.60 | 60.06 | 285.77 | 23.84 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 31.80 | 20.42 | 20.58 | 34.28 | 22.90 | 41.85 | 33.94 | 27.21 | 24.70 | 34.59 | 24.97 | 17.23 |
| Movement LOS                    | C     | C     | C     | C     | C     | D     | C     | C     | C     | C     | C     | B     |
| d_A, Approach Delay [s/veh]     | 26.46 |       |       | 34.50 |       |       | 27.23 |       |       | 25.94 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 27.75 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.736 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 18.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.449 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 20             | 10     | 4      | 4              | 1      | 15     | 29             | 1167   | 17     | 7              | 1047   | 15     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 20             | 10     | 4      | 4              | 1      | 15     | 29             | 1167   | 17     | 7              | 1047   | 15     |
| Peak Hour Factor                        | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 | 0.9174         | 0.9174 | 0.9174 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5              | 3      | 1      | 1              | 0      | 4      | 8              | 318    | 5      | 2              | 285    | 4      |
| Total Analysis Volume [veh/h]           | 22             | 11     | 4      | 4              | 1      | 16     | 32             | 1272   | 19     | 8              | 1141   | 16     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 63                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 24    | 24    | 24    | 24    | 31    | 26    | 26    | 31    | 24    | 24    |
| g / C, Green / Cycle                    | 0.39  | 0.39  | 0.39  | 0.39  | 0.49  | 0.41  | 0.41  | 0.49  | 0.39  | 0.39  |
| (v / s)_i Volume / Saturation Flow Rate | 0.05  | 0.00  | 0.01  | 0.01  | 0.05  | 0.35  | 0.01  | 0.01  | 0.32  | 0.01  |
| s, saturation flow rate [veh/h]         | 637   | 1615  | 568   | 1615  | 683   | 3618  | 1615  | 566   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 341   | 623   | 322   | 623   | 357   | 1489  | 665   | 301   | 1403  | 626   |
| d1, Uniform Delay [s]                   | 13.85 | 11.93 | 13.79 | 12.02 | 11.36 | 16.86 | 11.06 | 11.85 | 17.28 | 11.95 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.56  | 0.02  | 0.09  | 0.08  | 0.11  | 1.50  | 0.02  | 0.04  | 1.19  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

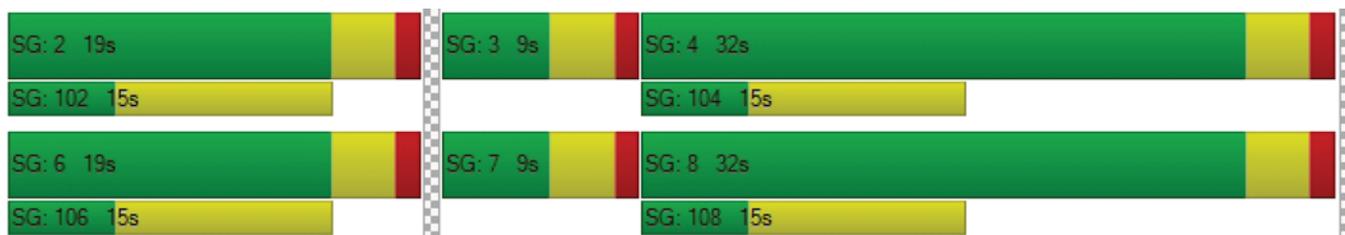
|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.10  | 0.01  | 0.02  | 0.03  | 0.09  | 0.85   | 0.03  | 0.03  | 0.81   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 14.42 | 11.95 | 13.88 | 12.10 | 11.47 | 18.35  | 11.08 | 11.89 | 18.47  | 11.97 |
| Lane Group LOS                     | B     | B     | B     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.32  | 0.03  | 0.05  | 0.14  | 0.19  | 7.14   | 0.14  | 0.05  | 6.38   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 7.94  | 0.87  | 1.18  | 3.51  | 4.87  | 178.58 | 3.43  | 1.21  | 159.60 | 3.05  |
| 95th-Percentile Queue Length [veh] | 0.57  | 0.06  | 0.09  | 0.25  | 0.35  | 11.53  | 0.25  | 0.09  | 10.53  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 14.29 | 1.56  | 2.13  | 6.31  | 8.77  | 288.16 | 6.17  | 2.18  | 263.20 | 5.50  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 14.42 | 14.42 | 11.95 | 13.88 | 13.88 | 12.10 | 11.47 | 18.35 | 11.08 | 11.89 | 18.47 | 11.97 |
| Movement LOS                    | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 14.15 |       |       | 12.52 |       |       | 18.08 |       |       | 18.34 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 18.10 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.449 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.8   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.015 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 14                    | 4      | 10       | 4      | 4            | 20     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 14                    | 4      | 10       | 4      | 4            | 20     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200   | 0.9200 | 0.9200       | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4                     | 1      | 3        | 1      | 1            | 5      |
| Total Analysis Volume [veh/h]           | 15                    | 4      | 11       | 4      | 4            | 22     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.78 | 8.43 | 0.00 | 0.00 | 7.23 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.06 | 0.06 | 0.00 | 0.00 | 0.05 | 0.05 |
| 95th-Percentile Queue Length [ft]  | 1.47 | 1.47 | 0.00 | 0.00 | 1.23 | 1.23 |
| d_A, Approach Delay [s/veh]        | 8.71 |      | 0.00 |      | 1.11 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 3.24 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration     | ↻                     |        | ↑            |        | ↶         |        |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 7      | 14           | 0      | 9        | 24     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 7      | 14           | 0      | 9        | 24     |
| Peak Hour Factor                        | 0.9200                | 0.9200 | 0.9200       | 0.9200 | 0.9200   | 0.9200 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 2      | 4            | 0      | 2        | 7      |
| Total Analysis Volume [veh/h]           | 0                     | 8      | 15           | 0      | 10       | 26     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.39 | 0.00 | 0.00 | 7.24 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.02 | 0.00 | 0.00 | 0.07 | 0.07 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.56 | 0.00 | 0.00 | 1.71 | 1.71 |
| d_A, Approach Delay [s/veh]        | 8.39 |      | 0.00 |      | 2.01 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.36 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 30.7  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.786 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 213          | 594    | 148    | 103          | 728    | 92     | 128            | 782    | 221    | 213            | 765    | 90     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 213          | 594    | 148    | 103          | 728    | 92     | 128            | 782    | 221    | 213            | 765    | 90     |
| Peak Hour Factor                        | 0.9468       | 0.9468 | 0.9468 | 0.9468       | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 | 0.9468         | 0.9468 | 0.9468 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 56           | 157    | 39     | 27           | 192    | 24     | 34             | 206    | 58     | 56             | 202    | 24     |
| Total Analysis Volume [veh/h]           | 225          | 627    | 156    | 109          | 769    | 97     | 135            | 826    | 233    | 225            | 808    | 95     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 13       | 22      | 0       | 10       | 19      | 0       | 13       | 20      | 0       | 13       | 20      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 9     | 19    | 19    | 5     | 15    | 15    | 6     | 16    | 16    | 9     | 19    | 19    |
| g / C, Green / Cycle                    | 0.14  | 0.29  | 0.29  | 0.08  | 0.23  | 0.23  | 0.10  | 0.25  | 0.25  | 0.14  | 0.29  | 0.29  |
| (v / s)_i Volume / Saturation Flow Rate | 0.12  | 0.17  | 0.10  | 0.06  | 0.21  | 0.06  | 0.07  | 0.23  | 0.14  | 0.12  | 0.22  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 251   | 1061  | 474   | 141   | 841   | 376   | 173   | 884   | 395   | 251   | 1039  | 464   |
| d1, Uniform Delay [s]                   | 27.56 | 19.64 | 17.97 | 29.43 | 24.32 | 20.38 | 28.73 | 24.06 | 21.70 | 27.56 | 21.28 | 17.56 |
| k, delay calibration                    | 0.29  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.13  | 0.29  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 24.13 | 2.42  | 1.85  | 8.74  | 16.07 | 1.66  | 7.36  | 5.32  | 1.63  | 24.13 | 1.30  | 0.22  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |       |        |       |        |        |        |        |        |       |
|------------------------------------|--------|--------|-------|-------|--------|-------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.90   | 0.59   | 0.33  | 0.77  | 0.91   | 0.26  | 0.78   | 0.93   | 0.59   | 0.90   | 0.78   | 0.20  |
| d, Delay for Lane Group [s/veh]    | 51.69  | 22.06  | 19.83 | 38.17 | 40.40  | 22.04 | 36.09  | 29.38  | 23.33  | 51.69  | 22.57  | 17.78 |
| Lane Group LOS                     | D      | C      | B     | D     | D      | C     | D      | C      | C      | D      | C      | B     |
| Critical Lane Group                | Yes    | No     | No    | No    | Yes    | No    | No     | Yes    | No     | Yes    | No     | No    |
| 50th-Percentile Queue Length [veh] | 4.70   | 3.76   | 1.79  | 1.83  | 6.80   | 1.21  | 2.25   | 6.16   | 2.98   | 4.82   | 5.14   | 0.99  |
| 50th-Percentile Queue Length [ft]  | 117.59 | 94.06  | 44.87 | 45.85 | 170.04 | 30.34 | 56.26  | 154.07 | 74.55  | 120.52 | 128.47 | 24.72 |
| 95th-Percentile Queue Length [veh] | 8.26   | 6.77   | 3.23  | 3.30  | 11.08  | 2.18  | 4.05   | 10.23  | 5.37   | 8.42   | 8.86   | 1.78  |
| 95th-Percentile Queue Length [ft]  | 206.52 | 169.32 | 80.77 | 82.53 | 276.96 | 54.62 | 101.27 | 255.85 | 134.19 | 210.54 | 221.42 | 44.49 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 51.69 | 22.06 | 19.83 | 38.17 | 40.40 | 22.04 | 36.09 | 29.38 | 23.33 | 51.69 | 22.57 | 17.78 |
| Movement LOS                    | D     | C     | B     | D     | D     | C     | D     | C     | C     | D     | C     | B     |
| d_A, Approach Delay [s/veh]     | 28.33 |       |       | 38.32 |       |       | 28.96 |       |       | 27.98 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 30.67 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.786 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 23.8  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.025 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 8            | 968    | 1189         | 14     | 5        | 18     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 8            | 968    | 1189         | 14     | 5        | 18     |
| Peak Hour Factor                        | 0.9233       | 0.9233 | 0.9233       | 0.9233 | 0.9233   | 0.9233 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 262    | 322          | 4      | 1        | 5      |
| Total Analysis Volume [veh/h]           | 9            | 1048   | 1288         | 15     | 5        | 19     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 2    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.02  | 0.01 | 0.01 | 0.00 | 0.02  | 0.05  |
| d_M, Delay for Movement [s/veh]    | 11.80 | 0.00 | 0.00 | 0.00 | 23.75 | 14.36 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.05  | 0.00 | 0.00 | 0.00 | 0.23  | 0.23  |
| 95th-Percentile Queue Length [ft]  | 1.27  | 0.00 | 0.00 | 0.00 | 5.63  | 5.63  |
| d_A, Approach Delay [s/veh]        | 0.10  |      | 0.00 |      | 16.31 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.21  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 264.8 |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 787    | 2      | 9            | 1258   | 11     | 38               | 0      | 18     | 9                    | 0      | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 787    | 2      | 9            | 1258   | 11     | 38               | 0      | 18     | 9                    | 0      | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342 | 0.9342       | 0.9342 | 0.9342 | 0.9342           | 0.9342 | 0.9342 | 0.9342               | 0.9342 | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 211    | 1      | 2            | 337    | 3      | 10               | 0      | 5      | 2                    | 0      | 18     |
| Total Analysis Volume [veh/h]           | 9            | 842    | 2      | 10           | 1347   | 12     | 41               | 0      | 19     | 10                   | 0      | 71     |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |      |      |        |        |       |       |       |       |
|------------------------------------|-------|------|------|------|------|------|--------|--------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio            | 0.02  | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.94   | 0.00   | 0.05  | 0.14  | 0.00  | 0.12  |
| d_M, Delay for Movement [s/veh]    | 12.15 | 0.00 | 0.00 | 9.55 | 0.00 | 0.00 | 262.11 | 264.79 | 14.40 | 62.04 | 99.29 | 11.98 |
| Movement LOS                       | B     | A    | A    | A    | A    | A    | F      | F      | B     | F     | F     | B     |
| 95th-Percentile Queue Length [veh] | 0.05  | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 3.77   | 3.77   | 0.15  | 0.45  | 0.45  | 0.41  |
| 95th-Percentile Queue Length [ft]  | 1.34  | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 | 94.13  | 94.13  | 3.71  | 11.27 | 11.27 | 10.26 |
| d_A, Approach Delay [s/veh]        | 0.13  |      |      | 0.07 |      |      | 183.67 |        |       | 18.16 |       |       |
| Approach LOS                       | A     |      |      | A    |      |      | F      |        |       | C     |       |       |
| d_I, Intersection Delay [s/veh]    | 5.37  |      |      |      |      |      |        |        |       |       |       |       |
| Intersection LOS                   | F     |      |      |      |      |      |        |        |       |       |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 9.6   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.533 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     |              |        |        |              |        |        |                          |        |        |                          |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 10           | 765    | 21     | 9            | 1207   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10           | 765    | 21     | 9            | 1207   | 10     | 1                        | 0      | 10     | 178                      | 0      | 31     |
| Peak Hour Factor                        | 0.9583       | 0.9583 | 0.9583 | 0.9583       | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 | 0.9583                   | 0.9583 | 0.9583 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3            | 200    | 5      | 2            | 315    | 3      | 0                        | 0      | 3      | 46                       | 0      | 8      |
| Total Analysis Volume [veh/h]           | 10           | 798    | 22     | 9            | 1260   | 10     | 1                        | 0      | 10     | 186                      | 0      | 32     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 32      | 0       | 0       | 32      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 40   | 36   | 36   | 40   | 36   | 36   | 12    | 12    | 12    | 12    |
| g / C, Green / Cycle                    | 0.67 | 0.59 | 0.59 | 0.67 | 0.59 | 0.59 | 0.19  | 0.19  | 0.19  | 0.19  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.22 | 0.01 | 0.01 | 0.35 | 0.01 | 0.00  | 0.01  | 0.13  | 0.02  |
| s, saturation flow rate [veh/h]         | 542  | 3618 | 1615 | 767  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 450  | 2151 | 960  | 620  | 2147 | 959  | 346   | 312   | 346   | 312   |
| d1, Uniform Delay [s]                   | 4.62 | 6.33 | 5.00 | 3.59 | 7.61 | 4.99 | 21.33 | 19.66 | 24.48 | 19.93 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.09 | 0.49 | 0.04 | 0.01 | 1.18 | 0.02 | 0.00  | 0.04  | 1.29  | 0.14  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |      |      |        |      |       |       |        |       |
|------------------------------------|------|-------|------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.02 | 0.37  | 0.02 | 0.01 | 0.59   | 0.01 | 0.00  | 0.03  | 0.54   | 0.10  |
| d, Delay for Lane Group [s/veh]    | 4.71 | 6.82  | 5.04 | 3.60 | 8.79   | 5.01 | 21.34 | 19.70 | 25.78  | 20.07 |
| Lane Group LOS                     | A    | A     | A    | A    | A      | A    | C     | B     | C      | C     |
| Critical Lane Group                | Yes  | No    | No   | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.03 | 1.67  | 0.08 | 0.02 | 3.26   | 0.04 | 0.01  | 0.11  | 2.50   | 0.36  |
| 50th-Percentile Queue Length [ft]  | 0.71 | 41.86 | 1.96 | 0.42 | 81.40  | 0.89 | 0.29  | 2.74  | 62.62  | 8.91  |
| 95th-Percentile Queue Length [veh] | 0.05 | 3.01  | 0.14 | 0.03 | 5.86   | 0.06 | 0.02  | 0.20  | 4.51   | 0.64  |
| 95th-Percentile Queue Length [ft]  | 1.27 | 75.35 | 3.52 | 0.75 | 146.52 | 1.60 | 0.52  | 4.93  | 112.71 | 16.04 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|------|------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 4.71  | 6.82 | 5.04 | 3.60 | 8.79 | 5.01 | 21.34 | 0.00 | 19.70 | 25.78 | 0.00 | 20.07 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     |      | B     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 6.75  |      |      | 8.73 |      |      | 19.85 |      |       | 24.94 |      |       |
| Approach LOS                    | A     |      |      | A    |      |      | B     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 9.59  |      |      |      |      |      |       |      |       |       |      |       |
| Intersection LOS                | A     |      |      |      |      |      |       |      |       |       |      |       |
| Intersection V/C                | 0.533 |      |      |      |      |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.840 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⌈⌋⌋          |        |        | ⌋⌋⌈          |        |        | +              |        |        | ⌋⌋⌈            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 44           | 556    | 160    | 191          | 1169   | 14     | 10             | 4      | 15     | 324            | 2      | 251    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 44           | 556    | 160    | 191          | 1169   | 14     | 10             | 4      | 15     | 324            | 2      | 251    |
| Peak Hour Factor                        | 0.9266       | 0.9266 | 0.9266 | 0.9266       | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 | 0.9266         | 0.9266 | 0.9266 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 12           | 150    | 43     | 52           | 315    | 4      | 3              | 1      | 4      | 87             | 1      | 68     |
| Total Analysis Volume [veh/h]           | 47           | 600    | 173    | 206          | 1262   | 15     | 11             | 4      | 16     | 350            | 2      | 271    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 17       | 27      | 0       | 0       | 24      | 0       | 0       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 20    | 20    | 9     | 26    | 26    | 20    | 20    | 20    | 20    |
| g / C, Green / Cycle                    | 0.05  | 0.33  | 0.33  | 0.14  | 0.43  | 0.43  | 0.33  | 0.33  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.17  | 0.11  | 0.11  | 0.23  | 0.23  | 0.09  | 0.01  | 0.48  | 0.17  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1889  | 333   | 1414  | 704   | 1615  |
| c, Capacity [veh/h]                     | 85    | 1210  | 540   | 259   | 1558  | 814   | 188   | 129   | 347   | 526   |
| d1, Uniform Delay [s]                   | 28.50 | 16.23 | 15.17 | 25.32 | 12.90 | 12.90 | 16.31 | 30.41 | 23.95 | 16.70 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.45  | 1.45  | 1.56  | 5.46  | 1.34  | 2.55  | 0.41  | 0.42  | 41.33 | 0.78  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.55  | 0.50   | 0.32  | 0.79   | 0.54   | 0.54   | 0.16  | 0.12  | 0.97   | 0.51   |
| d, Delay for Lane Group [s/veh]    | 33.95 | 17.69  | 16.73 | 30.79  | 14.24  | 15.45  | 16.71 | 30.83 | 65.28  | 17.48  |
| Lane Group LOS                     | C     | B      | B     | C      | B      | B      | B     | C     | E      | B      |
| Critical Lane Group                | No    | Yes    | No    | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.73  | 2.94   | 1.69  | 2.89   | 3.50   | 3.92   | 0.29  | 0.24  | 8.72   | 2.89   |
| 50th-Percentile Queue Length [ft]  | 18.17 | 73.57  | 42.20 | 72.36  | 87.38  | 98.07  | 7.27  | 5.88  | 217.95 | 72.35  |
| 95th-Percentile Queue Length [veh] | 1.31  | 5.30   | 3.04  | 5.21   | 6.29   | 7.06   | 0.52  | 0.42  | 13.56  | 5.21   |
| 95th-Percentile Queue Length [ft]  | 32.71 | 132.42 | 75.96 | 130.25 | 157.28 | 176.53 | 13.08 | 10.59 | 339.00 | 130.23 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 33.95 | 17.69 | 16.73 | 30.79 | 14.65 | 15.45 | 16.71 | 16.71 | 16.71 | 63.73 | 65.28 | 17.48 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | B     | B     | B     | E     | E     | B     |
| d_A, Approach Delay [s/veh]     | 18.42 |       |       | 16.90 |       |       | 16.71 |       |       | 43.62 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 22.95 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.840 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 7.5   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.581 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | +r               |        |        | +r                   |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 787    | 2      | 9            | 1258   | 11     | 38               | 0      | 18     | 9                    | 0      | 66     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 787    | 2      | 9            | 1258   | 11     | 38               | 0      | 18     | 9                    | 0      | 66     |
| Peak Hour Factor                        | 0.9342       | 0.9342 | 0.9342 | 0.9342       | 0.9342 | 0.9342 | 0.9342           | 0.9342 | 0.9342 | 0.9342               | 0.9342 | 0.9342 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 211    | 1      | 2            | 337    | 3      | 10               | 0      | 5      | 2                    | 0      | 18     |
| Total Analysis Volume [veh/h]           | 9            | 842    | 2      | 10           | 1347   | 12     | 41               | 0      | 19     | 10                   | 0      | 71     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 26       | 36      | 0       | 9        | 19      | 0       | 0       | 15      | 0       | 0       | 15      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | C     | R     | C     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 1     | 40   | 40   | 1     | 40   | 40   | 7     | 7     | 7     | 7     |
| g / C, Green / Cycle                    | 0.01  | 0.66 | 0.66 | 0.01  | 0.66 | 0.66 | 0.12  | 0.12  | 0.12  | 0.12  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.23 | 0.00 | 0.01  | 0.37 | 0.01 | 1.95  | 0.01  | 0.59  | 0.04  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 21    | 1615  | 17    | 1615  |
| c, Capacity [veh/h]                     | 25    | 2393 | 1068 | 27    | 2398 | 1070 | 122   | 200   | 122   | 200   |
| d1, Uniform Delay [s]                   | 29.41 | 4.49 | 3.45 | 29.36 | 5.45 | 3.45 | 30.08 | 23.35 | 30.07 | 24.14 |
| k, delay calibration                    | 0.11  | 0.50 | 0.50 | 0.11  | 0.50 | 0.50 | 0.50  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 8.71  | 0.41 | 0.00 | 8.29  | 0.96 | 0.02 | 7.25  | 0.20  | 1.32  | 1.06  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |      |       |        |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|--------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.36  | 0.35  | 0.00 | 0.37  | 0.56   | 0.01 | 0.34  | 0.09  | 0.08  | 0.35  |
| d, Delay for Lane Group [s/veh]    | 38.12 | 4.90  | 3.45 | 37.65 | 6.41   | 3.47 | 37.33 | 23.56 | 31.39 | 25.20 |
| Lane Group LOS                     | D     | A     | A    | D     | A      | A    | D     | C     | C     | C     |
| Critical Lane Group                | Yes   | No    | No   | No    | Yes    | No   | Yes   | No    | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.17  | 1.14  | 0.00 | 0.19  | 2.27   | 0.03 | 0.83  | 0.24  | 0.18  | 0.93  |
| 50th-Percentile Queue Length [ft]  | 4.37  | 28.56 | 0.12 | 4.73  | 56.67  | 0.69 | 20.70 | 5.93  | 4.59  | 23.28 |
| 95th-Percentile Queue Length [veh] | 0.31  | 2.06  | 0.01 | 0.34  | 4.08   | 0.05 | 1.49  | 0.43  | 0.33  | 1.68  |
| 95th-Percentile Queue Length [ft]  | 7.86  | 51.41 | 0.21 | 8.52  | 102.00 | 1.24 | 37.26 | 10.67 | 8.26  | 41.90 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 38.12 | 4.90 | 3.45 | 37.65 | 6.41 | 3.47 | 37.33 | 37.33 | 23.56 | 31.39 | 31.39 | 25.20 |
| Movement LOS                    | D     | A    | A    | D     | A    | A    | D     | D     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 5.25  |      |      | 6.61  |      |      | 32.97 |       |       | 25.96 |       |       |
| Approach LOS                    | A     |      |      | A     |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 7.45  |      |      |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 2.581 |      |      |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Year 2035 Without Project**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 23.3  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.500 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 110      | 92     | 54     | 78       | 186    | 74     | 238            | 1098   | 457    | 107            | 466    | 30     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 110      | 92     | 54     | 78       | 186    | 74     | 238            | 1098   | 457    | 107            | 466    | 30     |
| Peak Hour Factor                        | 0.9500   | 0.9500 | 0.9500 | 0.9500   | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 29       | 24     | 14     | 21       | 49     | 19     | 63             | 289    | 120    | 28             | 123    | 8      |
| Total Analysis Volume [veh/h]           | 116      | 97     | 57     | 82       | 196    | 78     | 251            | 1156   | 481    | 113            | 491    | 32     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 18       | 28      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 17    | 17    | 4     | 17    | 17    | 7     | 23    | 23    | 4     | 21    | 21    |
| g / C, Green / Cycle                    | 0.07  | 0.27  | 0.27  | 0.06  | 0.26  | 0.26  | 0.11  | 0.36  | 0.36  | 0.07  | 0.32  | 0.32  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.04  | 0.02  | 0.05  | 0.05  | 0.07  | 0.32  | 0.30  | 0.03  | 0.14  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1674  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 240   | 511   | 450   | 213   | 944   | 421   | 372   | 1292  | 577   | 238   | 1155  | 516   |
| d1, Uniform Delay [s]                   | 29.23 | 18.17 | 18.23 | 29.44 | 18.81 | 18.70 | 28.04 | 19.77 | 19.16 | 29.24 | 17.47 | 15.40 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.29  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.50  | 0.65  | 0.79  | 1.14  | 0.50  | 0.97  | 2.13  | 2.43  | 8.17  | 1.46  | 0.25  | 0.05  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.48  | 0.16  | 0.17  | 0.39  | 0.21  | 0.19  | 0.67  | 0.89   | 0.83   | 0.47  | 0.43   | 0.06  |
| d, Delay for Lane Group [s/veh]    | 30.73 | 18.82 | 19.02 | 30.58 | 19.31 | 19.66 | 30.17 | 22.20  | 27.33  | 30.70 | 17.71  | 15.45 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | Yes   | No    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.86  | 0.91  | 0.87  | 0.61  | 1.11  | 0.94  | 1.84  | 7.45   | 6.96   | 0.84  | 2.58   | 0.30  |
| 50th-Percentile Queue Length [ft]  | 21.51 | 22.79 | 21.79 | 15.17 | 27.63 | 23.40 | 46.12 | 186.17 | 174.08 | 20.94 | 64.49  | 7.48  |
| 95th-Percentile Queue Length [veh] | 1.55  | 1.64  | 1.57  | 1.09  | 1.99  | 1.68  | 3.32  | 11.92  | 11.29  | 1.51  | 4.64   | 0.54  |
| 95th-Percentile Queue Length [ft]  | 38.72 | 41.02 | 39.22 | 27.31 | 49.74 | 42.11 | 83.01 | 298.06 | 282.27 | 37.69 | 116.07 | 13.46 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 30.73 | 18.86 | 19.02 | 30.58 | 19.31 | 19.66 | 30.17 | 22.20 | 27.33 | 30.70 | 17.71 | 15.45 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 23.99 |       |       | 21.98 |       |       | 24.57 |       |       | 19.91 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 23.28 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.500 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 19.5  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.346 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  | ←\|←\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 10             | 5      | 4      | 8              | 0      | 11     | 38             | 967    | 70     | 20             | 408    | 12     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 10             | 5      | 4      | 8              | 0      | 11     | 38             | 967    | 70     | 20             | 408    | 12     |
| Peak Hour Factor                        | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3              | 1      | 1      | 2              | 0      | 3      | 10             | 254    | 18     | 5              | 107    | 3      |
| Total Analysis Volume [veh/h]           | 11             | 5      | 4      | 8              | 0      | 12     | 40             | 1018   | 74     | 21             | 429    | 13     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 10       | 32      | 0       | 9        | 31      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R    | C     | R    | L     | C     | R     | L     | C     | R     |
|---|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00 | 2.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00  | 2.00 | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 30    | 30   | 30    | 30   | 28    | 22    | 22    | 28    | 21    | 21    |
| g / C, Green / Cycle                    | 0.45  | 0.45 | 0.45  | 0.45 | 0.42  | 0.34  | 0.34  | 0.42  | 0.32  | 0.32  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.00 | 0.01  | 0.01 | 0.04  | 0.28  | 0.05  | 0.03  | 0.12  | 0.01  |
| s, saturation flow rate [veh/h]         | 641   | 1615 | 539   | 1615 | 1116  | 3618  | 1615  | 730   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 383   | 731  | 354   | 731  | 548   | 1219  | 544   | 327   | 1163  | 519   |
| d1, Uniform Delay [s]                   | 12.23 | 9.78 | 22.56 | 9.83 | 11.33 | 19.93 | 15.01 | 13.28 | 17.01 | 15.11 |
| k, delay calibration                    | 0.50  | 0.50 | 0.50  | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.20  | 0.01 | 0.12  | 0.04 | 0.06  | 1.58  | 0.11  | 0.08  | 0.20  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |      |       |        |       |       |       |       |
|------------------------------------|-------|------|-------|------|-------|--------|-------|-------|-------|-------|
| X, volume / capacity               | 0.04  | 0.01 | 0.02  | 0.02 | 0.07  | 0.84   | 0.14  | 0.06  | 0.37  | 0.03  |
| d, Delay for Lane Group [s/veh]    | 12.44 | 9.80 | 22.67 | 9.87 | 11.39 | 21.51  | 15.12 | 13.36 | 17.20 | 15.13 |
| Lane Group LOS                     | B     | A    | C     | A    | B     | C      | B     | B     | B     | B     |
| Critical Lane Group                | Yes   | No   | No    | No   | No    | Yes    | No    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.13  | 0.03 | 0.11  | 0.09 | 0.30  | 6.40   | 0.69  | 0.16  | 2.20  | 0.12  |
| 50th-Percentile Queue Length [ft]  | 3.36  | 0.77 | 2.72  | 2.32 | 7.46  | 159.91 | 17.20 | 3.95  | 55.11 | 2.99  |
| 95th-Percentile Queue Length [veh] | 0.24  | 0.06 | 0.20  | 0.17 | 0.54  | 10.54  | 1.24  | 0.28  | 3.97  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 6.06  | 1.39 | 4.90  | 4.18 | 13.42 | 263.60 | 30.96 | 7.11  | 99.19 | 5.39  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |      |       |       |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.44 | 12.44 | 9.80 | 22.67 | 22.67 | 9.87 | 11.39 | 21.51 | 15.12 | 13.36 | 17.20 | 15.13 |
| Movement LOS                    | B     | B     | A    | C     | C     | A    | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 11.91 |       |      | 14.99 |       |      | 20.74 |       |       | 16.97 |       |       |
| Approach LOS                    | B     |       |      | B     |       |      | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.49 |       |      |       |       |      |       |       |       |       |       |       |
| Intersection LOS                | B     |       |      |       |       |      |       |       |       |       |       |       |
| Intersection V/C                | 0.346 |       |      |       |       |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.614 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  | \| \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 70           | 637    | 54     | 71           | 787    | 111    | 196            | 435    | 319    | 94             | 290    | 87     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 70           | 637    | 54     | 71           | 787    | 111    | 196            | 435    | 319    | 94             | 290    | 87     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 18           | 168    | 14     | 19           | 207    | 29     | 52             | 114    | 84     | 25             | 76     | 23     |
| Total Analysis Volume [veh/h]           | 74           | 671    | 57     | 75           | 828    | 117    | 206            | 458    | 336    | 99             | 305    | 92     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 23      | 0       | 9        | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 21    | 21    | 4     | 21    | 21    | 8     | 15    | 15    | 4     | 11    | 11    |
| g / C, Green / Cycle                    | 0.06  | 0.35  | 0.35  | 0.06  | 0.35  | 0.35  | 0.14  | 0.25  | 0.25  | 0.07  | 0.18  | 0.18  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.04  | 0.04  | 0.23  | 0.07  | 0.11  | 0.13  | 0.21  | 0.05  | 0.08  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 111   | 1260  | 563   | 112   | 1262  | 563   | 257   | 909   | 406   | 133   | 659   | 294   |
| d1, Uniform Delay [s]                   | 27.69 | 15.72 | 13.27 | 27.68 | 16.58 | 13.79 | 25.03 | 19.36 | 21.35 | 27.39 | 22.02 | 21.38 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.21  | 0.11  | 0.18  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.66  | 1.61  | 0.36  | 6.75  | 2.68  | 0.84  | 10.33 | 0.43  | 6.89  | 8.08  | 0.51  | 0.60  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

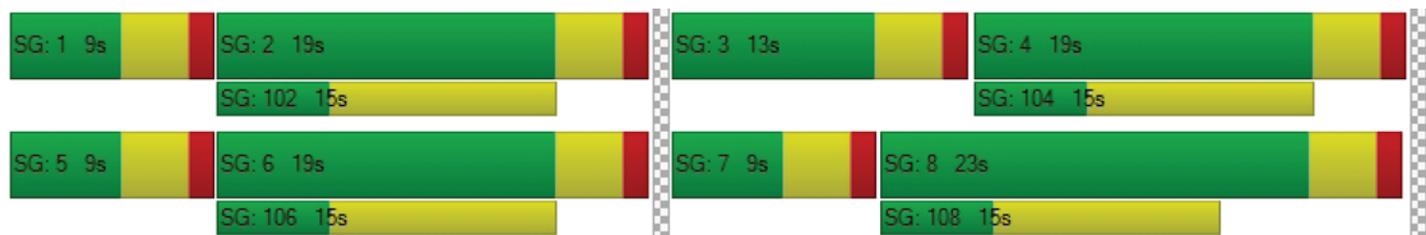
|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.67  | 0.53   | 0.10  | 0.67  | 0.66   | 0.21  | 0.80   | 0.50   | 0.83   | 0.75  | 0.46  | 0.31  |
| d, Delay for Lane Group [s/veh]    | 34.35 | 17.33  | 13.63 | 34.43 | 19.26  | 14.62 | 35.36  | 19.79  | 28.24  | 35.47 | 22.53 | 21.98 |
| Lane Group LOS                     | C     | B      | B     | C     | B      | B     | D      | B      | C      | D     | C     | C     |
| Critical Lane Group                | Yes   | No     | No    | No    | Yes    | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.12  | 3.19   | 0.47  | 1.14  | 4.26   | 1.02  | 3.30   | 2.46   | 4.67   | 1.57  | 1.77  | 1.06  |
| 50th-Percentile Queue Length [ft]  | 28.11 | 79.80  | 11.84 | 28.52 | 106.44 | 25.52 | 82.47  | 61.51  | 116.73 | 39.30 | 44.17 | 26.42 |
| 95th-Percentile Queue Length [veh] | 2.02  | 5.75   | 0.85  | 2.05  | 7.64   | 1.84  | 5.94   | 4.43   | 8.21   | 2.83  | 3.18  | 1.90  |
| 95th-Percentile Queue Length [ft]  | 50.60 | 143.64 | 21.31 | 51.34 | 191.05 | 45.94 | 148.44 | 110.72 | 205.32 | 70.74 | 79.50 | 47.55 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.35 | 17.33 | 13.63 | 34.43 | 19.26 | 14.62 | 35.36 | 19.79 | 28.24 | 35.47 | 22.53 | 21.98 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | D     | B     | C     | D     | C     | C     |
| d_A, Approach Delay [s/veh]     | 18.64 |       |       | 19.84 |       |       | 25.84 |       |       | 25.01 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.13 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.614 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 23.1  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.034 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 4            | 763    | 1099         | 9      | 7        | 11     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 4            | 763    | 1099         | 9      | 7        | 11     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1            | 201    | 289          | 2      | 2        | 3      |
| Total Analysis Volume [veh/h]           | 4            | 803    | 1157         | 9      | 7        | 12     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01  | 0.01 | 0.01 | 0.00 | 0.03  | 0.03  |
| d_M, Delay for Movement [s/veh]    | 10.98 | 0.00 | 0.00 | 0.00 | 23.10 | 13.48 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.02  | 0.00 | 0.00 | 0.00 | 0.19  | 0.19  |
| 95th-Percentile Queue Length [ft]  | 0.50  | 0.00 | 0.00 | 0.00 | 4.74  | 4.74  |
| d_A, Approach Delay [s/veh]        | 0.05  |      | 0.00 |      | 17.02 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.18  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 22.8  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.005 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | \|\|\| |  |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 841          | 30     | 83           | 1019   | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 841          | 30     | 83           | 1019   | 1                    | 9      |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500               | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 221          | 8      | 22           | 268    | 0                    | 2      |
| Total Analysis Volume [veh/h]           | 885          | 32     | 87           | 1073   | 1                    | 9      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |       |      |       |       |
|------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.12  | 0.01 | 0.00  | 0.02  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 10.41 | 0.00 | 22.76 | 11.44 |
| Movement LOS                       | A    | A    | B     | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.39  | 0.00 | 0.01  | 0.05  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 9.76  | 0.00 | 0.37  | 1.21  |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.78  |      | 12.57 |       |
| Approach LOS                       | A    |      | A     |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.49 |      |       |      |       |       |
| Intersection LOS                   | C    |      |       |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 5.7   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.713 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | \|r |  |  | \|r                        |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 6            | 826    | 187    | 37           | 959    | 14     | 12                       | 6      | 12     | 28                       | 0      | 12     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 6            | 826    | 187    | 37           | 959    | 14     | 12                       | 6      | 12     | 28                       | 0      | 12     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 217    | 49     | 10           | 252    | 4      | 3                        | 2      | 3      | 7                        | 0      | 3      |
| Total Analysis Volume [veh/h]           | 6            | 869    | 197    | 39           | 1009   | 15     | 13                       | 6      | 13     | 29                       | 0      | 13     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 62                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 10       | 10      | 0       | 10       | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 44      | 0       | 10       | 45      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 49   | 40   | 40   | 49   | 44   | 44   | 5     | 5     | 5     | 5     |
| g / C, Green / Cycle                    | 0.79 | 0.64 | 0.64 | 0.79 | 0.71 | 0.71 | 0.08  | 0.08  | 0.08  | 0.08  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.24 | 0.12 | 0.05 | 0.28 | 0.01 | 0.05  | 0.01  | 0.36  | 0.01  |
| s, saturation flow rate [veh/h]         | 647  | 3618 | 1615 | 815  | 3618 | 1615 | 380   | 1615  | 80    | 1615  |
| c, Capacity [veh/h]                     | 609  | 2316 | 1034 | 732  | 2545 | 1136 | 130   | 138   | 123   | 138   |
| d1, Uniform Delay [s]                   | 1.95 | 5.29 | 4.58 | 2.00 | 3.79 | 2.76 | 26.40 | 26.21 | 31.04 | 26.21 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.03 | 0.47 | 0.41 | 0.03 | 0.46 | 0.02 | 0.51  | 0.29  | 4.49  | 0.29  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.38  | 0.19  | 0.05 | 0.40  | 0.01 | 0.15  | 0.09  | 0.24  | 0.09  |
| d, Delay for Lane Group [s/veh]    | 1.98 | 5.76  | 4.99  | 2.03 | 4.25  | 2.78 | 26.91 | 26.50 | 35.53 | 26.50 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | D     | C     |
| Critical Lane Group                | Yes  | No    | No    | No   | Yes   | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 1.51  | 0.65  | 0.01 | 1.06  | 0.03 | 0.27  | 0.18  | 0.58  | 0.18  |
| 50th-Percentile Queue Length [ft]  | 0.12 | 37.72 | 16.27 | 0.15 | 26.58 | 0.65 | 6.65  | 4.51  | 14.40 | 4.51  |
| 95th-Percentile Queue Length [veh] | 0.01 | 2.72  | 1.17  | 0.01 | 1.91  | 0.05 | 0.48  | 0.32  | 1.04  | 0.32  |
| 95th-Percentile Queue Length [ft]  | 0.22 | 67.90 | 29.28 | 0.27 | 47.85 | 1.18 | 11.98 | 8.12  | 25.92 | 8.12  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 1.98  | 5.76 | 4.99 | 2.03 | 4.25 | 2.78 | 26.91 | 26.91 | 26.50 | 35.53 | 35.53 | 26.50 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | D     | D     | C     |
| d_A, Approach Delay [s/veh]     | 5.60  |      |      | 4.15 |      |      | 26.75 |       |       | 32.74 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 5.72  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.713 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.0  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.720 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇌⇌⇌          |        |        | ⇌⇌⇌          |        |        | +              |        |        | ⇌⇌⇌            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 27           | 720    | 404    | 343          | 735    | 5      | 5              | 3      | 3      | 82             | 1      | 285    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 27           | 720    | 404    | 343          | 735    | 5      | 5              | 3      | 3      | 82             | 1      | 285    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 189    | 106    | 90           | 193    | 1      | 1              | 1      | 1      | 22             | 0      | 75     |
| Total Analysis Volume [veh/h]           | 28           | 758    | 425    | 361          | 774    | 5      | 5              | 3      | 3      | 86             | 1      | 300    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 22       | 32      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 21    | 21    | 14    | 33   | 33   | 13    | 13    | 13    | 13    |
| g / C, Green / Cycle                    | 0.03  | 0.35  | 0.35  | 0.23  | 0.55 | 0.55 | 0.22  | 0.22  | 0.22  | 0.22  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.21  | 0.26  | 0.20  | 0.14 | 0.14 | 0.01  | 0.02  | 0.04  | 0.19  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1894 | 1445  | 1432  | 1305  | 1615  |
| c, Capacity [veh/h]                     | 60    | 1264  | 564   | 421   | 1986 | 1040 | 402   | 307   | 403   | 352   |
| d1, Uniform Delay [s]                   | 28.56 | 16.10 | 17.27 | 22.12 | 7.12 | 7.12 | 18.52 | 23.27 | 19.29 | 22.58 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.19  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.23  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.49  | 2.11  | 8.99  | 8.44  | 0.31 | 0.60 | 0.03  | 0.16  | 0.14  | 11.54 |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

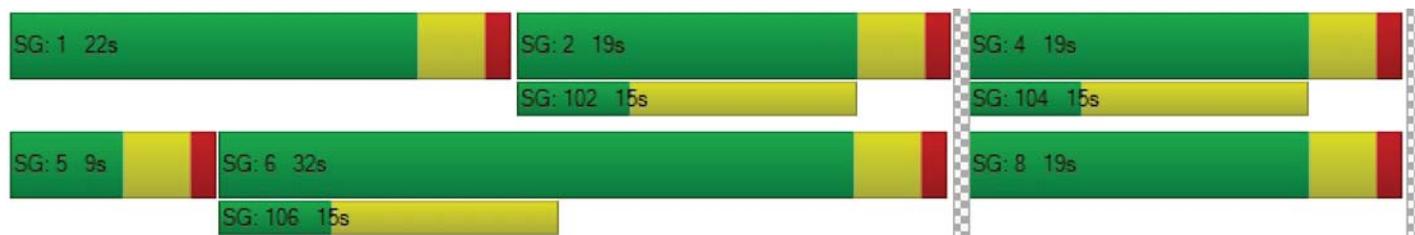
|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.47  | 0.60   | 0.75   | 0.86   | 0.26  | 0.26  | 0.03  | 0.11  | 0.13  | 0.85   |
| d, Delay for Lane Group [s/veh]    | 34.05 | 18.21  | 26.26  | 30.56  | 7.44  | 7.72  | 18.55 | 23.43 | 19.43 | 34.12  |
| Lane Group LOS                     | C     | B      | C      | C      | A     | A     | B     | C     | B     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.44  | 3.74   | 5.47   | 5.06   | 1.19  | 1.33  | 0.12  | 0.43  | 0.58  | 4.88   |
| 50th-Percentile Queue Length [ft]  | 11.08 | 93.62  | 136.74 | 126.45 | 29.75 | 33.21 | 2.89  | 10.64 | 14.40 | 121.99 |
| 95th-Percentile Queue Length [veh] | 0.80  | 6.74   | 9.31   | 8.75   | 2.14  | 2.39  | 0.21  | 0.77  | 1.04  | 8.50   |
| 95th-Percentile Queue Length [ft]  | 19.95 | 168.51 | 232.63 | 218.66 | 53.54 | 59.78 | 5.21  | 19.16 | 25.93 | 212.56 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.05 | 18.21 | 26.26 | 30.56 | 7.53 | 7.72 | 18.55 | 18.55 | 18.55 | 23.43 | 19.43 | 34.12 |
| Movement LOS                    | C     | B     | C     | C     | A    | A    | B     | B     | B     | C     | B     | C     |
| d_A, Approach Delay [s/veh]     | 21.40 |       |       | 14.83 |      |      | 18.55 |       |       | 31.18 |       |       |
| Approach LOS                    | C     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 20.04 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.720 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 3.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.336 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 841          | 30     | 83           | 1019   | 1                    | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 841          | 30     | 83           | 1019   | 1                    | 9      |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500               | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 221          | 8      | 22           | 268    | 0                    | 2      |
| Total Analysis Volume [veh/h]           | 885          | 32     | 87           | 1073   | 1                    | 9      |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 15         | 0          | 30        | 45         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 43   | 4     | 51   | 1     | 1     |
| g / C, Green / Cycle                    | 0.72 | 0.72 | 0.06  | 0.85 | 0.01  | 0.01  |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.02 | 0.05  | 0.30 | 0.00  | 0.01  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2604 | 1162 | 119   | 3083 | 27    | 24    |
| d1, Uniform Delay [s]                   | 3.13 | 2.41 | 27.57 | 0.93 | 29.21 | 29.36 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.36 | 0.04 | 8.23  | 0.31 | 0.56  | 9.38  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

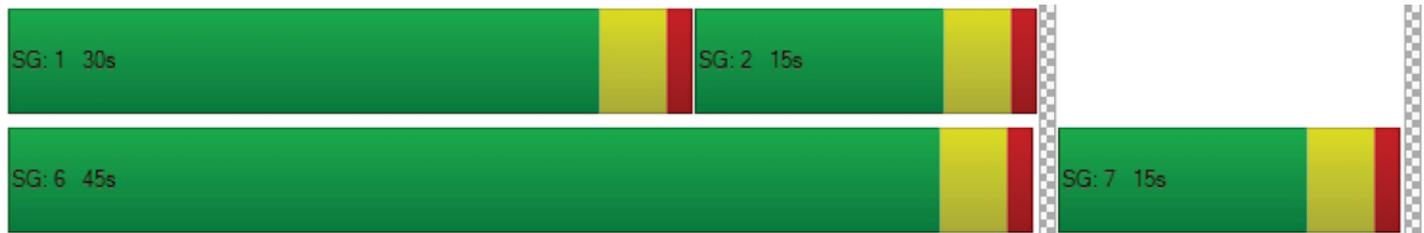
|                                    |       |      |       |      |       |       |
|------------------------------------|-------|------|-------|------|-------|-------|
| X, volume / capacity               | 0.34  | 0.03 | 0.73  | 0.35 | 0.04  | 0.37  |
| d, Delay for Lane Group [s/veh]    | 3.48  | 2.45 | 35.80 | 1.25 | 29.77 | 38.74 |
| Lane Group LOS                     | A     | A    | D     | A    | C     | D     |
| Critical Lane Group                | No    | No   | No    | Yes  | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.63  | 0.04 | 1.35  | 0.13 | 0.02  | 0.19  |
| 50th-Percentile Queue Length [ft]  | 15.73 | 1.05 | 33.81 | 3.33 | 0.44  | 4.64  |
| 95th-Percentile Queue Length [veh] | 1.13  | 0.08 | 2.43  | 0.24 | 0.03  | 0.33  |
| 95th-Percentile Queue Length [ft]  | 28.32 | 1.89 | 60.85 | 6.00 | 0.80  | 8.35  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.48  | 2.45 | 35.80 | 1.25 | 29.77 | 38.74 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.45  |      | 3.84  |      | 37.84 |       |
| Approach LOS                    | A     |      | A     |      | D     |       |
| d_I, Intersection Delay [s/veh] | 3.83  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.336 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 31.8  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.807 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 533      | 318    | 152    | 181      | 194    | 316    | 128            | 1018   | 338    | 197            | 1061   | 54     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 533      | 318    | 152    | 181      | 194    | 316    | 128            | 1018   | 338    | 197            | 1061   | 54     |
| Peak Hour Factor                        | 0.9500   | 0.9500 | 0.9500 | 0.9500   | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 140      | 84     | 40     | 48       | 51     | 83     | 34             | 268    | 89     | 52             | 279    | 14     |
| Total Analysis Volume [veh/h]           | 561      | 335    | 160    | 191      | 204    | 333    | 135            | 1072   | 356    | 207            | 1117   | 57     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 75                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 17       | 24      | 0       | 13       | 20      | 0       | 10       | 29      | 0       | 9        | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 13    | 23    | 23    | 6     | 16    | 16    | 5     | 25    | 25    | 5     | 25    | 25    |
| g / C, Green / Cycle                    | 0.17  | 0.31  | 0.31  | 0.08  | 0.22  | 0.22  | 0.06  | 0.33  | 0.33  | 0.07  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.16  | 0.14  | 0.14  | 0.05  | 0.06  | 0.21  | 0.04  | 0.30  | 0.22  | 0.06  | 0.31  | 0.04  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1695  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 609   | 597   | 532   | 282   | 799   | 357   | 222   | 1178  | 526   | 235   | 1192  | 532   |
| d1, Uniform Delay [s]                   | 30.51 | 20.48 | 20.48 | 33.57 | 24.14 | 28.69 | 34.26 | 24.26 | 21.90 | 34.72 | 24.41 | 17.49 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.20  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.29  | 2.33  | 2.62  | 2.82  | 0.77  | 33.38 | 2.70  | 3.11  | 2.78  | 10.20 | 4.24  | 0.09  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

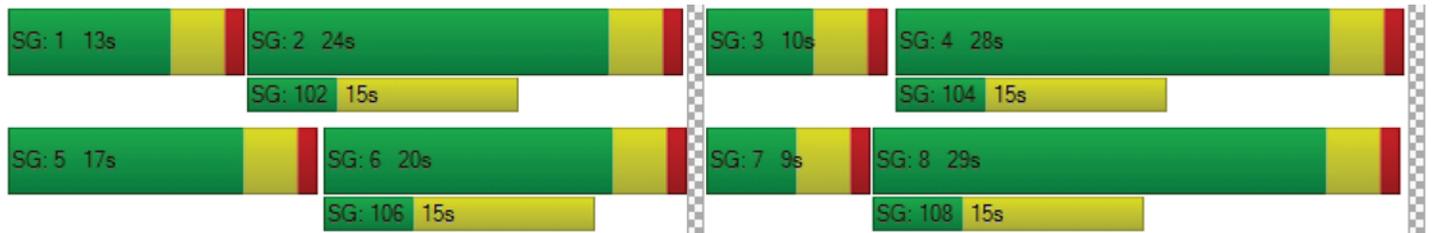
|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.92   | 0.44   | 0.44   | 0.68  | 0.26  | 0.93   | 0.61  | 0.91   | 0.68   | 0.88  | 0.94   | 0.11  |
| d, Delay for Lane Group [s/veh]    | 36.80  | 22.81  | 23.10  | 36.39 | 24.91 | 62.07  | 36.96 | 27.38  | 24.68  | 44.92 | 28.66  | 17.58 |
| Lane Group LOS                     | D      | C      | C      | D     | C     | E      | D     | C      | C      | D     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 5.17   | 3.72   | 3.36   | 1.71  | 1.48  | 8.73   | 1.22  | 8.66   | 5.29   | 2.11  | 9.28   | 0.64  |
| 50th-Percentile Queue Length [ft]  | 129.22 | 92.89  | 83.98  | 42.75 | 37.05 | 218.22 | 30.49 | 216.40 | 132.26 | 52.63 | 231.93 | 16.00 |
| 95th-Percentile Queue Length [veh] | 8.90   | 6.69   | 6.05   | 3.08  | 2.67  | 13.57  | 2.20  | 13.48  | 9.06   | 3.79  | 14.27  | 1.15  |
| 95th-Percentile Queue Length [ft]  | 222.43 | 167.20 | 151.17 | 76.94 | 66.70 | 339.36 | 54.89 | 337.02 | 226.56 | 94.73 | 356.81 | 28.80 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 36.80 | 22.87 | 23.10 | 36.39 | 24.91 | 62.07 | 36.96 | 27.38 | 24.68 | 44.92 | 28.66 | 17.58 |
| Movement LOS                    | D     | C     | C     | D     | C     | E     | D     | C     | C     | D     | C     | B     |
| d_A, Approach Delay [s/veh]     | 30.31 |       |       | 44.92 |       |       | 27.59 |       |       | 30.64 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 31.76 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.807 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.4  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.547 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 40             | 21     | 19     | 5              | 0      | 15     | 32             | 1236   | 26     | 14             | 1175   | 17     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 40             | 21     | 19     | 5              | 0      | 15     | 32             | 1236   | 26     | 14             | 1175   | 17     |
| Peak Hour Factor                        | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 11             | 6      | 5      | 1              | 0      | 4      | 8              | 325    | 7      | 4              | 309    | 4      |
| Total Analysis Volume [veh/h]           | 42             | 22     | 20     | 5              | 0      | 16     | 34             | 1301   | 27     | 15             | 1237   | 18     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 61                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 22    | 22    | 22    | 22    | 31    | 26    | 26    | 31    | 25    | 25    |
| g / C, Green / Cycle                    | 0.36  | 0.36  | 0.36  | 0.36  | 0.51  | 0.42  | 0.42  | 0.51  | 0.41  | 0.41  |
| (v / s)_i Volume / Saturation Flow Rate | 0.13  | 0.01  | 0.01  | 0.01  | 0.05  | 0.36  | 0.02  | 0.03  | 0.34  | 0.01  |
| s, saturation flow rate [veh/h]         | 497   | 1615  | 340   | 1615  | 645   | 3618  | 1615  | 574   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 277   | 583   | 240   | 583   | 358   | 1528  | 682   | 324   | 1465  | 654   |
| d1, Uniform Delay [s]                   | 17.29 | 12.65 | 25.59 | 12.62 | 10.95 | 15.93 | 10.37 | 11.06 | 16.46 | 10.95 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.95  | 0.11  | 0.16  | 0.09  | 0.11  | 1.43  | 0.02  | 0.06  | 1.41  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.23  | 0.03  | 0.02  | 0.03  | 0.09  | 0.85   | 0.04  | 0.05  | 0.84   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 19.24 | 12.76 | 25.75 | 12.70 | 11.06 | 17.36  | 10.40 | 11.12 | 17.87  | 10.97 |
| Lane Group LOS                     | B     | B     | C     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.68  | 0.18  | 0.07  | 0.14  | 0.19  | 6.86   | 0.18  | 0.08  | 6.64   | 0.13  |
| 50th-Percentile Queue Length [ft]  | 16.91 | 4.47  | 1.85  | 3.57  | 4.63  | 171.53 | 4.54  | 2.03  | 165.89 | 3.15  |
| 95th-Percentile Queue Length [veh] | 1.22  | 0.32  | 0.13  | 0.26  | 0.33  | 11.16  | 0.33  | 0.15  | 10.86  | 0.23  |
| 95th-Percentile Queue Length [ft]  | 30.43 | 8.05  | 3.32  | 6.42  | 8.33  | 278.93 | 8.18  | 3.65  | 271.51 | 5.67  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 19.24 | 19.24 | 12.76 | 25.75 | 25.75 | 12.70 | 11.06 | 17.36 | 10.40 | 11.12 | 17.87 | 10.97 |
| Movement LOS                    | B     | B     | B     | C     | C     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 17.69 |       |       | 15.81 |       |       | 17.06 |       |       | 17.69 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.36 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.547 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 36.2  |
| Analysis Method: | HCM 2010   | Level Of Service:         | D     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.824 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | 三            |        |        | 三            |        |        | 三              |        |        | 三              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 261          | 794    | 126    | 115          | 857    | 128    | 170            | 799    | 239    | 164            | 811    | 106    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 261          | 794    | 126    | 115          | 857    | 128    | 170            | 799    | 239    | 164            | 811    | 106    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 69           | 209    | 33     | 30           | 226    | 34     | 45             | 210    | 63     | 43             | 213    | 28     |
| Total Analysis Volume [veh/h]           | 275          | 836    | 133    | 121          | 902    | 135    | 179            | 841    | 252    | 173            | 854    | 112    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 75                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 16       | 27      | 0       | 13       | 24      | 0       | 12       | 23      | 0       | 12       | 23      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 12    | 26    | 26    | 6     | 20    | 20    | 8     | 19    | 19    | 8     | 19    | 19    |
| g / C, Green / Cycle                    | 0.16  | 0.34  | 0.34  | 0.09  | 0.27  | 0.27  | 0.11  | 0.25  | 0.25  | 0.11  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.15  | 0.23  | 0.08  | 0.07  | 0.25  | 0.08  | 0.10  | 0.23  | 0.16  | 0.10  | 0.24  | 0.07  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 290   | 1241  | 554   | 155   | 971   | 434   | 193   | 910   | 406   | 193   | 910   | 406   |
| d1, Uniform Delay [s]                   | 31.21 | 21.06 | 17.65 | 33.62 | 26.74 | 21.90 | 33.22 | 27.39 | 24.91 | 33.10 | 27.52 | 22.59 |
| k, delay calibration                    | 0.35  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.30  | 0.11  | 0.15  | 0.28  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 33.50 | 2.94  | 1.02  | 8.27  | 16.06 | 1.87  | 34.34 | 4.62  | 2.20  | 27.89 | 5.48  | 0.36  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |        |        |       |        |        |        |        |        |       |
|------------------------------------|--------|--------|-------|--------|--------|-------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.95   | 0.67   | 0.24  | 0.78   | 0.93   | 0.31  | 0.93   | 0.92   | 0.62   | 0.90   | 0.94   | 0.28  |
| d, Delay for Lane Group [s/veh]    | 64.71  | 24.00  | 18.67 | 41.89  | 42.80  | 23.77 | 67.55  | 32.01  | 27.11  | 60.99  | 33.00  | 22.95 |
| Lane Group LOS                     | E      | C      | B     | D      | D      | C     | E      | C      | C      | E      | C      | C     |
| Critical Lane Group                | Yes    | No     | No    | No     | Yes    | No    | Yes    | No     | No     | No     | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 7.14   | 5.90   | 1.59  | 2.34   | 9.06   | 1.91  | 4.88   | 7.29   | 3.90   | 4.42   | 7.54   | 1.51  |
| 50th-Percentile Queue Length [ft]  | 178.52 | 147.39 | 39.86 | 58.38  | 226.42 | 47.85 | 121.93 | 182.27 | 97.59  | 110.48 | 188.39 | 37.86 |
| 95th-Percentile Queue Length [veh] | 11.52  | 9.88   | 2.87  | 4.20   | 13.99  | 3.45  | 8.50   | 11.72  | 7.03   | 7.87   | 12.04  | 2.73  |
| 95th-Percentile Queue Length [ft]  | 288.08 | 246.94 | 71.74 | 105.08 | 349.80 | 86.13 | 212.48 | 292.97 | 175.66 | 196.67 | 300.94 | 68.15 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 64.71 | 24.00 | 18.67 | 41.89 | 42.80 | 23.77 | 67.55 | 32.01 | 27.11 | 60.99 | 33.00 | 22.95 |
| Movement LOS                    | E     | C     | B     | D     | D     | C     | E     | C     | C     | E     | C     | C     |
| d_A, Approach Delay [s/veh]     | 32.43 |       |       | 40.49 |       |       | 36.04 |       |       | 36.27 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | D     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 36.23 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | D     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.824 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 28.0  |
| Analysis Method: | HCM 2010     | Level Of Service:         | D     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.054 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 6            | 1191   | 1367         | 14     | 9        | 13     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 6            | 1191   | 1367         | 14     | 9        | 13     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 313    | 360          | 4      | 2        | 3      |
| Total Analysis Volume [veh/h]           | 6            | 1254   | 1439         | 15     | 9        | 14     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 2    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01  | 0.01 | 0.01 | 0.00 | 0.05  | 0.04  |
| d_M, Delay for Movement [s/veh]    | 12.73 | 0.00 | 0.00 | 0.00 | 28.01 | 16.02 |
| Movement LOS                       | B     | A    | A    | A    | D     | C     |
| 95th-Percentile Queue Length [veh] | 0.04  | 0.00 | 0.00 | 0.00 | 0.30  | 0.30  |
| 95th-Percentile Queue Length [ft]  | 0.97  | 0.00 | 0.00 | 0.00 | 7.46  | 7.46  |
| d_A, Approach Delay [s/veh]        | 0.06  |      | 0.00 |      | 20.72 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.20  |      |      |      |       |       |
| Intersection LOS                   | D     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 24.7  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.057 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | \|\|\| |  |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 960          | 2      | 10           | 1441   | 10                   | 70     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 960          | 2      | 10           | 1441   | 10                   | 70     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500               | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 253          | 1      | 3            | 379    | 3                    | 18     |
| Total Analysis Volume [veh/h]           | 1011         | 2      | 11           | 1517   | 11                   | 74     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |       |      |       |       |
|------------------------------------|------|------|-------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.01 | 0.00 | 0.02  | 0.02 | 0.06  | 0.14  |
| d_M, Delay for Movement [s/veh]    | 0.00 | 0.00 | 10.28 | 0.00 | 24.68 | 13.12 |
| Movement LOS                       | A    | A    | B     | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.00 | 0.05  | 0.00 | 0.18  | 0.50  |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.00 | 1.21  | 0.00 | 4.48  | 12.41 |
| d_A, Approach Delay [s/veh]        | 0.00 |      | 0.07  |      | 14.61 |       |
| Approach LOS                       | A    |      | A     |      | B     |       |
| d_I, Intersection Delay [s/veh]    | 0.52 |      |       |      |       |       |
| Intersection LOS                   | C    |      |       |      |       |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 11.7  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.596 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     | ⇌⇌⇌          |        |        | ⇌⇌⇌          |        |        | ⇌⇌                       |        |        | ⇌⇌                       |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 24           | 923    | 47     | 23           | 1328   | 26     | 1                        | 0      | 11     | 204                      | 0      | 46     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 24           | 923    | 47     | 23           | 1328   | 26     | 1                        | 0      | 11     | 204                      | 0      | 46     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 6            | 243    | 12     | 6            | 349    | 7      | 0                        | 0      | 3      | 54                       | 0      | 12     |
| Total Analysis Volume [veh/h]           | 25           | 972    | 49     | 24           | 1398   | 27     | 1                        | 0      | 12     | 215                      | 0      | 48     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 37      | 0       | 0       | 37      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 37   | 37   | 43   | 37   | 37   | 14    | 14    | 14    | 14    |
| g / C, Green / Cycle                    | 0.66 | 0.57 | 0.57 | 0.66 | 0.57 | 0.57 | 0.21  | 0.21  | 0.21  | 0.21  |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.27 | 0.03 | 0.03 | 0.39 | 0.02 | 0.00  | 0.01  | 0.15  | 0.03  |
| s, saturation flow rate [veh/h]         | 518  | 3618 | 1615 | 695  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 407  | 2081 | 929  | 538  | 2077 | 927  | 369   | 344   | 369   | 344   |
| d1, Uniform Delay [s]                   | 6.15 | 8.03 | 6.05 | 4.51 | 9.61 | 6.00 | 21.90 | 20.30 | 25.73 | 20.77 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.29 | 0.76 | 0.11 | 0.03 | 1.76 | 0.06 | 0.00  | 0.04  | 1.46  | 0.18  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

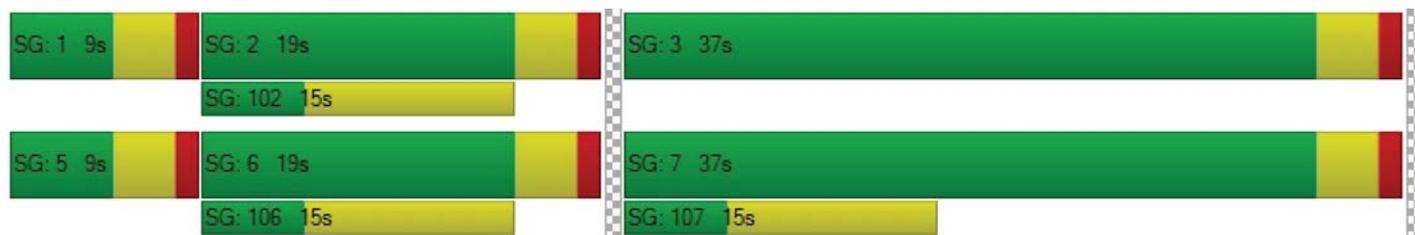
|                                    |      |        |       |      |        |      |       |       |        |       |
|------------------------------------|------|--------|-------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.06 | 0.47   | 0.05  | 0.04 | 0.67   | 0.03 | 0.00  | 0.03  | 0.58   | 0.14  |
| d, Delay for Lane Group [s/veh]    | 6.44 | 8.78   | 6.16  | 4.55 | 11.37  | 6.05 | 21.90 | 20.34 | 27.18  | 20.95 |
| Lane Group LOS                     | A    | A      | A     | A    | B      | A    | C     | C     | C      | C     |
| Critical Lane Group                | Yes  | No     | No    | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.09 | 2.81   | 0.22  | 0.06 | 4.96   | 0.12 | 0.01  | 0.14  | 3.16   | 0.58  |
| 50th-Percentile Queue Length [ft]  | 2.27 | 70.13  | 5.61  | 1.52 | 124.03 | 3.06 | 0.31  | 3.52  | 79.03  | 14.44 |
| 95th-Percentile Queue Length [veh] | 0.16 | 5.05   | 0.40  | 0.11 | 8.61   | 0.22 | 0.02  | 0.25  | 5.69   | 1.04  |
| 95th-Percentile Queue Length [ft]  | 4.08 | 126.24 | 10.10 | 2.73 | 215.35 | 5.50 | 0.55  | 6.33  | 142.26 | 25.98 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |       |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 6.44  | 8.78 | 6.16 | 4.55  | 11.37 | 6.05 | 21.90 | 0.00 | 20.34 | 27.18 | 0.00 | 20.95 |
| Movement LOS                    | A     | A    | A    | A     | B     | A    | C     |      | C     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 8.60  |      |      | 11.16 |       |      | 20.46 |      |       | 26.05 |      |       |
| Approach LOS                    | A     |      |      | B     |       |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 11.65 |      |      |       |       |      |       |      |       |       |      |       |
| Intersection LOS                | B     |      |      |       |       |      |       |      |       |       |      |       |
| Intersection V/C                | 0.596 |      |      |       |       |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 34.2  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.077 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⏏            |        |        | ⏏            |        |        | +              |        |        | ⏏              |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 52           | 685    | 242    | 253          | 1266   | 15     | 10             | 5      | 15     | 409            | 3      | 295    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 52           | 685    | 242    | 253          | 1266   | 15     | 10             | 5      | 15     | 409            | 3      | 295    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 14           | 180    | 64     | 67           | 333    | 4      | 3              | 1      | 4      | 108            | 1      | 78     |
| Total Analysis Volume [veh/h]           | 55           | 721    | 255    | 266          | 1333   | 16     | 11             | 5      | 16     | 431            | 3      | 311    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 15       | 25      | 0       | 0       | 26      | 0       | 0       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 16    | 16    | 11    | 23    | 23    | 22    | 22    | 22    | 22    |
| g / C, Green / Cycle                    | 0.05  | 0.26  | 0.26  | 0.18  | 0.38  | 0.38  | 0.37  | 0.37  | 0.37  | 0.37  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.20  | 0.16  | 0.15  | 0.24  | 0.25  | 0.10  | 0.01  | 0.62  | 0.19  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1888  | 311   | 1413  | 676   | 1615  |
| c, Capacity [veh/h]                     | 94    | 940   | 420   | 318   | 1388  | 724   | 194   | 128   | 366   | 589   |
| d1, Uniform Delay [s]                   | 27.87 | 20.58 | 19.57 | 23.95 | 15.14 | 15.14 | 15.10 | 29.96 | 22.82 | 15.03 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.25  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.58  | 5.96  | 6.41  | 12.29 | 2.26  | 4.28  | 0.40  | 0.34  | 94.98 | 0.74  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

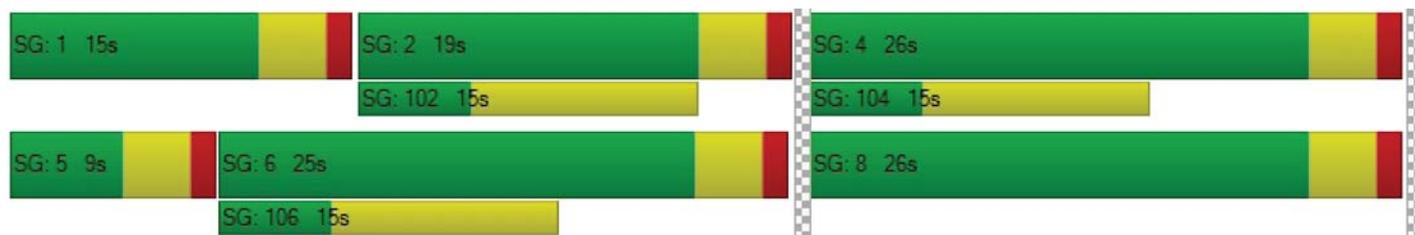
|                                    |       |        |        |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.58  | 0.77   | 0.61   | 0.84   | 0.64   | 0.64   | 0.17  | 0.10  | 1.15   | 0.53   |
| d, Delay for Lane Group [s/veh]    | 33.45 | 26.54  | 25.98  | 36.24  | 17.40  | 19.42  | 15.50 | 30.30 | 117.80 | 15.77  |
| Lane Group LOS                     | C     | C      | C      | D      | B      | B      | B     | C     | F      | B      |
| Critical Lane Group                | No    | Yes    | No     | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.83  | 4.64   | 3.34   | 4.20   | 4.25   | 4.84   | 0.27  | 0.19  | 14.70  | 3.09   |
| 50th-Percentile Queue Length [ft]  | 20.74 | 115.88 | 83.53  | 104.93 | 106.24 | 121.09 | 6.81  | 4.76  | 367.43 | 77.17  |
| 95th-Percentile Queue Length [veh] | 1.49  | 8.17   | 6.01   | 7.55   | 7.63   | 8.45   | 0.49  | 0.34  | 22.85  | 5.56   |
| 95th-Percentile Queue Length [ft]  | 37.33 | 204.15 | 150.35 | 188.87 | 190.76 | 211.32 | 12.26 | 8.57  | 571.15 | 138.91 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |        |        |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| d_M, Delay for Movement [s/veh] | 33.45 | 26.54 | 25.98 | 36.24 | 18.08 | 19.42 | 15.50 | 15.50 | 15.50 | 115.16 | 117.80 | 15.77 |
| Movement LOS                    | C     | C     | C     | D     | B     | B     | B     | B     | B     | F      | F      | B     |
| d_A, Approach Delay [s/veh]     | 26.77 |       |       | 21.08 |       |       | 15.50 |       |       | 73.69  |        |       |
| Approach LOS                    | C     |       |       | C     |       |       | B     |       |       | E      |        |       |
| d_I, Intersection Delay [s/veh] | 34.19 |       |       |       |       |       |       |       |       |        |        |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |        |        |       |
| Intersection V/C                | 1.077 |       |       |       |       |       |       |       |       |        |        |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 4.3   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.512 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|------------------------|--------------|--------|--------------|--------|----------------------|--------|
| Approach               | Northbound   |        | Southbound   |        | Westbound            |        |
| Lane Configuration | \|\|r            |        | r\|\| |  | rr                   |        |
| Turning Movement       | Thru         | Right  | Left         | Thru   | Left                 | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00                | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 1            | 0      | 0                    | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 215.00       | 100.00 | 100.00               | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00                |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00                 |        |
| Crosswalk              | No           |        | No           |        | No                   |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Park Center Circle N |        |
|---|--------------|--------|--------------|--------|----------------------|--------|
| Base Volume Input [veh/h]               | 960          | 2      | 10           | 1441   | 10                   | 70     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00                 | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00                 | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0                    | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0                    | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0                    | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0            | 0      | 0                    | 0      |
| Total Hourly Volume [veh/h]             | 960          | 2      | 10           | 1441   | 10                   | 70     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500               | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000               | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 253          | 1      | 3            | 379    | 3                    | 18     |
| Total Analysis Volume [veh/h]           | 1011         | 2      | 11           | 1517   | 11                   | 74     |
| Presence of On-Street Parking           | No           | No     | No           | No     | No                   | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0            | 0      | 0                    | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0            | 0      | 0                    | 0      |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0                    |        |
| Bicycle Volume [bicycles/h]             | 0            |        | 0            |        | 0                    |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permissive | Permissive | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|-----------|------------|------------|------------|
| Signal group                 | 2          | 0          | 1         | 6          | 7          | 0          |
| Auxiliary Signal Groups      |            |            |           |            |            |            |
| Lead / Lag                   | -          | -          | Lead      | -          | Lead       | -          |
| Minimum Green [s]            | 5          | 0          | 5         | 5          | 5          | 0          |
| Maximum Green [s]            | 30         | 0          | 30        | 30         | 30         | 0          |
| Amber [s]                    | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| All red [s]                  | 1.0        | 0.0        | 1.0       | 1.0        | 1.0        | 0.0        |
| Split [s]                    | 15         | 0          | 35        | 50         | 15         | 0          |
| Vehicle Extension [s]        | 3.0        | 0.0        | 3.0       | 3.0        | 3.0        | 0.0        |
| Walk [s]                     | 5          | 0          | 0         | 5          | 5          | 0          |
| Pedestrian Clearance [s]     | 10         | 0          | 0         | 10         | 10         | 0          |
| I1, Start-Up Lost Time [s]   | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| I2, Clearance Lost Time [s]  | 2.0        | 0.0        | 2.0       | 2.0        | 2.0        | 0.0        |
| Minimum Recall               | No         |            | No        | No         | No         |            |
| Maximum Recall               | No         |            | No        | No         | No         |            |
| Pedestrian Recall            | No         |            | No        | No         | No         |            |
| Detector Location [ft]       | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| Detector Length [ft]         | 0.0        | 0.0        | 0.0       | 0.0        | 0.0        | 0.0        |
| I, Upstream Filtering Factor | 1.00       | 1.00       | 1.00      | 1.00       | 1.00       | 1.00       |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C    | R    | L     | C    | L     | R     |
|---|------|------|-------|------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00  | 4.00 | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00 | 2.00 | 2.00  | 2.00 | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 48   | 48   | 1     | 53   | 4     | 4     |
| g / C, Green / Cycle                    | 0.74 | 0.74 | 0.01  | 0.82 | 0.06  | 0.06  |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.00 | 0.01  | 0.42 | 0.01  | 0.05  |
| s, saturation flow rate [veh/h]         | 3618 | 1615 | 1810  | 3618 | 1810  | 1615  |
| c, Capacity [veh/h]                     | 2669 | 1191 | 29    | 2948 | 113   | 101   |
| d1, Uniform Delay [s]                   | 3.11 | 2.24 | 31.75 | 1.92 | 28.82 | 30.02 |
| k, delay calibration                    | 0.50 | 0.50 | 0.11  | 0.50 | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.41 | 0.00 | 8.31  | 0.65 | 0.37  | 9.92  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |      |       |       |       |       |
|------------------------------------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.38  | 0.00 | 0.39  | 0.51  | 0.10  | 0.74  |
| d, Delay for Lane Group [s/veh]    | 3.52  | 2.25 | 40.06 | 2.57  | 29.19 | 39.93 |
| Lane Group LOS                     | A     | A    | D     | A     | C     | D     |
| Critical Lane Group                | No    | No   | No    | Yes   | No    | Yes   |
| 50th-Percentile Queue Length [veh] | 0.80  | 0.00 | 0.22  | 0.26  | 0.17  | 1.37  |
| 50th-Percentile Queue Length [ft]  | 19.90 | 0.07 | 5.52  | 6.61  | 4.19  | 34.23 |
| 95th-Percentile Queue Length [veh] | 1.43  | 0.00 | 0.40  | 0.48  | 0.30  | 2.46  |
| 95th-Percentile Queue Length [ft]  | 35.83 | 0.12 | 9.94  | 11.89 | 7.54  | 61.62 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |       |      |       |       |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 3.52  | 2.25 | 40.06 | 2.57 | 29.19 | 39.93 |
| Movement LOS                    | A     | A    | D     | A    | C     | D     |
| d_A, Approach Delay [s/veh]     | 3.52  |      | 2.84  |      | 38.54 |       |
| Approach LOS                    | A     |      | A     |      | D     |       |
| d_I, Intersection Delay [s/veh] | 4.26  |      |       |      |       |       |
| Intersection LOS                | A     |      |       |      |       |       |
| Intersection V/C                | 0.512 |      |       |      |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Year 2035 With Project**

**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 23.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.511 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 110      | 92     | 54     | 78       | 186    | 74     | 238            | 1129   | 457    | 107            | 477    | 30     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 110      | 92     | 54     | 78       | 186    | 74     | 238            | 1129   | 457    | 107            | 477    | 30     |
| Peak Hour Factor                        | 0.9500   | 0.9500 | 0.9500 | 0.9500   | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 29       | 24     | 14     | 21       | 49     | 19     | 63             | 297    | 120    | 28             | 126    | 8      |
| Total Analysis Volume [veh/h]           | 116      | 97     | 57     | 82       | 196    | 78     | 251            | 1188   | 481    | 113            | 502    | 32     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 15       | 28      | 0       | 9        | 22      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 17    | 17    | 4     | 17    | 17    | 7     | 24    | 24    | 4     | 21    | 21    |
| g / C, Green / Cycle                    | 0.07  | 0.26  | 0.26  | 0.06  | 0.25  | 0.25  | 0.10  | 0.36  | 0.36  | 0.07  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.04  | 0.04  | 0.02  | 0.05  | 0.05  | 0.07  | 0.33  | 0.30  | 0.03  | 0.14  | 0.02  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1674  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 239   | 500   | 440   | 211   | 923   | 412   | 364   | 1315  | 587   | 237   | 1184  | 529   |
| d1, Uniform Delay [s]                   | 29.23 | 18.44 | 18.49 | 29.44 | 19.09 | 18.97 | 28.15 | 19.62 | 18.76 | 29.24 | 17.09 | 15.01 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.29  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 1.53  | 0.68  | 0.83  | 1.17  | 0.53  | 1.02  | 2.33  | 2.60  | 7.32  | 1.49  | 0.24  | 0.05  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |       |       |        |        |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.49  | 0.16  | 0.17  | 0.39  | 0.21  | 0.19  | 0.69  | 0.90   | 0.82   | 0.48  | 0.42   | 0.06  |
| d, Delay for Lane Group [s/veh]    | 30.76 | 19.12 | 19.32 | 30.61 | 19.61 | 19.98 | 30.48 | 22.22  | 26.09  | 30.72 | 17.33  | 15.06 |
| Lane Group LOS                     | C     | B     | B     | C     | B     | B     | C     | C      | C      | C     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | Yes   | No    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.86  | 0.92  | 0.88  | 0.61  | 1.12  | 0.95  | 1.86  | 7.68   | 6.77   | 0.84  | 2.60   | 0.29  |
| 50th-Percentile Queue Length [ft]  | 21.52 | 23.04 | 22.03 | 15.18 | 27.91 | 23.66 | 46.40 | 191.96 | 169.34 | 20.95 | 65.09  | 7.35  |
| 95th-Percentile Queue Length [veh] | 1.55  | 1.66  | 1.59  | 1.09  | 2.01  | 1.70  | 3.34  | 12.22  | 11.04  | 1.51  | 4.69   | 0.53  |
| 95th-Percentile Queue Length [ft]  | 38.73 | 41.46 | 39.65 | 27.32 | 50.24 | 42.59 | 83.52 | 305.57 | 276.05 | 37.70 | 117.17 | 13.24 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 30.76 | 19.15 | 19.32 | 30.61 | 19.61 | 19.98 | 30.48 | 22.22 | 26.09 | 30.72 | 17.33 | 15.06 |
| Movement LOS                    | C     | B     | B     | C     | B     | B     | C     | C     | C     | C     | B     | B     |
| d_A, Approach Delay [s/veh]     | 24.18 |       |       | 22.22 |       |       | 24.27 |       |       | 19.56 |       |       |
| Approach LOS                    | C     |       |       | C     |       |       | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 23.08 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.511 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 19.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.359 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 14             | 6      | 4      | 8              | 2      | 11     | 38             | 986    | 82     | 20             | 415    | 12     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 14             | 6      | 4      | 8              | 2      | 11     | 38             | 986    | 82     | 20             | 415    | 12     |
| Peak Hour Factor                        | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4              | 2      | 1      | 2              | 1      | 3      | 10             | 259    | 22     | 5              | 109    | 3      |
| Total Analysis Volume [veh/h]           | 15             | 6      | 4      | 8              | 2      | 12     | 40             | 1038   | 86     | 21             | 437    | 13     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 67                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 31    | 31    | 31    | 31    | 29    | 23    | 23    | 29    | 22    | 22    |
| g / C, Green / Cycle                    | 0.46  | 0.46  | 0.46  | 0.46  | 0.43  | 0.34  | 0.34  | 0.43  | 0.33  | 0.33  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.00  | 0.02  | 0.01  | 0.04  | 0.29  | 0.05  | 0.03  | 0.12  | 0.01  |
| s, saturation flow rate [veh/h]         | 647   | 1615  | 611   | 1615  | 1107  | 3618  | 1615  | 717   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 386   | 734   | 374   | 734   | 538   | 1232  | 550   | 317   | 1177  | 526   |
| d1, Uniform Delay [s]                   | 12.51 | 10.00 | 12.54 | 10.05 | 11.64 | 20.48 | 15.42 | 13.76 | 17.37 | 15.40 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.27  | 0.01  | 0.13  | 0.04  | 0.06  | 1.65  | 0.13  | 0.09  | 0.19  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

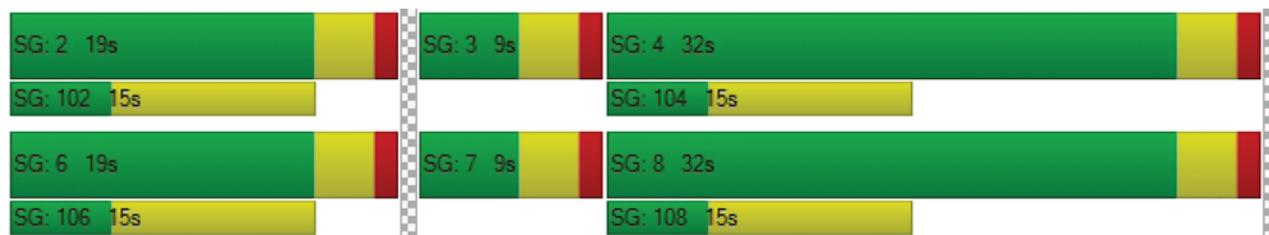
|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.05  | 0.01  | 0.03  | 0.02  | 0.07  | 0.84   | 0.16  | 0.07  | 0.37   | 0.02  |
| d, Delay for Lane Group [s/veh]    | 12.78 | 10.02 | 12.67 | 10.09 | 11.70 | 22.13  | 15.55 | 13.85 | 17.57  | 15.42 |
| Lane Group LOS                     | B     | B     | B     | B     | B     | C      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 0.18  | 0.03  | 0.09  | 0.10  | 0.31  | 6.80   | 0.83  | 0.16  | 2.33   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 4.57  | 0.80  | 2.17  | 2.40  | 7.75  | 169.93 | 20.83 | 4.11  | 58.15  | 3.09  |
| 95th-Percentile Queue Length [veh] | 0.33  | 0.06  | 0.16  | 0.17  | 0.56  | 11.07  | 1.50  | 0.30  | 4.19   | 0.22  |
| 95th-Percentile Queue Length [ft]  | 8.23  | 1.43  | 3.90  | 4.32  | 13.96 | 276.83 | 37.49 | 7.39  | 104.66 | 5.57  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.78 | 12.78 | 10.02 | 12.67 | 12.67 | 10.09 | 11.70 | 22.13 | 15.55 | 13.85 | 17.57 | 15.42 |
| Movement LOS                    | B     | B     | B     | B     | B     | B     | B     | C     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 12.34 |       |       | 11.26 |       |       | 21.29 |       |       | 17.34 |       |       |
| Approach LOS                    | B     |       |       | B     |       |       | C     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 19.92 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.359 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.8   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 4                     | 1      | 20       | 14     | 8            | 14     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 4                     | 1      | 20       | 14     | 8            | 14     |
| Peak Hour Factor                        | 0.9500                | 0.9500 | 0.9500   | 0.9500 | 0.9500       | 0.9500 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 1                     | 0      | 5        | 4      | 2            | 4      |
| Total Analysis Volume [veh/h]           | 4                     | 1      | 21       | 15     | 8            | 15     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.82 | 8.44 | 0.00 | 0.00 | 7.28 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.02 | 0.02 | 0.00 | 0.00 | 0.04 | 0.04 |
| 95th-Percentile Queue Length [ft]  | 0.39 | 0.39 | 0.00 | 0.00 | 1.10 | 1.10 |
| d_A, Approach Delay [s/veh]        | 8.74 |      | 0.00 |      | 2.53 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 1.59 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.003 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration     | ↻                     |        | ↑            |        | ↶         |        |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 3      | 21           | 0      | 18       | 22     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 3      | 21           | 0      | 18       | 22     |
| Peak Hour Factor                        | 0.9500                | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 1      | 6            | 0      | 5        | 6      |
| Total Analysis Volume [veh/h]           | 0                     | 3      | 22           | 0      | 19       | 23     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.40 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.21 | 0.00 | 0.00 | 2.01 | 2.01 |
| d_A, Approach Delay [s/veh]        | 8.40 |      | 0.00 |      | 3.29 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.44 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 22.9  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.643 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 77           | 640    | 57     | 71           | 797    | 111    | 196            | 435    | 338    | 104            | 290    | 87     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 77           | 640    | 57     | 71           | 797    | 111    | 196            | 435    | 338    | 104            | 290    | 87     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 20           | 168    | 15     | 19           | 210    | 29     | 52             | 114    | 89     | 27             | 76     | 23     |
| Total Analysis Volume [veh/h]           | 81           | 674    | 60     | 75           | 839    | 117    | 206            | 458    | 356    | 109            | 305    | 92     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 13       | 22      | 0       | 10       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 4     | 20    | 20    | 4     | 20    | 20    | 8     | 16    | 16    | 5     | 12    | 12    |
| g / C, Green / Cycle                    | 0.06  | 0.33  | 0.33  | 0.06  | 0.33  | 0.33  | 0.14  | 0.26  | 0.26  | 0.08  | 0.20  | 0.20  |
| (v / s)_i Volume / Saturation Flow Rate | 0.04  | 0.19  | 0.04  | 0.04  | 0.23  | 0.07  | 0.11  | 0.13  | 0.22  | 0.06  | 0.08  | 0.06  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 116   | 1201  | 536   | 112   | 1193  | 533   | 257   | 941   | 420   | 146   | 718   | 321   |
| d1, Uniform Delay [s]                   | 27.64 | 16.53 | 13.97 | 27.68 | 17.63 | 14.60 | 25.03 | 18.89 | 21.16 | 27.12 | 21.15 | 20.54 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.21  | 0.11  | 0.21  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 7.34  | 1.90  | 0.42  | 6.75  | 3.49  | 0.95  | 10.33 | 0.39  | 8.94  | 7.44  | 0.40  | 0.49  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |        |       |       |        |       |        |        |        |       |       |       |
|------------------------------------|-------|--------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|
| X, volume / capacity               | 0.70  | 0.56   | 0.11  | 0.67  | 0.70   | 0.22  | 0.80   | 0.49   | 0.85   | 0.75  | 0.42  | 0.29  |
| d, Delay for Lane Group [s/veh]    | 34.98 | 18.43  | 14.39 | 34.43 | 21.12  | 15.55 | 35.36  | 19.28  | 30.10  | 34.56 | 21.55 | 21.02 |
| Lane Group LOS                     | C     | B      | B     | C     | C      | B     | D      | B      | C      | C     | C     | C     |
| Critical Lane Group                | Yes   | No     | No    | No    | Yes    | No    | No     | No     | Yes    | Yes   | No    | No    |
| 50th-Percentile Queue Length [veh] | 1.24  | 3.36   | 0.52  | 1.14  | 4.61   | 1.07  | 3.30   | 2.41   | 5.16   | 1.70  | 1.71  | 1.02  |
| 50th-Percentile Queue Length [ft]  | 31.06 | 83.97  | 13.02 | 28.52 | 115.26 | 26.79 | 82.47  | 60.36  | 128.99 | 42.46 | 42.83 | 25.59 |
| 95th-Percentile Queue Length [veh] | 2.24  | 6.05   | 0.94  | 2.05  | 8.13   | 1.93  | 5.94   | 4.35   | 8.88   | 3.06  | 3.08  | 1.84  |
| 95th-Percentile Queue Length [ft]  | 55.92 | 151.15 | 23.43 | 51.34 | 203.29 | 48.23 | 148.44 | 108.65 | 222.12 | 76.43 | 77.09 | 46.06 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.98 | 18.43 | 14.39 | 34.43 | 21.12 | 15.55 | 35.36 | 19.28 | 30.10 | 34.56 | 21.55 | 21.02 |
| Movement LOS                    | C     | B     | B     | C     | C     | B     | D     | B     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 19.78 |       |       | 21.46 |       |       | 26.31 |       |       | 24.26 |       |       |
| Approach LOS                    | B     |       |       | C     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 22.94 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.643 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 24.3  |
| Analysis Method: | HCM 2010     | Level Of Service:         | C     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.036 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 15           | 777    | 1123         | 23     | 7        | 15     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 15           | 777    | 1123         | 23     | 7        | 15     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4            | 204    | 296          | 6      | 2        | 4      |
| Total Analysis Volume [veh/h]           | 16           | 818    | 1182         | 24     | 7        | 16     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.03  | 0.01 | 0.01 | 0.00 | 0.04  | 0.04  |
| d_M, Delay for Movement [s/veh]    | 11.32 | 0.00 | 0.00 | 0.00 | 24.33 | 13.76 |
| Movement LOS                       | B     | A    | A    | A    | C     | B     |
| 95th-Percentile Queue Length [veh] | 0.08  | 0.00 | 0.00 | 0.00 | 0.23  | 0.23  |
| 95th-Percentile Queue Length [ft]  | 2.10  | 0.00 | 0.00 | 0.00 | 5.70  | 5.70  |
| d_A, Approach Delay [s/veh]        | 0.22  |      | 0.00 |      | 16.98 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.28  |      |      |      |       |       |
| Intersection LOS                   | C     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 105.3 |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.300 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     |              |        |        |              |        |        |                  |        |        |                      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 852    | 30     | 83           | 1023   | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 852    | 30     | 83           | 1023   | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500           | 0.9500 | 0.9500 | 0.9500               | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 224    | 8      | 22           | 269    | 6      | 4                | 0      | 2      | 0                    | 0      | 2      |
| Total Analysis Volume [veh/h]           | 19           | 897    | 32     | 87           | 1077   | 25     | 15               | 0      | 6      | 1                    | 0      | 9      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 1    | 1    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |       |      |      |        |      |       |       |      |       |
|------------------------------------|-------|------|------|-------|------|------|--------|------|-------|-------|------|-------|
| V/C, Movement V/C Ratio            | 0.03  | 0.01 | 0.00 | 0.12  | 0.01 | 0.00 | 0.30   | 0.00 | 0.01  | 0.02  | 0.00 | 0.02  |
| d_M, Delay for Movement [s/veh]    | 10.79 | 0.00 | 0.00 | 10.47 | 0.00 | 0.00 | 105.30 | 0.00 | 12.40 | 67.47 | 0.00 | 11.50 |
| Movement LOS                       | B     | A    | A    | B     | A    | A    | F      |      | B     | F     |      | B     |
| 95th-Percentile Queue Length [veh] | 0.09  | 0.00 | 0.00 | 0.40  | 0.00 | 0.00 | 1.04   | 0.00 | 0.04  | 0.05  | 0.00 | 0.05  |
| 95th-Percentile Queue Length [ft]  | 2.29  | 0.00 | 0.00 | 9.88  | 0.00 | 0.00 | 25.97  | 0.00 | 0.92  | 1.29  | 0.00 | 1.22  |
| d_A, Approach Delay [s/veh]        | 0.22  |      |      | 0.77  |      |      | 78.76  |      |       | 17.09 |      |       |
| Approach LOS                       | A     |      |      | A     |      |      | F      |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh]    | 1.36  |      |      |       |      |      |        |      |       |       |      |       |
| Intersection LOS                   | F     |      |      |       |      |      |        |      |       |       |      |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 5.8   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.715 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound                |        |        | Westbound                |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | ⇐⇐                       |        |        | ⇐⇐                       |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left                     | Thru   | Right  | Left                     | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  | 12.00                    | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 | 100.00                   | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00                    |        |        | 30.00                    |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00                     |        |        | 0.00                     |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes                      |        |        | Yes                      |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 6            | 855    | 187    | 37           | 970    | 14     | 12                       | 6      | 12     | 28                       | 0      | 12     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 6            | 855    | 187    | 37           | 970    | 14     | 12                       | 6      | 12     | 28                       | 0      | 12     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 225    | 49     | 10           | 255    | 4      | 3                        | 2      | 3      | 7                        | 0      | 3      |
| Total Analysis Volume [veh/h]           | 6            | 900    | 197    | 39           | 1021   | 15     | 13                       | 6      | 13     | 29                       | 0      | 13     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 10       | 10      | 0       | 10       | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 41      | 0       | 13       | 45      | 0       | 0       | 21      | 0       | 0       | 21      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | C     | R     | C     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 47   | 38   | 38   | 47   | 42   | 42   | 5     | 5     | 5     | 5     |
| g / C, Green / Cycle                    | 0.78 | 0.63 | 0.63 | 0.78 | 0.70 | 0.70 | 0.09  | 0.09  | 0.09  | 0.09  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.25 | 0.12 | 0.05 | 0.28 | 0.01 | 0.05  | 0.01  | 0.36  | 0.01  |
| s, saturation flow rate [veh/h]         | 643  | 3618 | 1615 | 803  | 3618 | 1615 | 387   | 1615  | 80    | 1615  |
| c, Capacity [veh/h]                     | 606  | 2286 | 1021 | 721  | 2518 | 1124 | 134   | 140   | 127   | 140   |
| d1, Uniform Delay [s]                   | 2.00 | 5.43 | 4.64 | 2.08 | 3.87 | 2.80 | 25.50 | 25.31 | 30.05 | 25.31 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.46  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.03 | 0.51 | 0.42 | 0.03 | 0.49 | 0.02 | 0.48  | 0.29  | 3.80  | 0.29  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |      |       |       |      |       |      |       |       |       |       |
|------------------------------------|------|-------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.01 | 0.39  | 0.19  | 0.05 | 0.41  | 0.01 | 0.14  | 0.09  | 0.23  | 0.09  |
| d, Delay for Lane Group [s/veh]    | 2.03 | 5.94  | 5.06  | 2.11 | 4.36  | 2.83 | 25.98 | 25.60 | 33.85 | 25.60 |
| Lane Group LOS                     | A    | A     | A     | A    | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | Yes  | No    | No    | No   | Yes   | No   | No    | No    | Yes   | No    |
| 50th-Percentile Queue Length [veh] | 0.00 | 1.55  | 0.64  | 0.01 | 1.06  | 0.03 | 0.26  | 0.17  | 0.54  | 0.17  |
| 50th-Percentile Queue Length [ft]  | 0.12 | 38.72 | 15.97 | 0.15 | 26.41 | 0.64 | 6.39  | 4.33  | 13.52 | 4.33  |
| 95th-Percentile Queue Length [veh] | 0.01 | 2.79  | 1.15  | 0.01 | 1.90  | 0.05 | 0.46  | 0.31  | 0.97  | 0.31  |
| 95th-Percentile Queue Length [ft]  | 0.22 | 69.70 | 28.75 | 0.28 | 47.55 | 1.15 | 11.49 | 7.80  | 24.33 | 7.80  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |      |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 2.03  | 5.94 | 5.06 | 2.11 | 4.36 | 2.83 | 25.98 | 25.98 | 25.60 | 33.85 | 33.85 | 25.60 |
| Movement LOS                    | A     | A    | A    | A    | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 5.76  |      |      | 4.25 |      |      | 25.82 |       |       | 31.30 |       |       |
| Approach LOS                    | A     |      |      | A    |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 5.80  |      |      |      |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |      |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.715 |      |      |      |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 20.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.720 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇌⇌⇌          |        |        | ⇌⇌⇌          |        |        | +              |        |        | ⇌⇌⇌            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 27           | 749    | 404    | 343          | 746    | 5      | 5              | 3      | 3      | 82             | 1      | 285    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 27           | 749    | 404    | 343          | 746    | 5      | 5              | 3      | 3      | 82             | 1      | 285    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 7            | 197    | 106    | 90           | 196    | 1      | 1              | 1      | 1      | 22             | 0      | 75     |
| Total Analysis Volume [veh/h]           | 28           | 788    | 425    | 361          | 785    | 5      | 5              | 3      | 3      | 86             | 1      | 300    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 22       | 32      | 0       | 0       | 19      | 0       | 0       | 19      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C    | C    | C     | L     | C     | R     |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 2     | 21    | 21    | 14    | 33   | 33   | 13    | 13    | 13    | 13    |
| g / C, Green / Cycle                    | 0.03  | 0.35  | 0.35  | 0.23  | 0.55 | 0.55 | 0.22  | 0.22  | 0.22  | 0.22  |
| (v / s)_i Volume / Saturation Flow Rate | 0.02  | 0.22  | 0.26  | 0.20  | 0.14 | 0.14 | 0.01  | 0.02  | 0.04  | 0.19  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618 | 1894 | 1445  | 1432  | 1305  | 1615  |
| c, Capacity [veh/h]                     | 60    | 1264  | 564   | 421   | 1986 | 1040 | 402   | 307   | 403   | 352   |
| d1, Uniform Delay [s]                   | 28.56 | 16.27 | 17.27 | 22.12 | 7.14 | 7.14 | 18.52 | 23.27 | 19.29 | 22.58 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.19  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.23  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.49  | 2.32  | 8.99  | 8.44  | 0.32 | 0.61 | 0.03  | 0.16  | 0.14  | 11.54 |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

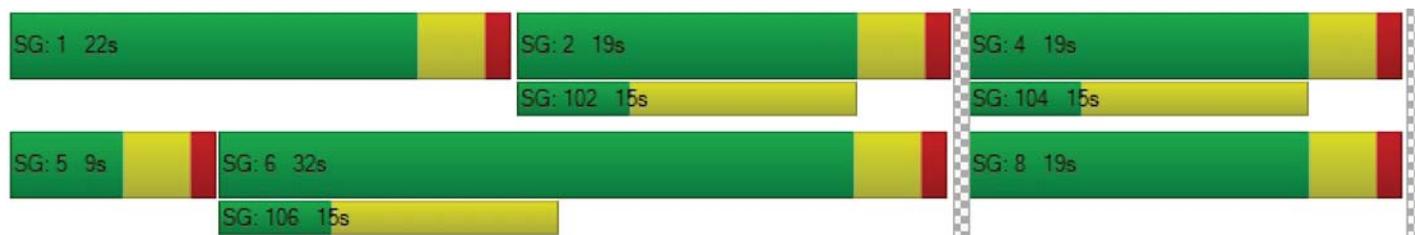
|                                    |       |        |        |        |       |       |       |       |       |        |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity               | 0.47  | 0.62   | 0.75   | 0.86   | 0.26  | 0.26  | 0.03  | 0.11  | 0.13  | 0.85   |
| d, Delay for Lane Group [s/veh]    | 34.05 | 18.60  | 26.26  | 30.56  | 7.46  | 7.75  | 18.55 | 23.43 | 19.43 | 34.12  |
| Lane Group LOS                     | C     | B      | C      | C      | A     | A     | B     | C     | B     | C      |
| Critical Lane Group                | No    | No     | Yes    | Yes    | No    | No    | No    | No    | No    | Yes    |
| 50th-Percentile Queue Length [veh] | 0.44  | 3.95   | 5.47   | 5.06   | 1.21  | 1.35  | 0.12  | 0.43  | 0.58  | 4.88   |
| 50th-Percentile Queue Length [ft]  | 11.08 | 98.84  | 136.74 | 126.45 | 30.24 | 33.77 | 2.89  | 10.64 | 14.40 | 121.99 |
| 95th-Percentile Queue Length [veh] | 0.80  | 7.12   | 9.31   | 8.75   | 2.18  | 2.43  | 0.21  | 0.77  | 1.04  | 8.50   |
| 95th-Percentile Queue Length [ft]  | 19.95 | 177.91 | 232.63 | 218.66 | 54.44 | 60.78 | 5.21  | 19.16 | 25.93 | 212.56 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 34.05 | 18.60 | 26.26 | 30.56 | 7.56 | 7.75 | 18.55 | 18.55 | 18.55 | 23.43 | 19.43 | 34.12 |
| Movement LOS                    | C     | B     | C     | C     | A    | A    | B     | B     | B     | C     | B     | C     |
| d_A, Approach Delay [s/veh]     | 21.57 |       |       | 14.77 |      |      | 18.55 |       |       | 31.18 |       |       |
| Approach LOS                    | C     |       |       | B     |      |      | B     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 20.09 |       |       |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.720 |       |       |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 5.4   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.432 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | +r               |        |        | +r                   |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 18           | 852    | 30     | 83           | 1023   | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 18           | 852    | 30     | 83           | 1023   | 24     | 14               | 0      | 6      | 1                    | 0      | 9      |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500           | 0.9500 | 0.9500 | 0.9500               | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 5            | 224    | 8      | 22           | 269    | 6      | 4                | 0      | 2      | 0                    | 0      | 2      |
| Total Analysis Volume [veh/h]           | 19           | 897    | 32     | 87           | 1077   | 25     | 15               | 0      | 6      | 1                    | 0      | 9      |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 15      | 0       | 23       | 29      | 0       | 0       | 22      | 0       | 0       | 22      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | C     | R     | C     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 1     | 43   | 43   | 4     | 45   | 45   | 2     | 2     | 2     | 2     |
| g / C, Green / Cycle                    | 0.02  | 0.71 | 0.71 | 0.06  | 0.75 | 0.75 | 0.03  | 0.03  | 0.03  | 0.03  |
| (v / s)_i Volume / Saturation Flow Rate | 0.01  | 0.25 | 0.02 | 0.05  | 0.30 | 0.02 | 0.08  | 0.00  | 0.01  | 0.01  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 187   | 1615  | 168   | 1615  |
| c, Capacity [veh/h]                     | 45    | 2561 | 1143 | 119   | 2710 | 1210 | 125   | 43    | 124   | 43    |
| d1, Uniform Delay [s]                   | 28.91 | 3.41 | 2.62 | 27.57 | 2.70 | 1.93 | 30.05 | 28.60 | 29.91 | 28.65 |
| k, delay calibration                    | 0.11  | 0.50 | 0.50 | 0.11  | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.23  | 0.38 | 0.05 | 8.24  | 0.44 | 0.03 | 0.43  | 1.44  | 0.03  | 2.35  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

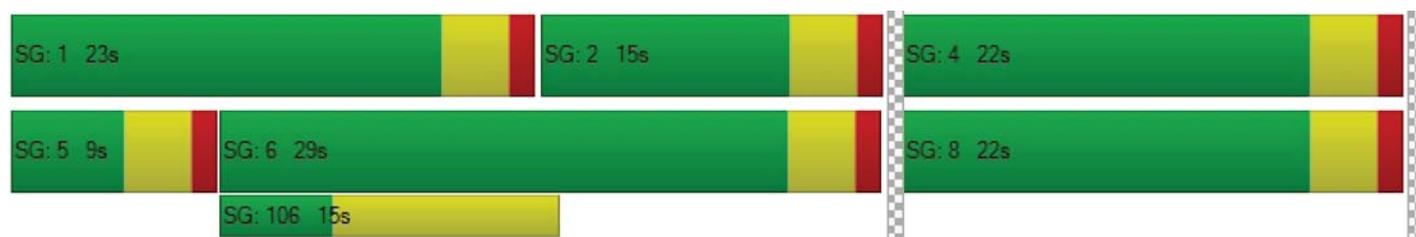
|                                    |       |       |      |       |       |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.42  | 0.35  | 0.03 | 0.73  | 0.40  | 0.02 | 0.12  | 0.14  | 0.01  | 0.21  |
| d, Delay for Lane Group [s/veh]    | 35.14 | 3.79  | 2.66 | 35.82 | 3.14  | 1.96 | 30.47 | 30.04 | 29.94 | 31.00 |
| Lane Group LOS                     | D     | A     | A    | D     | A     | A    | C     | C     | C     | C     |
| Critical Lane Group                | Yes   | No    | No   | No    | Yes   | No   | Yes   | No    | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.32  | 0.76  | 0.05 | 1.35  | 0.45  | 0.02 | 0.22  | 0.10  | 0.01  | 0.15  |
| 50th-Percentile Queue Length [ft]  | 7.94  | 19.06 | 1.22 | 33.82 | 11.13 | 0.50 | 5.59  | 2.45  | 0.37  | 3.73  |
| 95th-Percentile Queue Length [veh] | 0.57  | 1.37  | 0.09 | 2.43  | 0.80  | 0.04 | 0.40  | 0.18  | 0.03  | 0.27  |
| 95th-Percentile Queue Length [ft]  | 14.29 | 34.31 | 2.19 | 60.87 | 20.03 | 0.89 | 10.05 | 4.41  | 0.66  | 6.72  |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 35.14 | 3.79 | 2.66 | 35.82 | 3.14 | 1.96 | 30.47 | 30.47 | 30.04 | 29.94 | 29.94 | 31.00 |
| Movement LOS                    | D     | A    | A    | D     | A    | A    | C     | C     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 4.38  |      |      | 5.50  |      |      | 30.35 |       |       | 30.89 |       |       |
| Approach LOS                    | A     |      |      | A     |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 5.37  |      |      |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 0.432 |      |      |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 1: E Street (NS) at Orange Show Road (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 32.2  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.811 |

**Intersection Setup**

| Name                   | E Street   |        |        | E Street   |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|------------|--------|--------|------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound |        |        | Southbound |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | זורר       |        |        | זורר       |        |        | זורר           |        |        | זורר           |        |        |
| Turning Movement       | Left       | Thru   | Right  | Left       | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00      | 12.00  | 12.00  | 12.00      | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 2          | 0      | 0      | 2          | 0      | 1      | 2              | 0      | 1      | 2              | 0      | 1      |
| Pocket Length [ft]     | 300.00     | 100.00 | 100.00 | 189.00     | 100.00 | 134.00 | 217.00         | 100.00 | 147.00 | 165.00         | 100.00 | 103.00 |
| Speed [mph]            | 40.00      |        |        | 40.00      |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00       |        |        | 0.00       |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes        |        |        | Yes        |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | E Street |        |        | E Street |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------|--------|--------|----------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 533      | 318    | 152    | 181      | 194    | 316    | 128            | 1031   | 338    | 197            | 1092   | 54     |
| Base Volume Adjustment Factor           | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00     | 0.00   | 0.00   | 0.00     | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00     | 1.00   | 1.00   | 1.00     | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 533      | 318    | 152    | 181      | 194    | 316    | 128            | 1031   | 338    | 197            | 1092   | 54     |
| Peak Hour Factor                        | 0.9500   | 0.9500 | 0.9500 | 0.9500   | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000   | 1.0000 | 1.0000 | 1.0000   | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 140      | 84     | 40     | 48       | 51     | 83     | 34             | 271    | 89     | 52             | 287    | 14     |
| Total Analysis Volume [veh/h]           | 561      | 335    | 160    | 191      | 204    | 333    | 135            | 1085   | 356    | 207            | 1149   | 57     |
| Presence of On-Street Parking           | No       |        | No     | No       |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0        | 0      | 0      | 0        | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0        |        |        | 0        |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 75                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag                   | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 17       | 24      | 0       | 13       | 20      | 0       | 10       | 29      | 0       | 9        | 28      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | C     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 13    | 23    | 23    | 6     | 16    | 16    | 5     | 25    | 25    | 5     | 25    | 25    |
| g / C, Green / Cycle                    | 0.17  | 0.31  | 0.31  | 0.08  | 0.21  | 0.21  | 0.06  | 0.33  | 0.33  | 0.07  | 0.34  | 0.34  |
| (v / s)_i Volume / Saturation Flow Rate | 0.16  | 0.14  | 0.14  | 0.05  | 0.06  | 0.21  | 0.04  | 0.30  | 0.22  | 0.06  | 0.32  | 0.04  |
| s, saturation flow rate [veh/h]         | 3514  | 1900  | 1695  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  | 3514  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 609   | 588   | 524   | 282   | 782   | 349   | 221   | 1196  | 534   | 235   | 1210  | 540   |
| d1, Uniform Delay [s]                   | 30.50 | 20.75 | 20.75 | 33.57 | 24.43 | 29.04 | 34.26 | 24.02 | 21.57 | 34.72 | 24.35 | 17.23 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.11  | 0.11  | 0.20  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 6.31  | 2.43  | 2.73  | 2.86  | 0.81  | 37.87 | 2.73  | 2.98  | 2.61  | 10.35 | 4.98  | 0.08  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

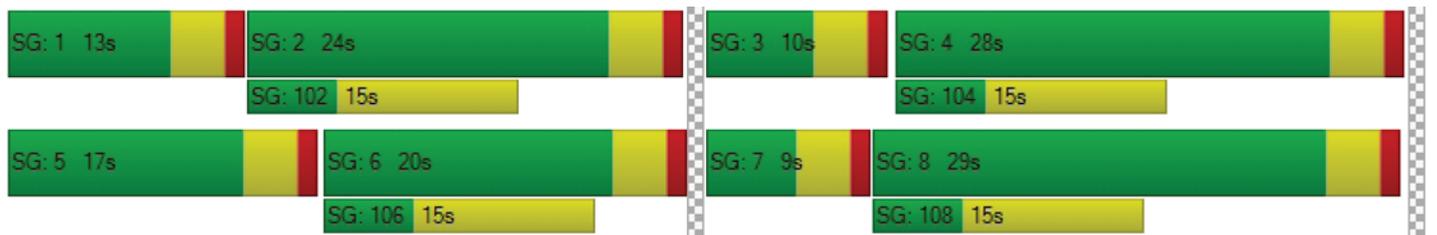
|                                    |        |        |        |       |       |        |       |        |        |       |        |       |
|------------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity               | 0.92   | 0.44   | 0.45   | 0.68  | 0.26  | 0.95   | 0.61  | 0.91   | 0.67   | 0.88  | 0.95   | 0.11  |
| d, Delay for Lane Group [s/veh]    | 36.81  | 23.18  | 23.48  | 36.42 | 25.24 | 66.91  | 36.99 | 27.00  | 24.18  | 45.06 | 29.33  | 17.31 |
| Lane Group LOS                     | D      | C      | C      | D     | C     | E      | D     | C      | C      | D     | C      | B     |
| Critical Lane Group                | Yes    | No     | No     | No    | No    | Yes    | No    | Yes    | No     | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 5.17   | 3.76   | 3.40   | 1.71  | 1.50  | 9.13   | 1.22  | 8.70   | 5.22   | 2.11  | 9.68   | 0.63  |
| 50th-Percentile Queue Length [ft]  | 129.23 | 93.89  | 84.91  | 42.77 | 37.39 | 228.34 | 30.51 | 217.49 | 130.56 | 52.72 | 242.02 | 15.84 |
| 95th-Percentile Queue Length [veh] | 8.90   | 6.76   | 6.11   | 3.08  | 2.69  | 14.09  | 2.20  | 13.54  | 8.97   | 3.80  | 14.78  | 1.14  |
| 95th-Percentile Queue Length [ft]  | 222.44 | 169.01 | 152.83 | 76.98 | 67.30 | 352.25 | 54.91 | 338.42 | 224.26 | 94.90 | 369.59 | 28.51 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 36.81 | 23.25 | 23.48 | 36.42 | 25.24 | 66.91 | 36.99 | 27.00 | 24.18 | 45.06 | 29.33 | 17.31 |
| Movement LOS                    | D     | C     | C     | D     | C     | E     | D     | C     | C     | D     | C     | B     |
| d_A, Approach Delay [s/veh]     | 30.49 |       |       | 47.24 |       |       | 27.22 |       |       | 31.15 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 32.16 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.811 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 2: Washington Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 17.1  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.643 |

**Intersection Setup**

| Name                   | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound     |        |        | Southbound     |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration | ←\|→ |  |  | ←\|→ |  |  | ←\|→\|← |  |  | ←\|→\|← |  |  |
| Turning Movement       | Left           | Thru   | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft]        | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0              | 0      | 0      | 0              | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 157.00         | 100.00 | 100.00 | 166.00         | 100.00 | 100.00 |
| Speed [mph]            | 30.00          |        |        | 30.00          |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes            |        |        | Yes            |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Washington Ave |        |        | Washington Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 52             | 23     | 19     | 5              | 1      | 15     | 32             | 1246   | 30     | 14             | 1194   | 17     |
| Base Volume Adjustment Factor           | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 52             | 23     | 19     | 5              | 1      | 15     | 32             | 1246   | 30     | 14             | 1194   | 17     |
| Peak Hour Factor                        | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 14             | 6      | 5      | 1              | 0      | 4      | 8              | 328    | 8      | 4              | 314    | 4      |
| Total Analysis Volume [veh/h]           | 55             | 24     | 20     | 5              | 1      | 16     | 34             | 1312   | 32     | 15             | 1257   | 18     |
| Presence of On-Street Parking           | No             |        | No | No |  | No | No |  | No | No |  | No |
| On-Street Parking Maneuver Rate [/h]    | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0              |        |        | 0              |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 0       | 2       | 0       | 0       | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |         |         |         |         |         |         |          |         |         |          |         |         |
| Lead / Lag                   | -       | -       | -       | -       | -       | -       | Lead     | -       | -       | Lead     | -       | -       |
| Minimum Green [s]            | 0       | 5       | 0       | 0       | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 0       | 30      | 0       | 0       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 0       | 19      | 0       | 0       | 19      | 0       | 9        | 32      | 0       | 9        | 32      | 0       |
| Vehicle Extension [s]        | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0       | 5       | 0       | 0       | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0       | 10      | 0       | 0       | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Maximum Recall               |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Pedestrian Recall            |         | No      |         |         | No      |         | No       | No      |         | No       | No      |         |
| Detector Location [ft]       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | C     | R     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 2.00  | 0.00  | 2.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  | 0.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 21    | 21    | 21    | 21    | 31    | 26    | 26    | 31    | 25    | 25    |
| g / C, Green / Cycle                    | 0.35  | 0.35  | 0.35  | 0.35  | 0.51  | 0.43  | 0.43  | 0.51  | 0.41  | 0.41  |
| (v / s)_i Volume / Saturation Flow Rate | 0.21  | 0.01  | 0.02  | 0.01  | 0.05  | 0.36  | 0.02  | 0.03  | 0.35  | 0.01  |
| s, saturation flow rate [veh/h]         | 373   | 1615  | 255   | 1615  | 638   | 3618  | 1615  | 570   | 3618  | 1615  |
| c, Capacity [veh/h]                     | 233   | 569   | 199   | 569   | 362   | 1548  | 691   | 329   | 1484  | 662   |
| d1, Uniform Delay [s]                   | 20.91 | 12.78 | 15.26 | 12.75 | 10.68 | 15.46 | 10.05 | 10.71 | 16.04 | 10.59 |
| k, delay calibration                    | 0.50  | 0.50  | 0.50  | 0.50  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 3.92  | 0.12  | 0.28  | 0.09  | 0.11  | 1.37  | 0.03  | 0.06  | 1.43  | 0.02  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |       |       |       |        |       |       |        |       |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity               | 0.34  | 0.04  | 0.03  | 0.03  | 0.09  | 0.85   | 0.05  | 0.05  | 0.85   | 0.03  |
| d, Delay for Lane Group [s/veh]    | 24.82 | 12.90 | 15.54 | 12.84 | 10.79 | 16.83  | 10.08 | 10.77 | 17.47  | 10.60 |
| Lane Group LOS                     | C     | B     | B     | B     | B     | B      | B     | B     | B      | B     |
| Critical Lane Group                | Yes   | No    | No    | No    | No    | Yes    | No    | Yes   | No     | No    |
| 50th-Percentile Queue Length [veh] | 1.28  | 0.18  | 0.06  | 0.14  | 0.18  | 6.69   | 0.21  | 0.08  | 6.56   | 0.12  |
| 50th-Percentile Queue Length [ft]  | 32.12 | 4.46  | 1.58  | 3.56  | 4.41  | 167.13 | 5.20  | 1.93  | 163.94 | 3.03  |
| 95th-Percentile Queue Length [veh] | 2.31  | 0.32  | 0.11  | 0.26  | 0.32  | 10.93  | 0.37  | 0.14  | 10.76  | 0.22  |
| 95th-Percentile Queue Length [ft]  | 57.81 | 8.04  | 2.84  | 6.41  | 7.94  | 273.14 | 9.36  | 3.48  | 268.93 | 5.46  |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 24.82 | 24.82 | 12.90 | 15.54 | 15.54 | 12.84 | 10.79 | 16.83 | 10.08 | 10.77 | 17.47 | 10.60 |
| Movement LOS                    | C     | C     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     |
| d_A, Approach Delay [s/veh]     | 22.41 |       |       | 13.58 |       |       | 16.52 |       |       | 17.29 |       |       |
| Approach LOS                    | C     |       |       | B     |       |       | B     |       |       | B     |       |       |
| d_I, Intersection Delay [s/veh] | 17.06 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | B     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.643 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 3: Project West Driveway (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.9   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name                   | Project West Driveway |        | Dumas St  |        | Dumas Street |        |
|------------------------|-----------------------|--------|-----------|--------|--------------|--------|
| Approach               | Northbound            |        | Eastbound |        | Westbound    |        |
| Lane Configuration     |                       |        |           |        |              |        |
| Turning Movement       | Left                  | Right  | Thru      | Right  | Left         | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00     | 12.00  | 12.00        | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0         | 0      | 0            | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00    | 100.00 | 100.00       | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00     |        | 30.00        |        |
| Grade [%]              | 0.00                  |        | 0.00      |        | 0.00         |        |
| Crosswalk              | No                    |        | No        |        | No           |        |

**volumes**

| Name                                    | Project West Driveway |        | Dumas St |        | Dumas Street |        |
|---|-----------------------|--------|----------|--------|--------------|--------|
| Base Volume Input [veh/h]               | 14                    | 4      | 20       | 4      | 4            | 30     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00     | 0.00   | 0.00         | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00     | 1.00   | 1.00         | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0        | 0      | 0            | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0        | 0      | 0            | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0        | 0      | 0            | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0        | 0      | 0            | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0        | 0      | 0            | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0        | 0      | 0            | 0      |
| Total Hourly Volume [veh/h]             | 14                    | 4      | 20       | 4      | 4            | 30     |
| Peak Hour Factor                        | 0.9500                | 0.9500 | 0.9500   | 0.9500 | 0.9500       | 0.9500 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000   | 1.0000 | 1.0000       | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 4                     | 1      | 5        | 1      | 1            | 8      |
| Total Analysis Volume [veh/h]           | 15                    | 4      | 21       | 4      | 4            | 32     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0        |        | 0            |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        | No   |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 8.88 | 8.47 | 0.00 | 0.00 | 7.25 | 0.00 |
| Movement LOS                       | A    | A    | A    | A    | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.06 | 0.06 | 0.00 | 0.00 | 0.07 | 0.07 |
| 95th-Percentile Queue Length [ft]  | 1.50 | 1.50 | 0.00 | 0.00 | 1.72 | 1.72 |
| d_A, Approach Delay [s/veh]        | 8.80 |      | 0.00 |      | 0.81 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 2.45 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**

**Intersection 4: Project East DriveWay (NS) at Dumas Street (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 8.4   |
| Analysis Method: | HCM 2010     | Level Of Service:         | A     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.007 |

**Intersection Setup**

| Name                   | Project East DriveWay |        | Dumas Street |        | Dumas St  |        |
|------------------------|-----------------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound            |        | Eastbound    |        | Westbound |        |
| Lane Configuration | ↻ |  | \| |  | ↻ |  |
| Turning Movement       | Left                  | Right  | Thru         | Right  | Left      | Thru   |
| Lane Width [ft]        | 12.00                 | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 0                     | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 100.00                | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 30.00                 |        | 30.00        |        | 30.00     |        |
| Grade [%]              | 0.00                  |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No                    |        | No           |        | No        |        |

**volumes**

| Name                                    | Project East DriveWay |        | Dumas Street |        | Dumas St |        |
|---|-----------------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 0                     | 7      | 24           | 0      | 9        | 34     |
| Base Volume Adjustment Factor           | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00                  | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00                  | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0                     | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0                     | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0                     | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0                     | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0                     | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0                     | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 0                     | 7      | 24           | 0      | 9        | 34     |
| Peak Hour Factor                        | 0.9500                | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000                | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 0                     | 2      | 6            | 0      | 2        | 9      |
| Total Analysis Volume [veh/h]           | 0                     | 7      | 25           | 0      | 9        | 36     |
| Pedestrian Volume [ped/h]               | 0                     |        | 0            |        | 0        |        |

**Intersection Settings**

| Priority Scheme                    | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane                        |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           | No   |      |      |
| Number of Storage Spaces in Median | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio            | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh]    | 0.00 | 8.43 | 0.00 | 0.00 | 7.26 | 0.00 |
| Movement LOS                       |      | A    | A    |      | A    | A    |
| 95th-Percentile Queue Length [veh] | 0.00 | 0.02 | 0.00 | 0.00 | 0.09 | 0.09 |
| 95th-Percentile Queue Length [ft]  | 0.00 | 0.50 | 0.00 | 0.00 | 2.17 | 2.17 |
| d_A, Approach Delay [s/veh]        | 8.43 |      | 0.00 |      | 1.45 |      |
| Approach LOS                       | A    |      | A    |      | A    |      |
| d_I, Intersection Delay [s/veh]    | 1.61 |      |      |      |      |      |
| Intersection LOS                   | A    |      |      |      |      |      |

**Intersection Level Of Service Report**  
**Intersection 5: Waterman Ave (NS) at Orange Show Rd (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 38.0  |
| Analysis Method: | HCM 2010   | Level Of Service:         | D     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.832 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | [Diagram]    |        |        | [Diagram]    |        |        | [Diagram]      |        |        | [Diagram]      |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0      | 1            | 0      | 0      | 1              | 0      | 0      | 1              | 0      | 0      |
| Pocket Length [ft]     | 298.00       | 100.00 | 100.00 | 275.00       | 100.00 | 100.00 | 248.00         | 100.00 | 100.00 | 258.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 40.00          |        |        | 40.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | Yes          |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Orange Show Rd |        |        | Orange Show Rd |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 280          | 804    | 136    | 115          | 861    | 128    | 170            | 799    | 249    | 168            | 811    | 106    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 280          | 804    | 136    | 115          | 861    | 128    | 170            | 799    | 249    | 168            | 811    | 106    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 74           | 212    | 36     | 30           | 227    | 34     | 45             | 210    | 66     | 44             | 213    | 28     |
| Total Analysis Volume [veh/h]           | 295          | 846    | 143    | 121          | 906    | 135    | 179            | 841    | 262    | 177            | 854    | 112    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 80                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 8.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3        | 8       | 0       | 7        | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |          |         |         |          |         |         |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead     | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       | 5        | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       | 30       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     |
| Split [s]                    | 18       | 30      | 0       | 13       | 25      | 0       | 13       | 24      | 0       | 13       | 24      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       | 0        | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       | 0        | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     |
| Minimum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Maximum Recall               | No       | No |  | No | No |  | No | No |  | No | No |
| Pedestrian Recall | No | No |  | No | No |  | No | No |  | No       | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | R     | L     | C     | R     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 14    | 28    | 28    | 7     | 21    | 21    | 9     | 20    | 20    | 9     | 20    | 20    |
| g / C, Green / Cycle                    | 0.18  | 0.35  | 0.35  | 0.08  | 0.26  | 0.26  | 0.11  | 0.25  | 0.25  | 0.11  | 0.25  | 0.25  |
| (v / s)_i Volume / Saturation Flow Rate | 0.16  | 0.23  | 0.09  | 0.07  | 0.25  | 0.08  | 0.10  | 0.23  | 0.16  | 0.10  | 0.24  | 0.07  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  | 1810  | 3618  | 1615  |
| c, Capacity [veh/h]                     | 317   | 1281  | 572   | 154   | 956   | 427   | 204   | 898   | 401   | 204   | 898   | 401   |
| d1, Uniform Delay [s]                   | 32.54 | 21.78 | 18.31 | 35.89 | 28.90 | 23.64 | 34.97 | 29.46 | 26.99 | 34.93 | 29.60 | 24.30 |
| k, delay calibration                    | 0.36  | 0.50  | 0.50  | 0.11  | 0.50  | 0.50  | 0.28  | 0.11  | 0.18  | 0.27  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 28.50 | 2.68  | 1.05  | 8.52  | 18.94 | 1.94  | 24.68 | 5.38  | 2.98  | 23.05 | 6.50  | 0.38  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |        |        |       |        |        |       |        |        |        |        |        |       |
|------------------------------------|--------|--------|-------|--------|--------|-------|--------|--------|--------|--------|--------|-------|
| X, volume / capacity               | 0.93   | 0.66   | 0.25  | 0.79   | 0.95   | 0.32  | 0.88   | 0.94   | 0.65   | 0.87   | 0.95   | 0.28  |
| d, Delay for Lane Group [s/veh]    | 61.04  | 24.47  | 19.36 | 44.41  | 47.84  | 25.58 | 59.65  | 34.85  | 29.97  | 57.98  | 36.10  | 24.68 |
| Lane Group LOS                     | E      | C      | B     | D      | D      | C     | E      | C      | C      | E      | D      | C     |
| Critical Lane Group                | Yes    | No     | No    | No     | Yes    | No    | Yes    | No     | No     | No     | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 7.63   | 6.32   | 1.83  | 2.51   | 10.12  | 2.08  | 4.65   | 7.99   | 4.51   | 4.52   | 8.27   | 1.65  |
| 50th-Percentile Queue Length [ft]  | 190.84 | 157.93 | 45.64 | 62.74  | 252.90 | 52.07 | 116.31 | 199.67 | 112.69 | 112.99 | 206.86 | 41.22 |
| 95th-Percentile Queue Length [veh] | 12.16  | 10.44  | 3.29  | 4.52   | 15.33  | 3.75  | 8.19   | 12.62  | 7.99   | 8.01   | 12.99  | 2.97  |
| 95th-Percentile Queue Length [ft]  | 304.12 | 260.98 | 82.15 | 112.94 | 383.30 | 93.73 | 204.74 | 315.54 | 199.74 | 200.15 | 324.79 | 74.20 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 61.04 | 24.47 | 19.36 | 44.41 | 47.84 | 25.58 | 59.65 | 34.85 | 29.97 | 57.98 | 36.10 | 24.68 |
| Movement LOS                    | E     | C     | B     | D     | D     | C     | E     | C     | C     | E     | D     | C     |
| d_A, Approach Delay [s/veh]     | 32.30 |       |       | 44.89 |       |       | 37.31 |       |       | 38.37 |       |       |
| Approach LOS                    | C     |       |       | D     |       |       | D     |       |       | D     |       |       |
| d_I, Intersection Delay [s/veh] | 38.05 |       |       |       |       |       |       |       |       |       |       |       |
| Intersection LOS                | D     |       |       |       |       |       |       |       |       |       |       |       |
| Intersection V/C                | 0.832 |       |       |       |       |       |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 6: Waterman Ave (NS) at Dumas St (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 29.1  |
| Analysis Method: | HCM 2010     | Level Of Service:         | D     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.056 |

**Intersection Setup**

| Name                   | Waterman Ave |        | Waterman Ave |        | Dumas St  |        |
|------------------------|--------------|--------|--------------|--------|-----------|--------|
| Approach               | Northbound   |        | Southbound   |        | Eastbound |        |
| Lane Configuration | \|\|\| |  | \|\|\| |  | T         |        |
| Turning Movement       | Left         | Thru   | Thru         | Right  | Left      | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00        | 12.00  | 12.00     | 12.00  |
| No. of Lanes in Pocket | 1            | 0      | 0            | 0      | 0         | 0      |
| Pocket Length [ft]     | 111.00       | 100.00 | 100.00       | 100.00 | 100.00    | 100.00 |
| Speed [mph]            | 50.00        |        | 50.00        |        | 30.00     |        |
| Grade [%]              | 0.00         |        | 0.00         |        | 0.00      |        |
| Crosswalk              | No           |        | No           |        | No        |        |

**volumes**

| Name                                    | Waterman Ave |        | Waterman Ave |        | Dumas St |        |
|---|--------------|--------|--------------|--------|----------|--------|
| Base Volume Input [veh/h]               | 11           | 1229   | 1378         | 21     | 9        | 24     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00         | 0.00   | 0.00     | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00         | 1.00   | 1.00     | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0            | 0      | 0        | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0            | 0      | 0        | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0            | 0      | 0        | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0            | 0      | 0        | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0            | 0      | 0        | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0            | 0      | 0        | 0      |
| Total Hourly Volume [veh/h]             | 11           | 1229   | 1378         | 21     | 9        | 24     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500       | 0.9500 | 0.9500   | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000       | 1.0000 | 1.0000   | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 3            | 323    | 363          | 6      | 2        | 6      |
| Total Analysis Volume [veh/h]           | 12           | 1294   | 1451         | 22     | 9        | 25     |
| Pedestrian Volume [ped/h]               | 0            |        | 0            |        | 0        |        |

**Intersection Settings**

|                                    |      |      |      |
|------------------------------------|------|------|------|
| Priority Scheme                    | Free | Free | Stop |
| Flared Lane                        |      |      | No   |
| Storage Area [veh]                 | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | Yes  |
| Number of Storage Spaces in Median | 0    | 0    | 2    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |      |       |       |
|------------------------------------|-------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio            | 0.03  | 0.01 | 0.01 | 0.00 | 0.06  | 0.07  |
| d_M, Delay for Movement [s/veh]    | 12.97 | 0.00 | 0.00 | 0.00 | 29.15 | 16.50 |
| Movement LOS                       | B     | A    | A    | A    | D     | C     |
| 95th-Percentile Queue Length [veh] | 0.08  | 0.00 | 0.00 | 0.00 | 0.42  | 0.42  |
| 95th-Percentile Queue Length [ft]  | 1.99  | 0.00 | 0.00 | 0.00 | 10.38 | 10.38 |
| d_A, Approach Delay [s/veh]        | 0.12  |      | 0.00 |      | 19.85 |       |
| Approach LOS                       | A     |      | A    |      | C     |       |
| d_I, Intersection Delay [s/veh]    | 0.30  |      |      |      |       |       |
| Intersection LOS                   | D     |      |      |      |       |       |

**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |              |                           |       |
|------------------|--------------|---------------------------|-------|
| Control Type:    | Two-way stop | Delay (sec / veh):        | 589.1 |
| Analysis Method: | HCM 2010     | Level Of Service:         | F     |
| Analysis Period: | 15 minutes   | Volume to Capacity (v/c): | 0.000 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration | \|\|\| |  |  | \|\|\| |  |  | \| \| |  |  | \| \| |  |  |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 965    | 2      | 10           | 1452   | 11     | 38               | 0      | 18     | 10                   | 0      | 70     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 965    | 2      | 10           | 1452   | 11     | 38               | 0      | 18     | 10                   | 0      | 70     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500           | 0.9500 | 0.9500 | 0.9500               | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 254    | 1      | 3            | 382    | 3      | 10               | 0      | 5      | 3                    | 0      | 18     |
| Total Analysis Volume [veh/h]           | 8            | 1016   | 2      | 11           | 1528   | 12     | 40               | 0      | 19     | 11                   | 0      | 74     |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                                    |      |      |      |      |
|------------------------------------|------|------|------|------|
| Priority Scheme                    | Free | Free | Stop | Stop |
| Flared Lane                        |      |      |      |      |
| Storage Area [veh]                 | 0    | 0    | 0    | 0    |
| Two-Stage Gap Acceptance           |      |      | No   | No   |
| Number of Storage Spaces in Median | 0    | 0    | 0    | 0    |

**Movement, Approach, & Intersection Results**

|                                    |       |      |      |       |      |      |        |        |       |        |        |       |
|------------------------------------|-------|------|------|-------|------|------|--------|--------|-------|--------|--------|-------|
| V/C, Movement V/C Ratio            | 0.02  | 0.01 | 0.00 | 0.02  | 0.02 | 0.00 | 1.51   | 0.00   | 0.05  | 0.24   | 0.00   | 0.14  |
| d_M, Delay for Movement [s/veh]    | 13.39 | 0.00 | 0.00 | 10.31 | 0.00 | 0.00 | 580.25 | 589.09 | 15.85 | 107.12 | 175.23 | 13.15 |
| Movement LOS                       | B     | A    | A    | B     | A    | A    | F      | F      | C     | F      | F      | B     |
| 95th-Percentile Queue Length [veh] | 0.06  | 0.00 | 0.00 | 0.05  | 0.00 | 0.00 | 4.81   | 4.81   | 0.17  | 0.80   | 0.80   | 0.50  |
| 95th-Percentile Queue Length [ft]  | 1.40  | 0.00 | 0.00 | 1.22  | 0.00 | 0.00 | 120.20 | 120.20 | 4.28  | 20.06  | 20.06  | 12.46 |
| d_A, Approach Delay [s/veh]        | 0.10  |      |      | 0.07  |      |      | 398.50 |        |       | 25.31  |        |       |
| Approach LOS                       | A     |      |      | A     |      |      | F      |        |       | D      |        |       |
| d_I, Intersection Delay [s/veh]    | 9.51  |      |      |       |      |      |        |        |       |        |        |       |
| Intersection LOS                   | F     |      |      |       |      |      |        |        |       |        |        |       |

**Intersection Level Of Service Report**

**Intersection 8: Waterman Ave (NS) at Park Center Circle South (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 11.8  |
| Analysis Method: | HCM 2010   | Level Of Service:         | B     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.605 |

**Intersection Setup**

| Name                   | Waterman Ave  |        |        | Waterman Ave  |        |        | Park Center Circle South  |        |        | Park Center Circle South  |        |        |
|------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach               | Northbound  |        |        | Southbound  |        |        | Eastbound   |        |        | Westbound   |        |        |
| Lane Configuration     |  |        |        |  |        |        |  |        |        |  |        |        |
| Turning Movement       | Left  | Thru   | Right  | Left  | Thru   | Right  | Left  | Thru   | Right  | Left  | Thru   | Right  |
| Lane Width [ft]        | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  | 12.00   | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0   | 0      | 0      | 0   | 0      | 0      | 0   | 0      | 0      | 0   | 0      | 0      |
| Pocket Length [ft]     | 100.00  | 100.00 | 100.00 | 100.00  | 100.00 | 100.00 | 100.00  | 100.00 | 100.00 | 100.00  | 100.00 | 100.00 |
| Speed [mph]            | 50.00   |        |        | 50.00   |        |        | 30.00   |        |        | 30.00   |        |        |
| Grade [%]              | 0.00  |        |        | 0.00  |        |        | 0.00  |        |        | 0.00  |        |        |
| Crosswalk              | No  |        |        | Yes   |        |        | Yes   |        |        | Yes   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Park Center Circle South |        |        | Park Center Circle South |        |        |
|---|--------------|--------|--------|--------------|--------|--------|--------------------------|--------|--------|--------------------------|--------|--------|
| Base Volume Input [veh/h]               | 24           | 936    | 47     | 23           | 1357   | 26     | 1                        | 0      | 11     | 204                      | 0      | 46     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   | 0.00                     | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   | 1.00                     | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Total Hourly Volume [veh/h]             | 24           | 936    | 47     | 23           | 1357   | 26     | 1                        | 0      | 11     | 204                      | 0      | 46     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 | 0.9500                   | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 | 1.0000                   | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 6            | 246    | 12     | 6            | 357    | 7      | 0                        | 0      | 3      | 54                       | 0      | 12     |
| Total Analysis Volume [veh/h]           | 25           | 985    | 49     | 24           | 1428   | 27     | 1                        | 0      | 12     | 215                      | 0      | 48     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No                       |        | No     | No                       |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                        | 0      | 0      | 0                        | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                        |        |        | 0                        |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 65                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 3       | 0       | 0       | 7       | 0       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | Lead    | -       | -       | Lead    | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 30      | 0       | 0       | 30      | 0       | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 9        | 19      | 0       | 37      | 0       | 0       | 37      | 0       | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 5       | 0       | 0       | 5       | 0       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 10      | 0       | 0       | 10      | 0       | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Maximum Recall               | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         | No      |         |         | No      |         |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L    | C    | R    | L    | C    | R    | L     | R     | L     | R     |
|---|------|------|------|------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 0.00 | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 43   | 37   | 37   | 43   | 37   | 37   | 14    | 14    | 14    | 14    |
| g / C, Green / Cycle                    | 0.66 | 0.57 | 0.57 | 0.66 | 0.57 | 0.57 | 0.21  | 0.21  | 0.21  | 0.21  |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.27 | 0.03 | 0.03 | 0.39 | 0.02 | 0.00  | 0.01  | 0.15  | 0.03  |
| s, saturation flow rate [veh/h]         | 508  | 3618 | 1615 | 688  | 3618 | 1615 | 1440  | 1615  | 1440  | 1615  |
| c, Capacity [veh/h]                     | 400  | 2081 | 929  | 533  | 2077 | 927  | 369   | 344   | 369   | 344   |
| d1, Uniform Delay [s]                   | 6.33 | 8.07 | 6.05 | 4.54 | 9.74 | 6.00 | 21.90 | 20.30 | 25.73 | 20.77 |
| k, delay calibration                    | 0.50 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11  | 0.11  | 0.11  | 0.11  |
| l, Upstream Filtering Factor            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 0.30 | 0.78 | 0.11 | 0.03 | 1.88 | 0.06 | 0.00  | 0.04  | 1.46  | 0.18  |
| d3, Initial Queue Delay [s]             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

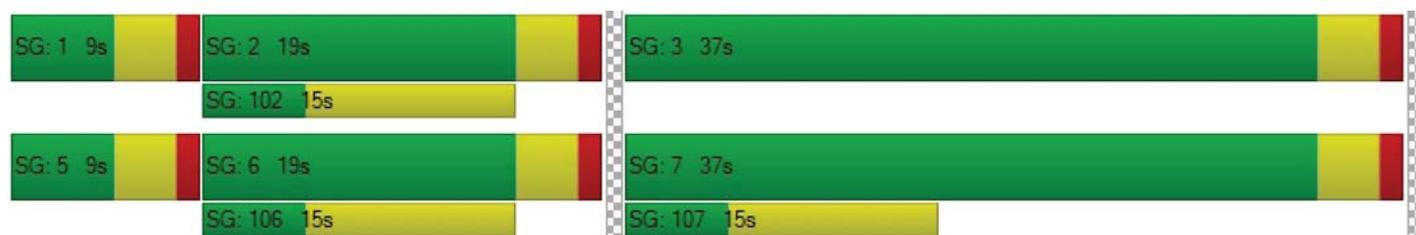
|                                    |      |        |       |      |        |      |       |       |        |       |
|------------------------------------|------|--------|-------|------|--------|------|-------|-------|--------|-------|
| X, volume / capacity               | 0.06 | 0.47   | 0.05  | 0.05 | 0.69   | 0.03 | 0.00  | 0.03  | 0.58   | 0.14  |
| d, Delay for Lane Group [s/veh]    | 6.63 | 8.84   | 6.16  | 4.58 | 11.62  | 6.05 | 21.90 | 20.34 | 27.18  | 20.95 |
| Lane Group LOS                     | A    | A      | A     | A    | B      | A    | C     | C     | C      | C     |
| Critical Lane Group                | Yes  | No     | No    | No   | Yes    | No   | No    | No    | Yes    | No    |
| 50th-Percentile Queue Length [veh] | 0.09 | 2.86   | 0.22  | 0.06 | 5.15   | 0.12 | 0.01  | 0.14  | 3.16   | 0.58  |
| 50th-Percentile Queue Length [ft]  | 2.28 | 71.46  | 5.61  | 1.52 | 128.83 | 3.06 | 0.31  | 3.52  | 79.03  | 14.44 |
| 95th-Percentile Queue Length [veh] | 0.16 | 5.14   | 0.40  | 0.11 | 8.88   | 0.22 | 0.02  | 0.25  | 5.69   | 1.04  |
| 95th-Percentile Queue Length [ft]  | 4.11 | 128.62 | 10.10 | 2.73 | 221.91 | 5.50 | 0.55  | 6.33  | 142.26 | 25.98 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |       |      |       |      |       |       |      |       |
|---------------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|------|-------|
| d_M, Delay for Movement [s/veh] | 6.63  | 8.84 | 6.16 | 4.58  | 11.62 | 6.05 | 21.90 | 0.00 | 20.34 | 27.18 | 0.00 | 20.95 |
| Movement LOS                    | A     | A    | A    | A     | B     | A    | C     |      | C     | C     |      | C     |
| d_A, Approach Delay [s/veh]     | 8.67  |      |      | 11.40 |       |      | 20.46 |      |       | 26.05 |      |       |
| Approach LOS                    | A     |      |      | B     |       |      | C     |      |       | C     |      |       |
| d_I, Intersection Delay [s/veh] | 11.78 |      |      |       |       |      |       |      |       |       |      |       |
| Intersection LOS                | B     |      |      |       |       |      |       |      |       |       |      |       |
| Intersection V/C                | 0.605 |      |      |       |       |      |       |      |       |       |      |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**  
**Intersection 9: Waterman Ave (NS) at Vanderbilt Way (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 34.3  |
| Analysis Method: | HCM 2010   | Level Of Service:         | C     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.081 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound      |        |        | Westbound      |        |        |
| Lane Configuration     | ⇐⇐⇐          |        |        | ⇐⇐⇐          |        |        | +              |        |        | ⇐⇐⇐            |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left           | Thru   | Right  | Left           | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  | 12.00          | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 100.00       | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 | 100.00         | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00          |        |        | 30.00          |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00           |        |        | 0.00           |        |        |
| Crosswalk              | No           |        |        | Yes          |        |        | Yes            |        |        | Yes            |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Vanderbilt Way |        |        | Vanderbilt Way |        |        |
|---|--------------|--------|--------|--------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h]               | 52           | 698    | 242    | 253          | 1295   | 15     | 10             | 5      | 15     | 409            | 3      | 295    |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   | 0.00           | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   | 1.00           | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Total Hourly Volume [veh/h]             | 52           | 698    | 242    | 253          | 1295   | 15     | 10             | 5      | 15     | 409            | 3      | 295    |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 | 0.9500         | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 | 1.0000         | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 14           | 184    | 64     | 67           | 341    | 4      | 3              | 1      | 4      | 108            | 1      | 78     |
| Total Analysis Volume [veh/h]           | 55           | 735    | 255    | 266          | 1363   | 16     | 11             | 5      | 16     | 431            | 3      | 311    |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No             |        | No     | No             |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0              | 0      | 0      | 0              | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0              |        |        | 0              |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 9        | 19      | 0       | 15       | 25      | 0       | 0       | 26      | 0       | 0       | 26      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C     | R     | L     | C     | C     | C     | L     | C     | R     |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 2.00  | 2.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 3     | 16    | 16    | 11    | 23    | 23    | 22    | 22    | 22    | 22    |
| g / C, Green / Cycle                    | 0.05  | 0.26  | 0.26  | 0.18  | 0.38  | 0.38  | 0.37  | 0.37  | 0.37  | 0.37  |
| (v / s)_i Volume / Saturation Flow Rate | 0.03  | 0.20  | 0.16  | 0.15  | 0.25  | 0.25  | 0.10  | 0.01  | 0.62  | 0.19  |
| s, saturation flow rate [veh/h]         | 1810  | 3618  | 1615  | 1810  | 3618  | 1889  | 311   | 1413  | 676   | 1615  |
| c, Capacity [veh/h]                     | 94    | 940   | 420   | 318   | 1388  | 725   | 194   | 128   | 366   | 589   |
| d1, Uniform Delay [s]                   | 27.87 | 20.68 | 19.57 | 23.95 | 15.25 | 15.25 | 15.10 | 29.96 | 22.82 | 15.03 |
| k, delay calibration                    | 0.11  | 0.50  | 0.50  | 0.25  | 0.50  | 0.50  | 0.11  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 5.58  | 6.44  | 6.41  | 12.29 | 2.40  | 4.54  | 0.40  | 0.34  | 94.98 | 0.74  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

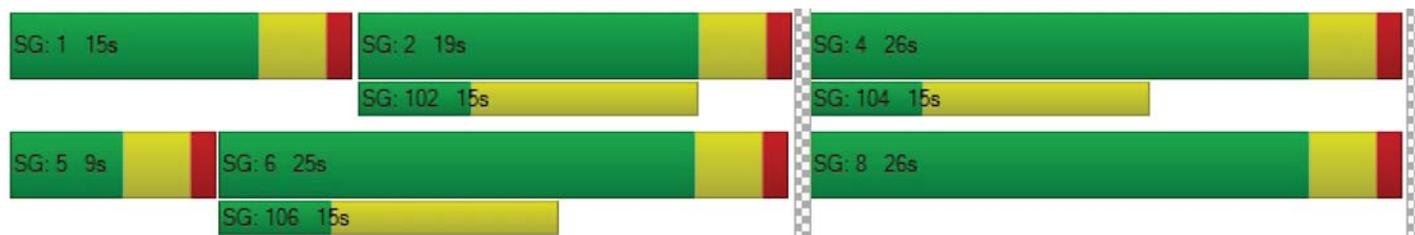
|                                    |       |        |        |        |        |        |       |       |        |        |
|------------------------------------|-------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| X, volume / capacity               | 0.58  | 0.78   | 0.61   | 0.84   | 0.65   | 0.65   | 0.17  | 0.10  | 1.15   | 0.53   |
| d, Delay for Lane Group [s/veh]    | 33.45 | 27.12  | 25.98  | 36.24  | 17.65  | 19.79  | 15.50 | 30.30 | 117.80 | 15.77  |
| Lane Group LOS                     | C     | C      | C      | D      | B      | B      | B     | C     | F      | B      |
| Critical Lane Group                | No    | Yes    | No     | Yes    | No     | No     | No    | No    | Yes    | No     |
| 50th-Percentile Queue Length [veh] | 0.83  | 4.79   | 3.34   | 4.20   | 4.39   | 5.01   | 0.27  | 0.19  | 14.70  | 3.09   |
| 50th-Percentile Queue Length [ft]  | 20.74 | 119.79 | 83.53  | 104.93 | 109.74 | 125.37 | 6.81  | 4.76  | 367.43 | 77.17  |
| 95th-Percentile Queue Length [veh] | 1.49  | 8.38   | 6.01   | 7.55   | 7.83   | 8.69   | 0.49  | 0.34  | 22.85  | 5.56   |
| 95th-Percentile Queue Length [ft]  | 37.33 | 209.54 | 150.35 | 188.87 | 195.64 | 217.18 | 12.26 | 8.57  | 571.15 | 138.91 |

**Movement, Approach, & Intersection Results**

|                                 |       |       |       |       |       |       |       |       |       |        |        |       |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| d_M, Delay for Movement [s/veh] | 33.45 | 27.12 | 25.98 | 36.24 | 18.37 | 19.79 | 15.50 | 15.50 | 15.50 | 115.16 | 117.80 | 15.77 |
| Movement LOS                    | C     | C     | C     | D     | B     | B     | B     | B     | B     | F      | F      | B     |
| d_A, Approach Delay [s/veh]     | 27.18 |       |       | 21.27 |       |       | 15.50 |       |       | 73.69  |        |       |
| Approach LOS                    | C     |       |       | C     |       |       | B     |       |       | E      |        |       |
| d_I, Intersection Delay [s/veh] | 34.26 |       |       |       |       |       |       |       |       |        |        |       |
| Intersection LOS                | C     |       |       |       |       |       |       |       |       |        |        |       |
| Intersection V/C                | 1.081 |       |       |       |       |       |       |       |       |        |        |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 7: Waterman Ave (NS) at Park Center Circle North (EW)**

|                  |            |                           |       |
|------------------|------------|---------------------------|-------|
| Control Type:    | Signalized | Delay (sec / veh):        | 8.1   |
| Analysis Method: | HCM 2010   | Level Of Service:         | A     |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.653 |

**Intersection Setup**

| Name                   | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|------------------------|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Approach               | Northbound   |        |        | Southbound   |        |        | Eastbound        |        |        | Westbound            |        |        |
| Lane Configuration     | ⏏⏏⏏          |        |        | ⏏⏏⏏          |        |        | ⏏⏏               |        |        | ⏏⏏                   |        |        |
| Turning Movement       | Left         | Thru   | Right  | Left         | Thru   | Right  | Left             | Thru   | Right  | Left                 | Thru   | Right  |
| Lane Width [ft]        | 12.00        | 12.00  | 12.00  | 12.00        | 12.00  | 12.00  | 12.00            | 12.00  | 12.00  | 12.00                | 12.00  | 12.00  |
| No. of Lanes in Pocket | 0            | 0      | 0      | 1            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pocket Length [ft]     | 100.00       | 100.00 | 100.00 | 215.00       | 100.00 | 100.00 | 100.00           | 100.00 | 100.00 | 100.00               | 100.00 | 100.00 |
| Speed [mph]            | 50.00        |        |        | 50.00        |        |        | 30.00            |        |        | 30.00                |        |        |
| Grade [%]              | 0.00         |        |        | 0.00         |        |        | 0.00             |        |        | 0.00                 |        |        |
| Crosswalk              | No           |        |        | No           |        |        | Yes              |        |        | No                   |        |        |

**volumes**

| Name                                    | Waterman Ave |        |        | Waterman Ave |        |        | Project Driveway |        |        | Park Center Circle N |        |        |
|---|--------------|--------|--------|--------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| Base Volume Input [veh/h]               | 8            | 965    | 2      | 10           | 1452   | 11     | 38               | 0      | 18     | 10                   | 0      | 70     |
| Base Volume Adjustment Factor           | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%]           | 0.00         | 0.00   | 0.00   | 0.00         | 0.00   | 0.00   | 0.00             | 0.00   | 0.00   | 0.00                 | 0.00   | 0.00   |
| Growth Rate                             | 1.00         | 1.00   | 1.00   | 1.00         | 1.00   | 1.00   | 1.00             | 1.00   | 1.00   | 1.00                 | 1.00   | 1.00   |
| In-Process Volume [veh/h]               | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Site-Generated Trips [veh/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Diverted Trips [veh/h]                  | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pass-by Trips [veh/h]                   | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Existing Site Adjustment Volume [veh/h] | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Other Volume [veh/h]                    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Right-Turn on Red Volume [veh/h]        | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Total Hourly Volume [veh/h]             | 8            | 965    | 2      | 10           | 1452   | 11     | 38               | 0      | 18     | 10                   | 0      | 70     |
| Peak Hour Factor                        | 0.9500       | 0.9500 | 0.9500 | 0.9500       | 0.9500 | 0.9500 | 0.9500           | 0.9500 | 0.9500 | 0.9500               | 0.9500 | 0.9500 |
| Other Adjustment Factor                 | 1.0000       | 1.0000 | 1.0000 | 1.0000       | 1.0000 | 1.0000 | 1.0000           | 1.0000 | 1.0000 | 1.0000               | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h]          | 2            | 254    | 1      | 3            | 382    | 3      | 10               | 0      | 5      | 3                    | 0      | 18     |
| Total Analysis Volume [veh/h]           | 8            | 1016   | 2      | 11           | 1528   | 12     | 40               | 0      | 19     | 11                   | 0      | 74     |
| Presence of On-Street Parking           | No           |        | No     | No           |        | No     | No               |        | No     | No                   |        | No     |
| On-Street Parking Maneuver Rate [/h]    | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Local Bus Stopping Rate [/h]            | 0            | 0      | 0      | 0            | 0      | 0      | 0                | 0      | 0      | 0                    | 0      | 0      |
| Pedestrian Volume [ped/h]               | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |
| Bicycle Volume [bicycles/h]             | 0            |        |        | 0            |        |        | 0                |        |        | 0                    |        |        |

**Intersection Settings**

|                           |                              |
|---------------------------|------------------------------|
| Located in CBD            | No                           |
| Signal Coordination Group | -                            |
| Cycle Length [s]          | 60                           |
| Coordination Type         | Time of Day Pattern Isolated |
| Actuation Type            | Fully actuated               |
| Offset [s]                | 0.0                          |
| Offset Reference          | LeadGreen                    |
| Permissive Mode           | SingleBand                   |
| Lost time [s]             | 6.00                         |

**Phasing & Timing**

| Control Type                 | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group                 | 5        | 2       | 0       | 1        | 6       | 0       | 0       | 8       | 0       | 0       | 4       | 0       |
| Auxiliary Signal Groups      |          |         |         |          |         |         |         |         |         |         |         |         |
| Lead / Lag                   | Lead     | -       | -       | Lead     | -       | -       | -       | -       | -       | -       | -       | -       |
| Minimum Green [s]            | 5        | 5       | 0       | 5        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Maximum Green [s]            | 30       | 30      | 0       | 30       | 30      | 0       | 0       | 30      | 0       | 0       | 30      | 0       |
| Amber [s]                    | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| All red [s]                  | 1.0      | 1.0     | 0.0     | 1.0      | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     | 0.0     | 1.0     | 0.0     |
| Split [s]                    | 26       | 36      | 0       | 9        | 19      | 0       | 0       | 15      | 0       | 0       | 15      | 0       |
| Vehicle Extension [s]        | 3.0      | 3.0     | 0.0     | 3.0      | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     | 0.0     | 3.0     | 0.0     |
| Walk [s]                     | 0        | 5       | 0       | 0        | 5       | 0       | 0       | 5       | 0       | 0       | 5       | 0       |
| Pedestrian Clearance [s]     | 0        | 10      | 0       | 0        | 10      | 0       | 0       | 10      | 0       | 0       | 10      | 0       |
| I1, Start-Up Lost Time [s]   | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| I2, Clearance Lost Time [s]  | 2.0      | 2.0     | 0.0     | 2.0      | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     | 0.0     | 2.0     | 0.0     |
| Minimum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Maximum Recall               | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Pedestrian Recall            | No       | No      |         | No       | No      |         |         | No      |         |         | No      |         |
| Detector Location [ft]       | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| Detector Length [ft]         | 0.0      | 0.0     | 0.0     | 0.0      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| I, Upstream Filtering Factor | 1.00     | 1.00    | 1.00    | 1.00     | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    |

**Exclusive Pedestrian Phase**

|                          |   |
|--------------------------|---|
| Pedestrian Signal Group  | 0 |
| Pedestrian Walk [s]      | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group                              | L     | C    | R    | L     | C    | R    | C     | R     | C     | R     |
|---|-------|------|------|-------|------|------|-------|-------|-------|-------|
| L, Total Lost Time per Cycle [s]        | 4.00  | 4.00 | 4.00 | 4.00  | 4.00 | 4.00 | 4.00  | 4.00  | 4.00  | 4.00  |
| l1_p, Permitted Start-Up Lost Time [s]  | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 2.00  | 0.00  | 2.00  | 0.00  |
| l2, Clearance Lost Time [s]             | 2.00  | 2.00 | 2.00 | 2.00  | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  |
| g_i, Effective Green Time [s]           | 1     | 39   | 39   | 1     | 40   | 40   | 8     | 8     | 8     | 8     |
| g / C, Green / Cycle                    | 0.01  | 0.66 | 0.66 | 0.02  | 0.66 | 0.66 | 0.13  | 0.13  | 0.13  | 0.13  |
| (v / s)_i Volume / Saturation Flow Rate | 0.00  | 0.28 | 0.00 | 0.01  | 0.42 | 0.01 | 1.96  | 0.01  | 0.66  | 0.05  |
| s, saturation flow rate [veh/h]         | 1810  | 3618 | 1615 | 1810  | 3618 | 1615 | 20    | 1615  | 17    | 1615  |
| c, Capacity [veh/h]                     | 23    | 2366 | 1056 | 29    | 2379 | 1062 | 122   | 211   | 122   | 211   |
| d1, Uniform Delay [s]                   | 29.47 | 5.01 | 3.61 | 29.30 | 6.11 | 3.55 | 30.08 | 23.01 | 30.07 | 23.83 |
| k, delay calibration                    | 0.11  | 0.50 | 0.50 | 0.11  | 0.50 | 0.50 | 0.50  | 0.11  | 0.50  | 0.11  |
| l, Upstream Filtering Factor            | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| d2, Incremental Delay [s]               | 9.18  | 0.57 | 0.00 | 7.93  | 1.35 | 0.02 | 6.99  | 0.18  | 1.46  | 0.99  |
| d3, Initial Queue Delay [s]             | 0.00  | 0.00 | 0.00 | 0.00  | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  |
| Rp, platoon ratio                       | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| PF, progression factor                  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |

**Lane Group Results**

|                                    |       |       |      |       |        |      |       |       |       |       |
|------------------------------------|-------|-------|------|-------|--------|------|-------|-------|-------|-------|
| X, volume / capacity               | 0.35  | 0.43  | 0.00 | 0.38  | 0.64   | 0.01 | 0.33  | 0.09  | 0.09  | 0.35  |
| d, Delay for Lane Group [s/veh]    | 38.65 | 5.58  | 3.61 | 37.23 | 7.46   | 3.57 | 37.07 | 23.19 | 31.53 | 24.83 |
| Lane Group LOS                     | D     | A     | A    | D     | A      | A    | D     | C     | C     | C     |
| Critical Lane Group                | Yes   | No    | No   | No    | Yes    | No   | Yes   | No    | No    | No    |
| 50th-Percentile Queue Length [veh] | 0.16  | 1.58  | 0.00 | 0.20  | 2.96   | 0.03 | 0.80  | 0.23  | 0.20  | 0.96  |
| 50th-Percentile Queue Length [ft]  | 3.99  | 39.38 | 0.12 | 5.10  | 74.10  | 0.72 | 20.11 | 5.86  | 5.06  | 24.01 |
| 95th-Percentile Queue Length [veh] | 0.29  | 2.84  | 0.01 | 0.37  | 5.34   | 0.05 | 1.45  | 0.42  | 0.36  | 1.73  |
| 95th-Percentile Queue Length [ft]  | 7.18  | 70.88 | 0.22 | 9.18  | 133.38 | 1.29 | 36.20 | 10.55 | 9.10  | 43.22 |

**Movement, Approach, & Intersection Results**

|                                 |       |      |      |       |      |      |       |       |       |       |       |       |
|---------------------------------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 38.65 | 5.58 | 3.61 | 37.23 | 7.46 | 3.57 | 37.07 | 37.07 | 23.19 | 31.53 | 31.53 | 24.83 |
| Movement LOS                    | D     | A    | A    | D     | A    | A    | D     | D     | C     | C     | C     | C     |
| d_A, Approach Delay [s/veh]     | 5.83  |      |      | 7.64  |      |      | 32.60 |       |       | 25.69 |       |       |
| Approach LOS                    | A     |      |      | A     |      |      | C     |       |       | C     |       |       |
| d_I, Intersection Delay [s/veh] | 8.06  |      |      |       |      |      |       |       |       |       |       |       |
| Intersection LOS                | A     |      |      |       |      |      |       |       |       |       |       |       |
| Intersection V/C                | 2.653 |      |      |       |      |      |       |       |       |       |       |       |

**Sequence**

|        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**APPENDIX G**

**Traffic Signal Warrant Worksheets**

# PEAK HOUR VOLUME WARRANT (Rural Areas)

## Existing + Ambient Growth

Major Street Name = **Waterman Avenue**

Total of Both Approaches (VPH) = **1941**

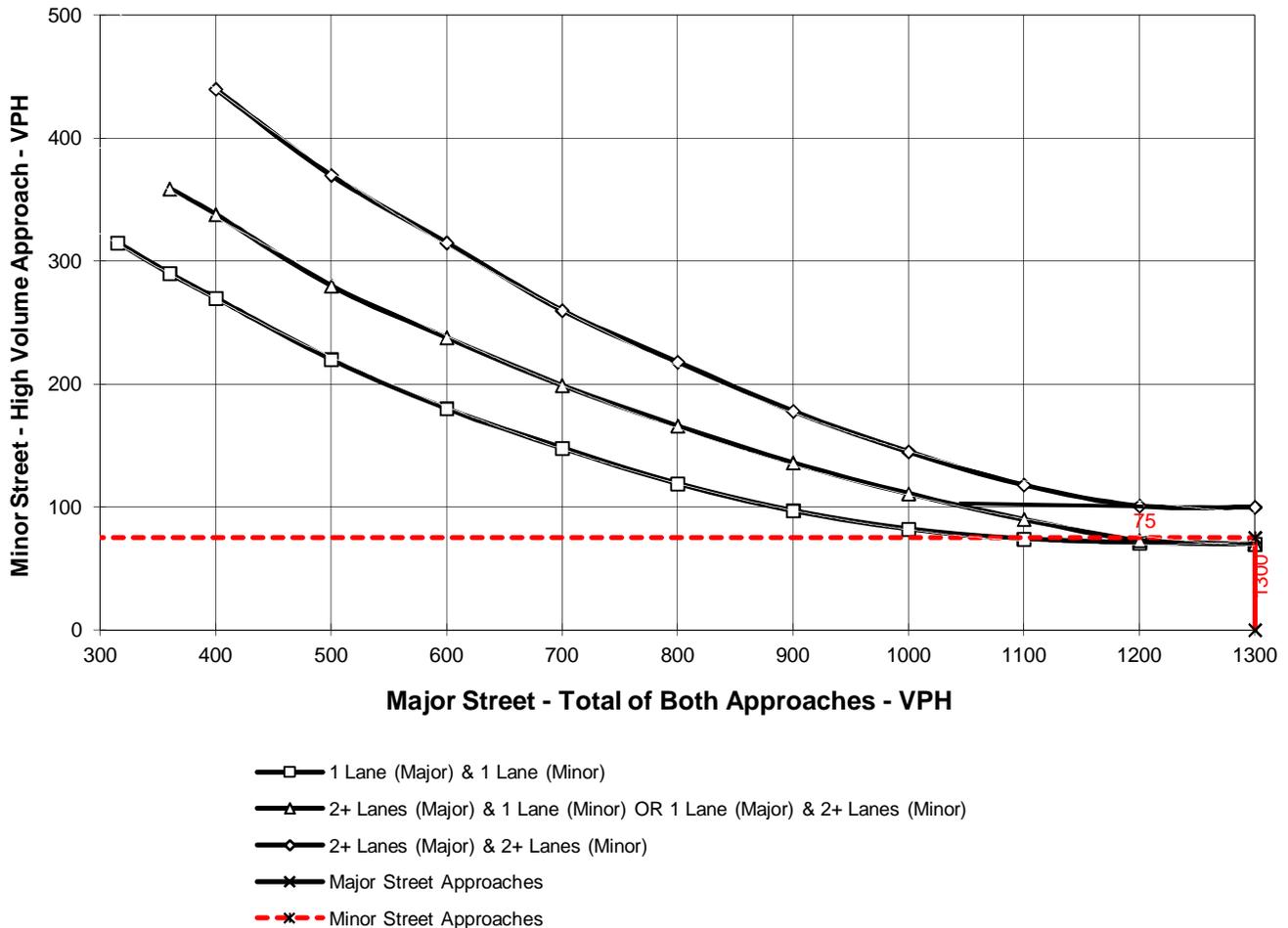
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Park Center North**

High Volume Approach (VPH) = **75**

Number of Approach Lanes Minor Street = **1**

### WARRANTED FOR A SIGNAL



**\*\* NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**APPENDIX H**

**Preliminary Construction Cost Estimates for  
Congestion Management Program**

**PRELIMINARY CONSTRUCTION COST ESTIMATES  
FOR  
CONGESTION MANAGEMENT PLAN**

| <b>Add One Lane Each Direction on Freeway</b>  |   |          |                             |
|--|---|----------|-----------------------------|
| Asphalt Concrete Pavement  | \$2,300,000 Per Mile  |          |                             |
| Portland Cement Concrete Pavement  | \$2,800,000 Per Mile  |          |                             |
| <b>Includes:</b> Excavation<br>Paving Section<br>Barrier<br>Shoulder<br>Upgrade Drainage System<br>Traffic Control<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5% | <b>Excludes:</b> Environmental Costs<br>Right of Way<br>Widening of Bridge Structures<br>Added Retaining Walls<br>Added Sound Walls   |          |                             |
| <b>Widen Existing UC Structures</b>  |   |          |                             |
| Total Cost =   | \$160 Per Square Foot   |          |                             |
| <b>Includes:</b> Structure<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5%   | <b>Excludes:</b> Environmental Costs<br>Right of Way<br>Traffic Control<br>Ramp Modifications<br>Signal/Lighting Up Grades<br>Drainage Upgrades<br>Added Retaining Walls<br>Added Sound Walls |          |                             |
| <b>Diamond Interchanges</b>  |   |          |                             |
| \$10,000,000   | EACH  | NEW IC   | Minimal Row/Environmental   |
| \$15,000,000   | EACH  | NEW IC   | Includes Row/Environmental  |
| \$20,000,000   | EACH  | EXISTING | Minimal Row/Environmental   |
| \$25,000,000   | EACH  | EXISTING | Includes Row/ Environmental |
| <b>Includes:</b> Structure<br>Retaining Walls<br>Soil Nail Walls<br>Drainage System<br>Ramps<br>Mobilization @ 10%<br>Design @ 11%<br>Construction Mgt. @ 12.5%                    | <b>Excludes:</b> As listed  |          |                             |

**Retaining Walls**

| Height Feet  | Structure Cost \$/LF | Mobilization Design Constr. Mgt. \$/LF | Total \$/LF |
|--|----------------------|--|-------------|
| 4  | \$190                | \$70                                   | \$260       |
| 6  | \$260                | \$90                                   | \$350       |
| 8  | \$380                | \$140                                  | \$520       |
| 10   | \$430                | \$150                                  | \$580       |
| 12   | \$480                | \$170                                  | \$650       |
| 14   | \$590                | \$210                                  | \$800       |
| 16   | \$660                | \$240                                  | \$900       |
| <b>Excludes:</b> Environmental Costs<br>Right of Way |                      |  |             |

**12' High Sound Walls (Masonry Block on Footing)**

| Structure Cost \$/Mile | Mobilization Design Constr. Mgt. \$/Mile | Total \$/Mile |
|------------------------|--|---------------|
| \$800,000              | \$300,000                                | \$1,100,000   |

**Widen Conventional Highway**

|  |  |
|--|--|
| 1. Add one outside lane<br>(Work includes earthwork, modify existing drainage system and construct AC shoulder section.)<br><br>Asphalt Concrete Pavement  | \$1,000,000/Mile   |
| 2. Add one outside lane each direction<br>(Work includes earthwork, modify existing drainage system and construct AC shoulder section)<br><br>Asphalt Concrete Pavement<br>With Median Concrete Barrier<br>With Median Double Thrie Beam Barrier | \$2,000,000/Mile<br>\$2,200,000/Mile<br>\$2,300,000/Mile |

**Local Interchange Improvements**

|   |                              |
|---|------------------------------|
| 1. New Interchange<br><br>Urban Interchange   | \$10,000,000 to \$17,000,000 |
| Partial – Cloverleaf Interchange<br>(Work includes new OC structure, earthwork, signal) | \$6,000,000                  |
| Diamond Interchange<br>(Work includes new OC structure, earthwork, signal)              | \$5,000,000                  |

| <b>Local Interchange Improvements CONT...</b> |  |
|---|--|
|---|--|

|    |  |                        |
|----|--|------------------------|
| 2. | Reconstruct Existing Interchange   |                        |
|    | Realign and widen existing ramps (to 2 lanes)                            | \$750,000/Each Ramp    |
|    | Construct Loop on – ramps<br>(Does not include realigning existing ramp) | \$700,000/Each Ramp    |
|    | Upgrade existing Diamond IC to Partial – Cloverleaf                      | \$6,000,000            |
| 3. | Improve Existing Interchange   |                        |
|    | Widen ramps (From one to two lanes)                                      | \$350,000/Each Ramp    |
|    | Widen existing OC structure  | \$110/Sq. Ft.          |
|    | Signalize ramp intersection  | \$90,000/Location      |
|    | Upgrade existing signal at ramp terminal                                 | \$75,000/Intersection  |
|    | Upgrade existing signal at ramp terminal<br>(Add lights only)            | \$25,000/Each          |
| 4. | Ramp Metering System   | \$60,000/Each location |

| <b>Intersection Improvements</b> |  |
|----------------------------------|--|
|----------------------------------|--|

|    |   |                        |
|----|---|------------------------|
| 1. | Signalization of local intersection<br>(with some roadwork) | \$250,000              |
| 2. | Upgrade existing intersection signalization                 | \$75,000               |
| 3. | Upgrade existing Traffic Controller/Assembles               | \$40,000/Each          |
| 4. | Install new signal  | \$90,000/location      |
| 5. | Add signal heads  | \$25,000/Intersection  |
| 6. | Construct left – turn lane (240' long)                      | \$50,000/Each Location |
| 7. | Street widening (12' wide) (Pavement only)                  | \$180,000/Mile         |
| 8. | Curb and gutter (Type A2-8)                                 | \$15/LF                |

| <b>Other Improvements</b>  |   |
|--|---|
| 1. Construct new OC structure<br>(Does not include roadway work) | \$100/Sq. Ft.   |
| 2. Construct Retaining Walls (Type 1)                            | \$285/LF (H=8')<br>\$360/LF (H=10')<br>\$460/LF (H=12')<br>\$560/LF (H=14')   |
| 3. Construct Soundwall   | \$1,000,000/Mile (H=12')  |
| 4. Traffic Management Plan                                       | 10% of total construction costs   |
| <b>NOTE:</b>   | This cost estimate does not include the following items:  |
|  | <ol style="list-style-type: none"> <li>1. R/W engineering, appraisal, acquisition and utilities relocation costs.</li> <li>2. Minor items and supplemental work (10%).</li> <li>3. Mobilization (10%).</li> <li>4. Contingencies (25%).</li> <li>5. Landscaping costs.</li> </ol> |
| <b>General Note:</b>   | <b>When adding a through lane, the minimum distance is 600' approach and 600' departure to the next intersection.</b>   |



# KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

1111 Town & Country Road, Suite 34  
Orange, California 92868  
(714) 973-8383

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**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER  
TRAFFIC IMPACT ANALYSIS ADDENDUM**

**September 28, 2015**



KUNZMAN ASSOCIATES, INC.

**WATERMAN INDUSTRIAL CENTER  
TRAFFIC IMPACT ANALYSIS ADDENDUM**

**September 28, 2015**

Prepared by:

Perrie Ilercil, P.E.  
Carl Ballard, LEED GA  
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*William Kunzman*



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5629d



September 28, 2015

Mr. Jackson Smith  
NEWCASTLE PARTNERS, INC.  
4740 Green River Road, Suite 118  
Corona, CA 92880

Dear Mr. Smith:

## INTRODUCTION

The firm of Kunzman Associates, Inc. is pleased to provide this traffic impact analysis addendum for the Waterman Industrial Center in the City of San Bernardino. This addendum is for a revised site plan that includes an additional right turns in/out only driveway on Waterman Avenue from the previous Waterman Industrial Center Traffic Impact Analysis prepared by Kunzman Associates, Inc. (September 9, 2015).

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

## PROJECT DESCRIPTION

The proposed development is located on the southwest corner of the Waterman Avenue at Dumas Street intersection in the City of San Bernardino. A vicinity map showing the project location is provided on Figure 1. The approximately 25 acre project site is proposed to be developed with 564,652 square feet of high-cube warehouse distribution center. The proposed project will have access to Waterman Avenue and Dumas Street. Figure 2 illustrates the project site plan.

## PROJECT TRIP DISTRIBUTION

Figures 3 and 4 contain the directional distributions of the project trips for the proposed land use. To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

## FUTURE CONDITIONS

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions (see Appendix B), except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Mr. Jackson Smith  
NEWCASTLE PARTNERS, INC.  
September 28, 2015

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, with improvements (see Table 1).

As shown in Table 2 for Existing Plus Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions (see Appendix B), except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, with improvements (see Table 3).

As shown in Table 4 for Opening Year (2017) With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions (see Appendix B), except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, with improvements (see Table 5).

As shown in Table 6 for Year 2035 With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

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## **FUTURE TRAFFIC SIGNAL WARRANT ANALYSIS**

For Existing Plus Ambient Growth traffic conditions, a traffic signal is projected to be warranted at the following study area intersection (see Appendix C):

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The unsignalized intersection has been evaluated for a traffic signal using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the California Manual of Uniform Traffic Control Devices (2014 Update).

## **RECOMMENDATIONS**

The recommendations in this section address on-site improvements, off-site improvements and the phasing (as needed) of all necessary study area transportation improvements.

### **1. On-Site Improvements**

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 5).

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North including Waterman Avenue northbound left turn lane improvements. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.

Mr. Jackson Smith  
NEWCASTLE PARTNERS, INC.  
September 28, 2015

**2. Off-Site Improvements**

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

It has been a pleasure to service your needs on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 973-8383.

Sincerely,

KUNZMAN ASSOCIATES, INC.

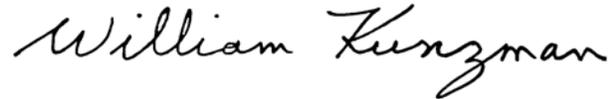


Perrie Ilercil, P. E.  
Senior Associate

#5629d



KUNZMAN ASSOCIATES, INC.



William Kunzman, P.E.  
Principal

**Table 1**

**Existing Plus Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.4               | C                | 0.385            | 36.8               | D                | 0.561            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.4               | B                | 0.681            | 11.1               | B                | 0.761            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.2               | C                | 0.444            | 32.6               | C                | 0.702            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.0               | C                | N/A              | 22.7               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 60.4               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 13.1               | B                | 0.316            | 12.0               | B                | 0.409            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.926            | 13.6               | B                | 0.926            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.0               | C                | 0.577            | 18.6               | B                | 0.437            |
| Project South Access (EW) - #10                          | City of SB   | <b>CSS</b>                   | 0  | 2   | 0          | 0          | 2   | <u>1</u> | 0          | 0          | <u>1</u> | 0         | 0   | 0  | 11.4               | B                | N/A              | 13.1               | B                | N/A              |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = defacto Right Turn; ^ = Mult-directional Lane; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 2**

**Existing Plus Project Traffic Contribution**

| Intersection  | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Existing Plus Project |                  |                  |                |                                    |
|---|--------------|------------------------------|-----------|----------|------------------|------------------|-----------------------|------------------|------------------|----------------|------------------------------------|
|   |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                 | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1             | City of SB   | TS                           | Morning   | 29.4     | C                | 0.377            | 29.4                  | C                | 0.385            | +0.008         | No                                 |
|   |              |                              | Evening   | 36.6     | D                | 0.557            | 36.8                  | D                | 0.561            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2    | City of SB   | TS                           | Morning   | 10.2     | B                | 0.677            | 10.4                  | B                | 0.681            | +0.004         | No                                 |
|   |              |                              | Evening   | 10.9     | B                | 0.759            | 11.1                  | B                | 0.761            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3      | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8                   | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9                   | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4      | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5      | City of SB   | TS                           | Morning   | 28.1     | C                | 0.443            | 28.2                  | C                | 0.444            | +0.001         | No                                 |
|   |              |                              | Evening   | 31.9     | C                | 0.694            | 32.6                  | C                | 0.702            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6          | City of SB   | CSS                          | Morning   | 15.6     | C                | N/A              | 15.0                  | C                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 27.8     | D                | N/A              | 22.7                  | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7  | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 60.4                  | F                | N/A              | N/A            | YES                                |
|   |              |                              | Evening   | 14.1     | B                | N/A              | 99.9                  | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8  | City of SB   | TS                           | Morning   | 11.6     | B                | 0.763            | 11.6                  | B                | 0.926            | +0.163         | No                                 |
|   |              |                              | Evening   | 13.6     | B                | 0.926            | 13.6                  | B                | 0.926            | +0.000         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9        | City of SB   | TS                           | Morning   | 22.0     | C                | 0.577            | 22.0                  | C                | 0.577            | +0.000         | No                                 |
|   |              |                              | Evening   | 18.6     | B                | 0.434            | 18.6                  | B                | 0.437            | +0.003         | No                                 |
| Waterman Avenue (NS) at:<br>Project South Access (EW) - #10 | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 11.4                  | B                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 13.1                  | B                | N/A              | N/A            | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 3

Opening Year (2017) With Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.8               | C                | 0.419            | 38.7               | D                | 0.586            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.5               | B                | 0.704            | 11.4               | B                | 0.773            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.6               | C                | 0.459            | 35.5               | D                | 0.762            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.9               | C                | N/A              | 26.1               | D                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   |                              |  |     |            |            |     |          |            |            |          |           |     |    |                    |                  |                  |                    |                  |                  |
| Without Improvements                                     |              | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 76.4               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 13.3               | B                | 0.340            | 12.3               | B                | 0.439            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.876            | 14.0               | B                | 0.943            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.5               | C                | 0.608            | 19.2               | B                | 0.473            |
| Project South Access (EW) - #10                          | City of SB   | CSS                          | 0  | 2   | 0          | 0          | 2   | <u>1</u> | 0          | 0          | <u>1</u> | 0         | 0   | 0  | 11.7               | B                | N/A              | 13.8               | B                | N/A              |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

**Table 4**

**Opening Year (2017) With Project Traffic Contribution**

| Intersection  | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Opening Year (2017) |                  |                  |                |                                    |
|---|--------------|------------------------------|-----------|----------|------------------|------------------|---------------------|------------------|------------------|----------------|------------------------------------|
|   |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay               | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1             | City of SB   | TS                           | Morning   | 29.8     | C                | 0.411            | 29.8                | C                | 0.419            | +0.008         | No                                 |
|   |              |                              | Evening   | 38.4     | D                | 0.582            | 38.7                | D                | 0.586            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2    | City of SB   | TS                           | Morning   | 10.3     | B                | 0.700            | 10.5                | B                | 0.704            | +0.004         | No                                 |
|   |              |                              | Evening   | 11.1     | B                | 0.771            | 11.4                | B                | 0.773            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3      | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8                 | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9                 | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4      | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4                 | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4                 | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5      | City of SB   | TS                           | Morning   | 28.3     | C                | 0.452            | 28.6                | C                | 0.459            | +0.007         | No                                 |
|   |              |                              | Evening   | 34.6     | C                | 0.750            | 35.5                | D                | 0.762            | +0.012         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6          | City of SB   | CSS                          | Morning   | 16.6     | C                | N/A              | 15.9                | C                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 32.6     | D                | N/A              | 26.1                | D                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7  | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 76.4                | F                | N/A              | N/A            | YES                                |
|   |              |                              | Evening   | 15.4     | B                | N/A              | 99.9                | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8  | City of SB   | TS                           | Morning   | 11.6     | B                | 0.837            | 11.6                | B                | 0.876            | +0.039         | No                                 |
|   |              |                              | Evening   | 14.0     | B                | 0.936            | 14.0                | B                | 0.943            | +0.007         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9        | City of SB   | TS                           | Morning   | 22.5     | C                | 0.608            | 22.5                | C                | 0.608            | +0.000         | No                                 |
|   |              |                              | Evening   | 19.2     | B                | 0.470            | 19.2                | B                | 0.473            | +0.003         | No                                 |
| Waterman Avenue (NS) at:<br>Project South Access (EW) - #10 | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 11.8                | B                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0      | 0.0              | N/A              | 13.8                | B                | N/A              | N/A            | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 5

Year 2035 With Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 32.4               | C                | 0.466            | 41.3               | D                | 0.609            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 8.3                | A                | 0.952            | 10.7               | B                | 0.964            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.7                | A                | N/A              | 8.8                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 29.6               | C                | 0.498            | 37.9               | D                | 0.784            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 16.7               | C                | N/A              | 20.8               | C                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 91.5               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| Without Improvements                                     |              |                              |  |     |            |            |     |          |            |            |          |           |     |    |                    |                  |                  |                    |                  |                  |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 12.9               | B                | 0.333            | 15.0               | B                | 0.489            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 8.4                | A                | 0.926            | 11.3               | B                | 0.972            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 23.4               | C                | 0.624            | 19.8               | B                | 0.542            |
| Project South Access (EW) - #10                          | City of SB   | <b>CSS</b>                   | 0  | 2   | 0          | 0          | 2   | <u>1</u> | 0          | 0          | <u>1</u> | 0         | 0   | 0  | 12.4               | C                | N/A              | 15.2               | C                | N/A              |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 6**

**Year 2035 With Project Traffic Contribution**

| Intersection  | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Year 2035 |                  |                  | Year 2035 With Project |                  |                  |                |                                    |
|---|--------------|------------------------------|-----------|-----------|------------------|------------------|------------------------|------------------|------------------|----------------|------------------------------------|
|   |              |                              |           | Delay     | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                  | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1             | City of SB   | TS                           | Morning   | 32.1      | C                | 0.459            | 32.4                   | C                | 0.466            | +0.007         | No                                 |
|   |              |                              | Evening   | 40.8      | D                | 0.606            | 41.3                   | D                | 0.609            | +0.003         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2    | City of SB   | TS                           | Morning   | 7.3       | A                | 0.851            | 8.3                    | A                | 0.952            | +0.101         | No                                 |
|   |              |                              | Evening   | 10.6      | B                | 0.962            | 10.7                   | B                | 0.964            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3      | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.7                    | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.8                    | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4      | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5      | City of SB   | TS                           | Morning   | 29.4      | C                | 0.493            | 29.6                   | C                | 0.498            | +0.005         | No                                 |
|   |              |                              | Evening   | 37.1      | D                | 0.776            | 37.9                   | D                | 0.784            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6          | City of SB   | CSS                          | Morning   | 17.2      | C                | N/A              | 16.6                   | C                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 23.0      | C                | N/A              | 20.8                   | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7  | City of SB   | CSS                          | Morning   | 14.8      | B                | N/A              | 91.5                   | F                | N/A              | N/A            | YES                                |
|   |              |                              | Evening   | 19.3      | C                | N/A              | 99.9                   | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8  | City of SB   | TS                           | Morning   | 7.7       | A                | 0.837            | 8.4                    | A                | 0.926            | +0.089         | No                                 |
|   |              |                              | Evening   | 11.3      | B                | 0.966            | 11.3                   | B                | 0.972            | +0.006         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9        | City of SB   | TS                           | Morning   | 23.4      | C                | 0.624            | 23.4                   | C                | 0.624            | +0.000         | No                                 |
|   |              |                              | Evening   | 19.8      | B                | 0.539            | 19.8                   | B                | 0.542            | +0.003         | No                                 |
| Waterman Avenue (NS) at:<br>Project South Access (EW) - #10 | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 12.4                   | C                | N/A              | N/A            | No                                 |
|   |              |                              | Evening   | 0.0       | 0.0              | N/A              | 15.2                   | C                | N/A              | N/A            | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

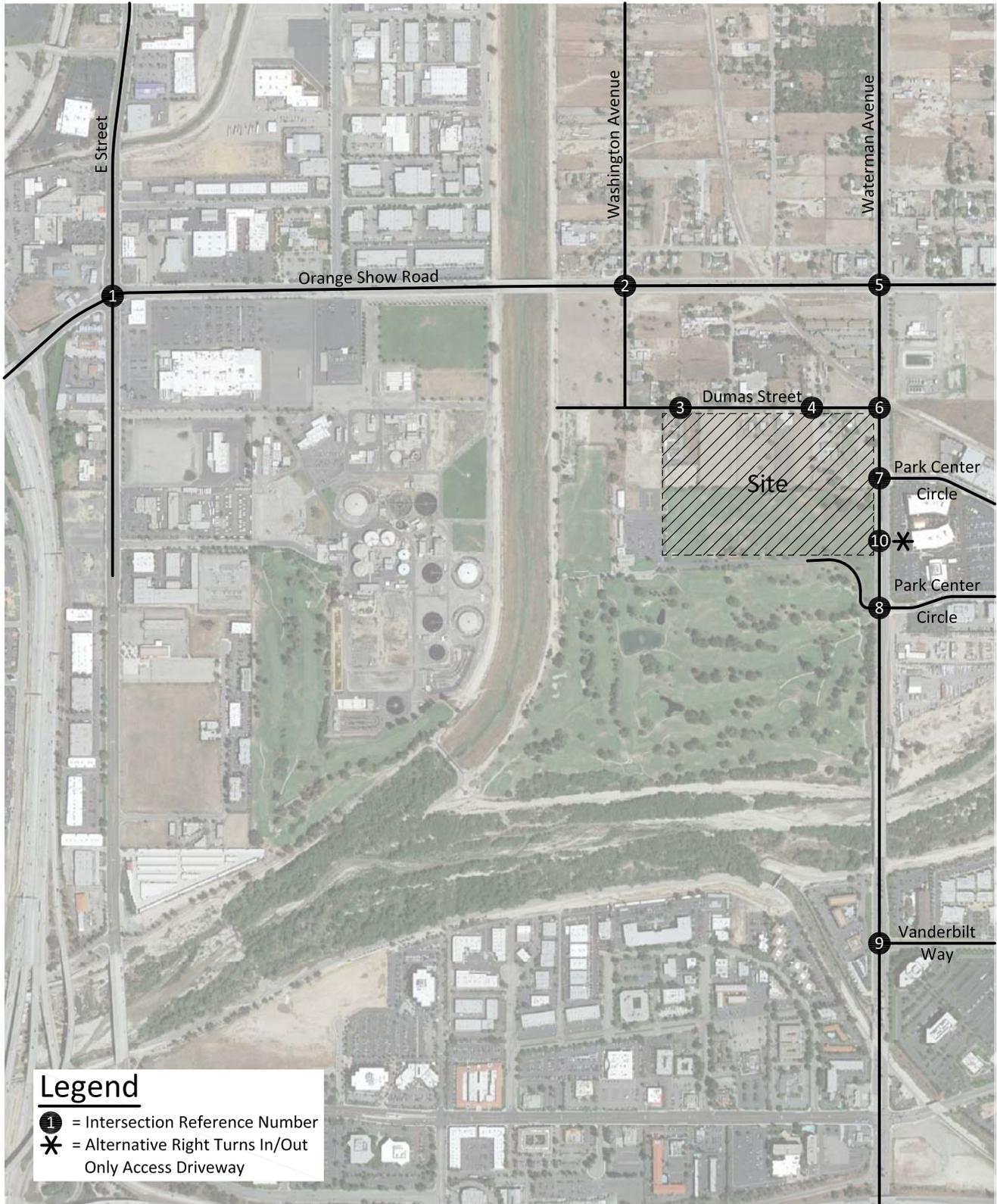
<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Figure 1  
Project Location Map



**Legend**

- ① = Intersection Reference Number
- \* = Alternative Right Turns In/Out Only Access Driveway

Figure 2  
Alternative Site Plan

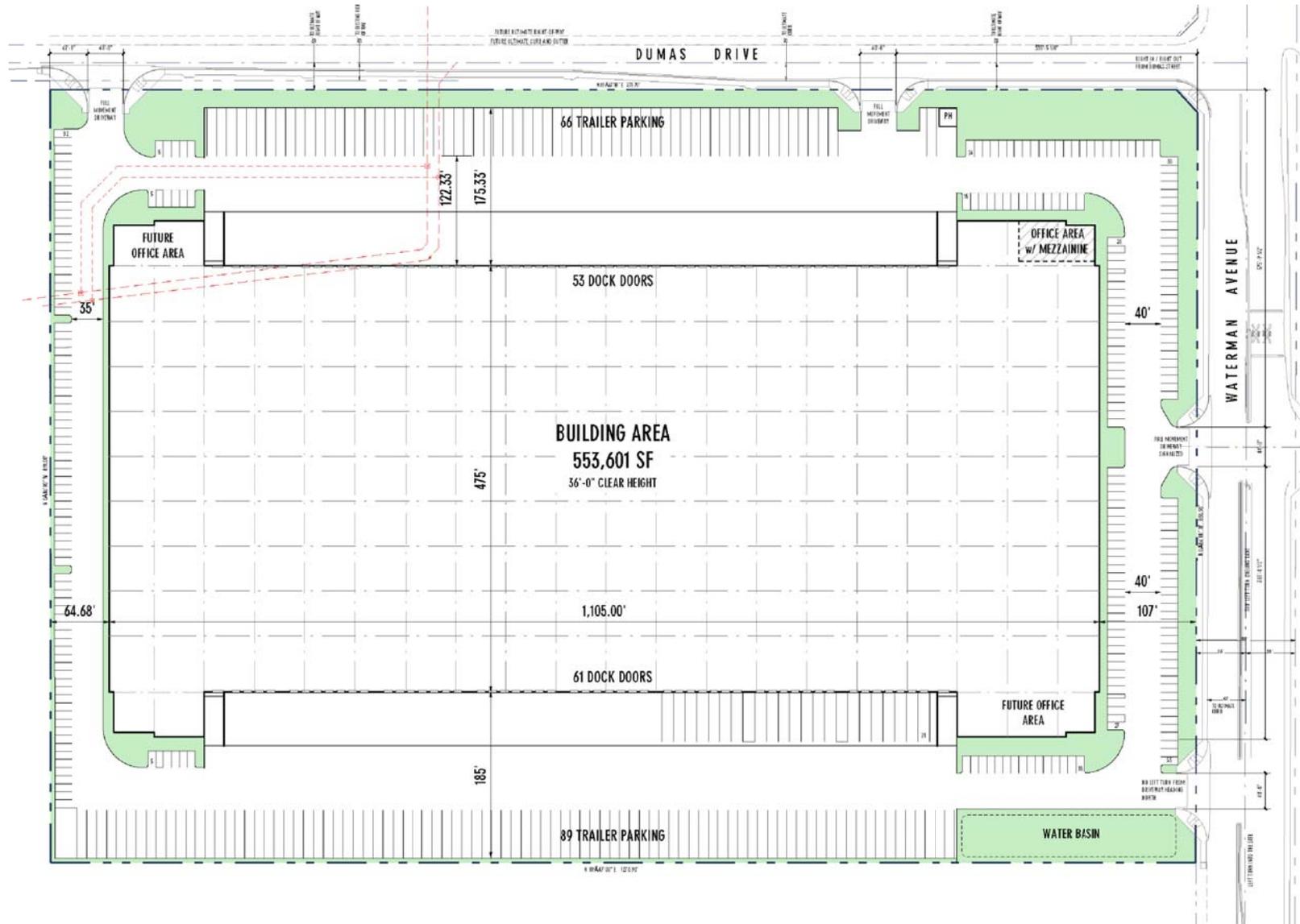


Figure 3  
Alternative Project Trip Distribution - Cars

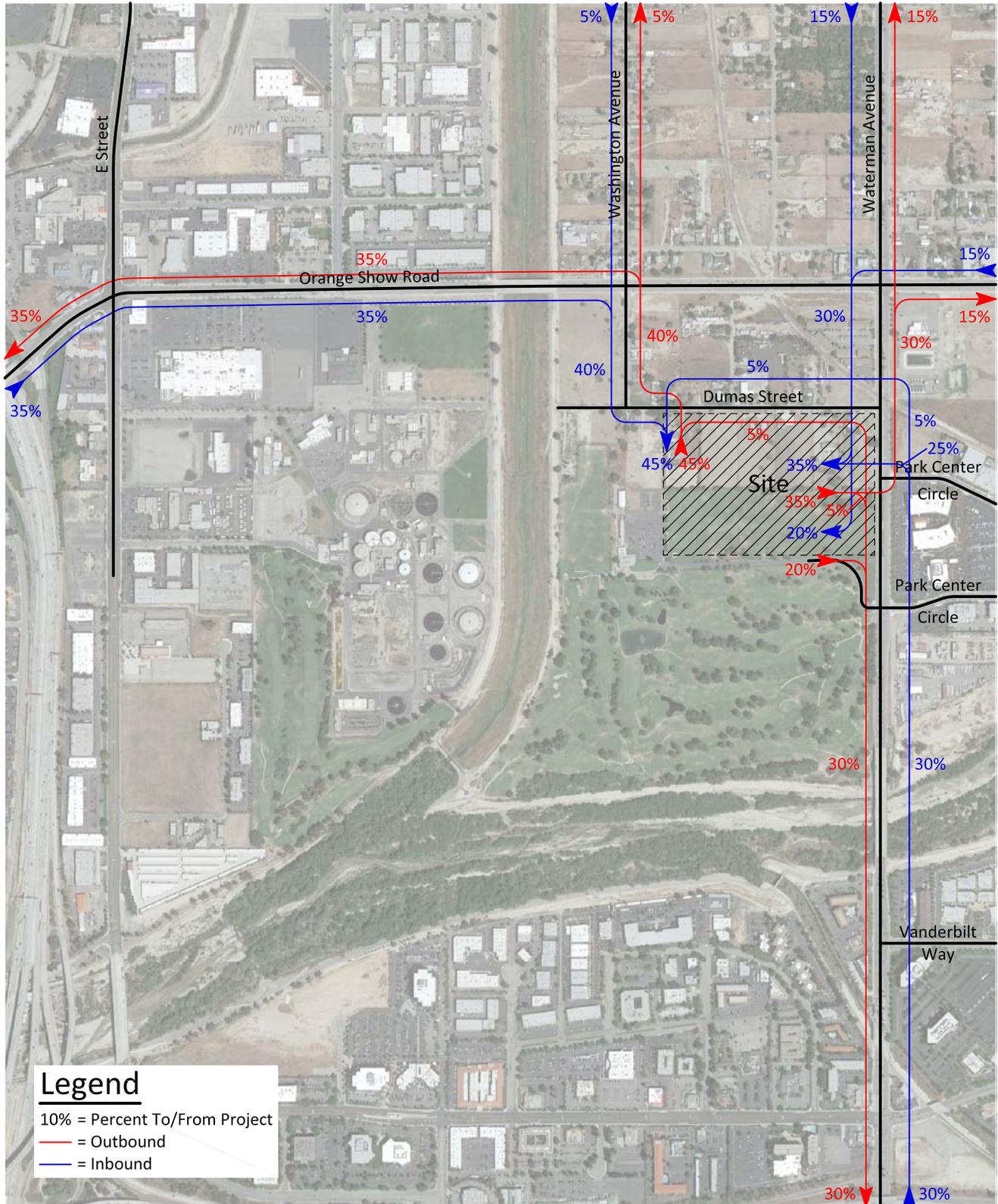
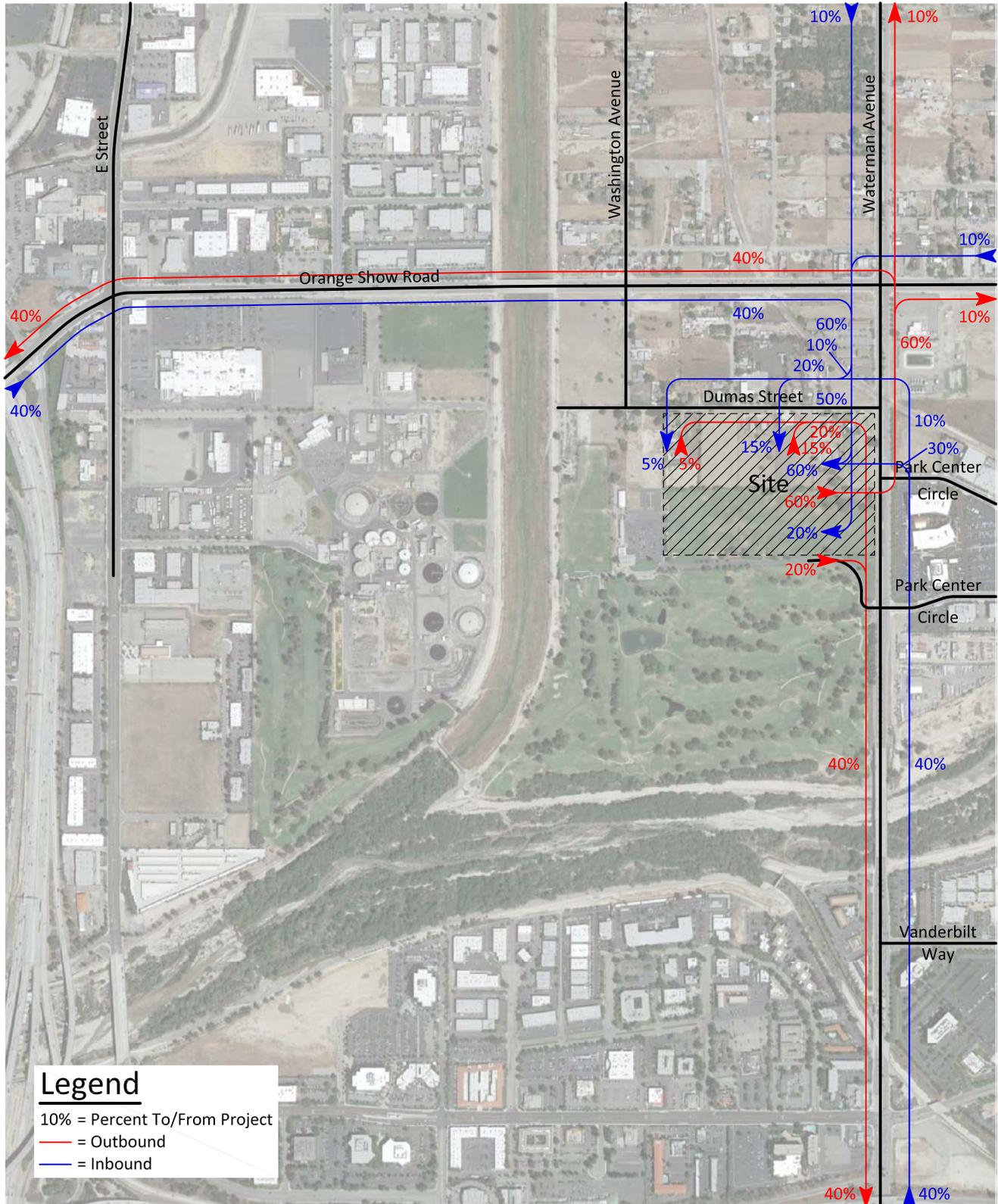


Figure 4  
Alternative Project Trip Distribution - Trucks



**Legend**

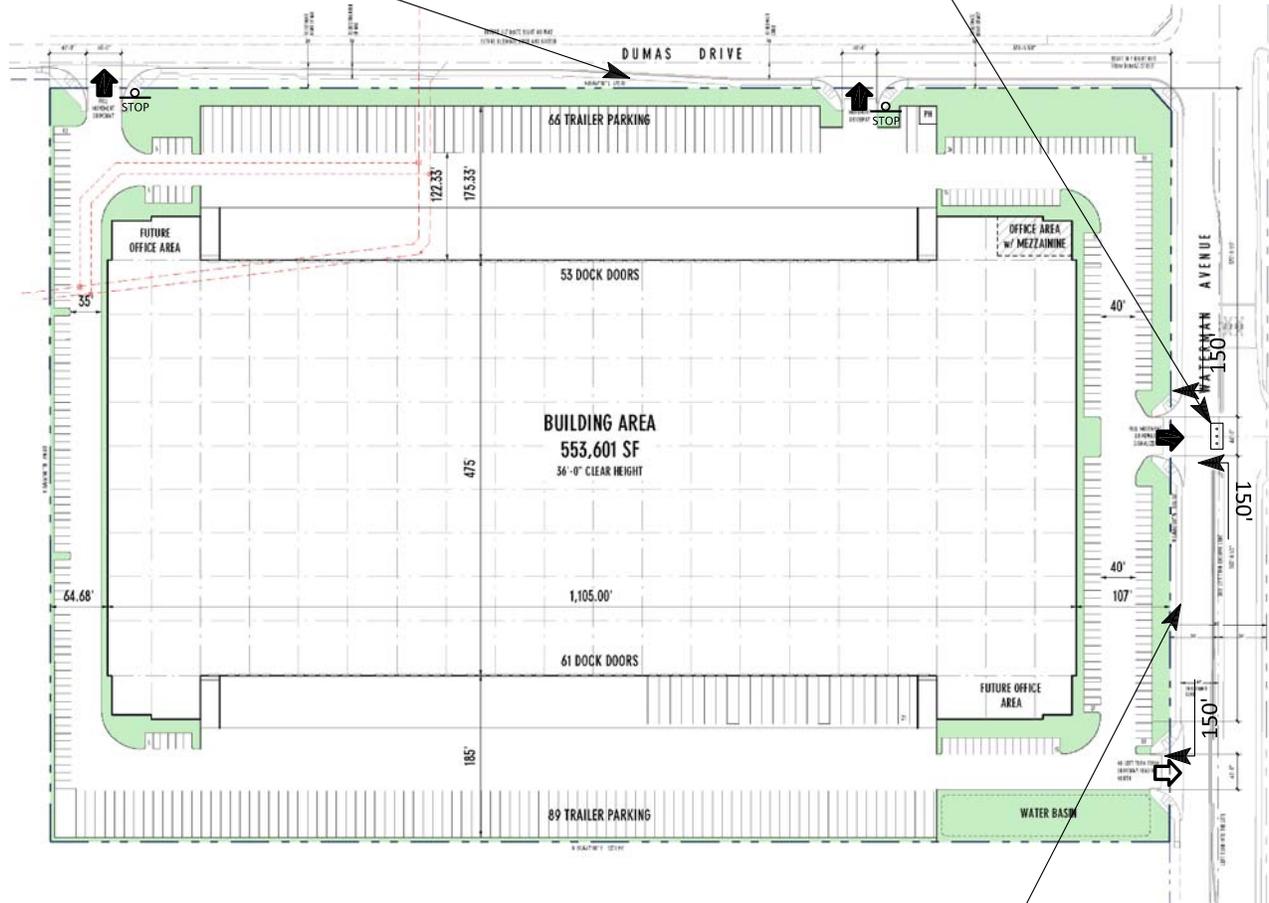
- 10% = Percent To/From Project
- = Outbound
- = Inbound



# Figure 5 Circulation Recommendations

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including eastbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.



Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including northbound left turn lane and southbound right turn lanes, landscaping and parkway improvements in conjunction with development, as necessary.

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

### Legend

- = Traffic Signal
- = Stop Sign
- = Full Access Driveway
- = Right Turns In/Out and Left Turns In Only Access Driveway
- = 150' = Left Turn Pocket Length
- = 150' = Right Turn Pocket Length

**APPENDIX A**

**Glossary of Transportation Terms**

## GLOSSARY OF TRANSPORTATION TERMS

### COMMON ABBREVIATIONS

|           |   |
|-----------|---|
| AC:       | Acres                                   |
| ADT:      | Average Daily Traffic                   |
| Caltrans: | California Department of Transportation |
| DU:       | Dwelling Unit                           |
| ICU:      | Intersection Capacity Utilization       |
| LOS:      | Level of Service                        |
| TSF:      | Thousand Square Feet                    |
| V/C:      | Volume/Capacity                         |
| VMT:      | Vehicle Miles Traveled                  |

### TERMS

**AVERAGE DAILY TRAFFIC:** The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

**BANDWIDTH:** The number of seconds of green time available for through traffic in a signal progression.

**BOTTLENECK:** A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

**CAPACITY:** The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

**CHANNELIZATION:** The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

**CLEARANCE INTERVAL:** Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

**CORDON:** An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

**CYCLE LENGTH:** The time period in seconds required for one complete signal cycle.

**CUL-DE-SAC STREET:** A local street open at one end only, and with special provisions for turning around.

**DAILY CAPACITY:** The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

**DELAY:** The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

**DEMAND RESPONSIVE SIGNAL:** Same as traffic-actuated signal.

**DENSITY:** The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

**DETECTOR:** A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

**DESIGN SPEED:** A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

**DIRECTIONAL SPLIT:** The percent of traffic in the peak direction at any point in time.

**DIVERSION:** The rerouting of peak hour traffic to avoid congestion.

**FORCED FLOW:** Opposite of free flow.

**FREE FLOW:** Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

**GAP:** Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

**HEADWAY:** Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

**INTERCONNECTED SIGNAL SYSTEM:** A number of intersections that are connected to achieve signal progression.

**LEVEL OF SERVICE:** A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

**LOOP DETECTOR:** A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

**MINIMUM ACCEPTABLE GAP:** Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

**MULTI-MODAL:** More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

**OFFSET:** The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

**PLATOON:** A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

**ORIGIN-DESTINATION SURVEY:** A survey to determine the point of origin and the point of destination for a given vehicle trip.

**PASSENGER CAR EQUIVALENTS:** One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

**PEAK HOUR:** The 60 consecutive minutes with the highest number of vehicles.

**PRETIMED SIGNAL:** A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

**PROGRESSION:** A term used to describe the progressive movement of traffic through several signalized intersections.

**SCREEN-LINE:** An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

**SIGNAL CYCLE:** The time period in seconds required for one complete sequence of signal indications.

**SIGNAL PHASE:** The part of the signal cycle allocated to one or more traffic movements.

**STARTING DELAY:** The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

**TRAFFIC-ACTUATED SIGNAL:** A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

**TRIP:** The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

**TRIP-END:** One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

**TRIP GENERATION RATE:** The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

**TRUCK:** A vehicle having dual tires on one or more axles, or having more than two axles.

**UNBALANCED FLOW:** Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

**VEHICLE MILES OF TRAVEL:** A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

**APPENDIX B**

**Explanation and Calculation of Intersection Delay**

## **EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY**

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)
9. Right turns
10. Left turns

11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is

added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

## LEVEL OF SERVICE DESCRIPTION<sup>1</sup>

| Level Of Service | Description  | Average Total Delay Per Vehicle (Seconds) |                |
|------------------|--|---|----------------|
|                  |  | Signalized                                | Unsignalized   |
| A                | Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.   | 0 to 10.00                                | 0 to 10.00     |
| B                | Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.  | 10.01 to 20.00                            | 10.01 to 15.00 |
| C                | Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.  | 20.01 to 35.00                            | 15.01 to 25.00 |
| D                | Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.   | 35.01 to 55.00                            | 25.01 to 35.00 |
| E                | Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.   | 55.01 to 80.00                            | 35.01 to 50.00 |
| F                | Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. | 80.01 and up                              | 50.01 and up   |

<sup>1</sup> Source: [Highway Capacity Manual](#) Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2000.

**Existing Plus Project**

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 115 Critical Vol./Cap.(X): 0.385
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.561
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 36.8
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.4
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table showing various volume and adjustment factors such as Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table showing saturation flow factors: Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table showing capacity analysis factors: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.761
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.1
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 13 columns and 4 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 5 rows including Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.2 Worst Case Level Of Service: A[ 8.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different traffic movements and 10 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 13 columns and 2 rows showing critical gap and follow-up time for various movements.

Capacity Module: Table with 13 columns and 4 rows showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 13 columns and 10 rows showing delay, LOS, and shared queue information for different movements.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 10 rows of volume data.

Critical Gap Module table with 12 columns and 2 rows of gap and follow-up time data.

Capacity Module table with 12 columns and 4 rows of capacity and volume data.

Level of Service Module table with 12 columns and 10 rows of delay and LOS data.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns for gap components like Critical Gp, FollowUpTim.

Capacity Module: Table with 13 columns for capacity components like Cnflct Vol, Potent Cap., Move Cap., etc.

Level Of Service Module: Table with 13 columns for LOS components like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.444
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.2
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with 13 columns. Rows include Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 13 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.702
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 15.0]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing different traffic volumes and adjustments like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns showing critical gap values and follow-up times for different movements.

Capacity Module:

Table with 13 columns showing capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[ 22.7]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 12 columns representing volume components. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Table with 12 columns representing critical gap and follow-up time. Rows include Critical Gap and FollowUpTim.

Table with 12 columns representing capacity. Rows include Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with 12 columns representing level of service. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: F[ 60.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing traffic volumes and adjustments for different movements.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up times for various movements.

Capacity Module: Table with 12 columns showing capacity, conflict volume, and volume/capacity ratios.

Level of Service Module: Table with 12 columns showing level of service, delay, and queue lengths for different movements.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour With Improvements

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*
Cycle (sec): 80 Critical Vol./Cap.(X): 0.316
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.1
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 0 711 27 77 749 0 0 0 0 1 0 6
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 711 27 77 749 0 0 0 0 1 0 6
Added Vol: 17 5 0 0 15 12 11 0 1 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 17 716 27 77 764 12 11 0 1 1 0 6
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
PHF Volume: 20 834 31 90 890 14 13 0 1 1 0 7
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 20 834 31 90 890 14 13 0 1 1 0 7
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 20 834 31 90 890 14 13 0 1 1 0 7

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00
Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1700 3600 1800 1700 3600 1800 1700 0 1800 1700 0 1800

Capacity Analysis Module:
Vol/Sat: 0.01 0.23 0.02 0.05 0.25 0.01 0.01 0.00 0.00 0.00 0.00 0.00
Crit Moves: \*\*\*\*
Green/Cycle: 0.16 0.55 0.55 0.13 0.51 0.51 0.25 0.00 0.25 0.25 0.00 0.25
Volume/Cap: 0.07 0.42 0.03 0.42 0.48 0.02 0.03 0.00 0.00 0.00 0.00 0.02
Delay/Veh: 28.4 10.7 8.3 33.7 12.9 9.7 22.7 0.0 22.5 22.5 0.0 22.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.4 10.7 8.3 33.7 12.9 9.7 22.7 0.0 22.5 22.5 0.0 22.6
LOS by Move: C B A C B A C A C C A C
HCM2kAvgQ: 0 6 0 3 7 0 0 0 0 0 0 0

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: F[116.8]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (1-0-2-0-1).

Volume Module: Table with 12 columns for volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 12 rows for different approaches.

Critical Gap Module: Table with 12 columns for gap components (Critical Gp, FollowUpTim) and 12 rows for different approaches.

Capacity Module: Table with 12 columns for capacity components (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 12 rows for different approaches.

Level of Service Module: Table with 12 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 12 rows for different approaches.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour With Improvements

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 125 Critical Vol./Cap.(X): 0.409
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.0
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume) and rows for each.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat., and rows for each.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ, and rows for each.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement, Control, Rights, Min. Green, Lanes.

Volume Module: Table with 12 columns for different traffic movements and 13 rows for various volume and adjustment factors.

Saturation Flow Module: Table with 12 columns for different traffic movements and 4 rows for saturation flow and adjustment factors.

Capacity Analysis Module: Table with 12 columns for different traffic movements and 13 rows for capacity analysis metrics.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.577
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.0
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 13 columns representing different traffic movements. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns representing different traffic movements. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.437
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 18.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 12 columns representing different volume and adjustment factors. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 12 columns representing saturation flow and adjustment factors. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 12 columns representing capacity analysis metrics. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #10 Waterman Street (NS) at Project South Driveway (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: B[ 11.4]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Table with 12 columns representing volume components: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume.

Table for Critical Gap Module with 3 columns: Critical Gp, FollowUpTim, and other metrics.

Table for Capacity Module with 3 columns: Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Table for Level of Service Module with 3 columns: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #10 Waterman Street (NS) at Project South Driveway (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[ 13.1]
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (0 0 2 0 0).

Volume Module: Table with 12 columns for volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 4 rows of data.

Critical Gap Module: Table with 12 columns for gap components (Critical Gp, FollowUpTim) and 4 rows of data.

Capacity Module: Table with 12 columns for capacity components (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 rows of data.

Level Of Service Module: Table with 12 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 rows of data.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

**Opening Year (2017) With Project**

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.419
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.8
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns representing different traffic flows and 10 rows of volume data.

Saturation Flow Module: Table with 12 columns and 4 rows of saturation flow data.

Capacity Analysis Module: Table with 12 columns and 10 rows of capacity analysis data.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 115 Critical Vol./Cap.(X): 0.586
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 38.7
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic metrics and 13 rows of data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 13 columns representing saturation flow metrics and 4 rows of data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis metrics and 10 rows of data including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.704
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.5
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for different traffic components and 13 rows for various volume and adjustment factors.

Saturation Flow Module: Table with 13 columns for saturation flow and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 13 columns for capacity analysis and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.773

Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.4

Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Permitted, Prot+Permit), Rights (Include), Min. Green, Lanes.

Table with columns: Volume Module (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume).

Table with columns: Saturation Flow Module (Sat/Lane, Adjustment, Lanes, Final Sat.).

Table with columns: Capacity Analysis Module (Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ).

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different traffic volumes and adjustments like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times for different movements.

Capacity Module: Table with 13 columns showing capacity-related metrics like Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 13 columns showing level of service details for 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.0 Worst Case Level Of Service: A[ 8.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 11 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 5 rows including Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic volumes and adjustments like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module table with 13 columns showing critical gap and follow-up time values.

Capacity Module table with 13 columns showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module table with 13 columns showing delay, LOS by movement, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing volume components: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume.

Critical Gap Module:

Table with 13 columns for critical gap metrics: Critical Gp, FollowUpTim.

Capacity Module:

Table with 13 columns for capacity metrics: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.

Level Of Service Module:

Table with 13 columns for level of service metrics: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.459
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:

Table with 12 columns representing different traffic components and 13 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with 12 columns and 4 rows: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 12 columns and 10 rows: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
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Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.762
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 35.5
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns for different traffic movements and 13 rows for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module table with 13 columns for different traffic movements and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns for different traffic movements and 13 rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 15.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module:

Table with 13 columns showing critical gap values and follow-up times for different movements.

Capacity Module:

Table with 13 columns showing capacity metrics like Conflict Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module:

Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: D[ 26.1]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up times for different movements.

Capacity Module: Table with 12 columns showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 12 columns showing delay, LOS by move, shared capacity, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: F[ 76.4]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic volumes and 13 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns for gap metrics and 2 rows for Critical Gp and FollowUpTim.

Capacity Module table with 13 columns for capacity metrics and 4 rows for Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module table with 13 columns for LOS metrics and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

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Waterman Industrial Center  
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 Morning Peak Hour With Improvements

Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
 Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)  
 \*\*\*\*\*  
 Cycle (sec): 85 Critical Vol./Cap.(X): 0.340  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.3  
 Optimal Cycle: OPTIMIZED Level Of Service: B  
 \*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 0  | 1          | 0  | 0  | 1          | 0  | 0  |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 721  | 27   | 78   | 779  | 0    | 0    | 0    | 0    | 1    | 0    | 9    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0    | 721  | 27   | 78   | 779  | 0    | 0    | 0    | 0    | 1    | 0    | 9    |
| Added Vol:   | 17   | 68   | 0    | 0    | 43   | 12   | 11   | 0    | 1    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 17   | 789  | 27   | 78   | 822  | 12   | 11   | 0    | 1    | 1    | 0    | 9    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| PHF Volume:  | 20   | 919  | 31   | 91   | 957  | 14   | 13   | 0    | 1    | 1    | 0    | 10   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 20   | 919  | 31   | 91   | 957  | 14   | 13   | 0    | 1    | 1    | 0    | 10   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 20   | 919  | 31   | 91   | 957  | 14   | 13   | 0    | 1    | 1    | 0    | 10   |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Adjustment: | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 |
| Lanes:      | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 1700 | 3600 | 1800 | 1700 | 3600 | 1800 | 1700 | 0    | 1800 | 1700 | 0    | 1800 |

Capacity Analysis Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:     | 0.01 | 0.26 | 0.02 | 0.05 | 0.27 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Crit Moves:  | **** |      |      | **** |      |      | **** |      |      |      |      |      |
| Green/Cycle: | 0.17 | 0.57 | 0.57 | 0.12 | 0.52 | 0.52 | 0.24 | 0.00 | 0.24 | 0.24 | 0.00 | 0.24 |
| Volume/Cap:  | 0.07 | 0.44 | 0.03 | 0.44 | 0.51 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Delay/Veh:   | 29.8 | 10.5 | 7.9  | 36.3 | 13.3 | 9.7  | 25.1 | 0.0  | 24.9 | 24.9 | 0.0  | 25.0 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:  | 29.8 | 10.5 | 7.9  | 36.3 | 13.3 | 9.7  | 25.1 | 0.0  | 24.9 | 24.9 | 0.0  | 25.0 |
| LOS by Move: | C    | B    | A    | D    | B    | A    | C    | A    | C    | C    | A    | C    |
| HCM2kAvgQ:   | 0    | 7    | 0    | 3    | 8    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
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2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.0 Worst Case Level Of Service: F[172.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up times for different movements.

Capacity Module: Table with 12 columns showing capacity metrics like Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 12 columns showing delay, LOS, and approach delay for different movements.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

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 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
 Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)  
 \*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.439  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.3  
 Optimal Cycle: OPTIMIZED Level Of Service: B  
 \*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 0  | 0          | 1  | 0  | 0          | 1  | 0  |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 748  | 2    | 9    | 1182 | 0    | 0    | 0    | 0    | 9    | 0    | 66   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0    | 748  | 2    | 9    | 1182 | 0    | 0    | 0    | 0    | 9    | 0    | 66   |
| Added Vol:   | 9    | 37   | 0    | 0    | 74   | 6    | 27   | 0    | 2    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 9    | 785  | 2    | 9    | 1256 | 6    | 27   | 0    | 2    | 9    | 0    | 66   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| PHF Volume:  | 10   | 840  | 2    | 10   | 1344 | 6    | 29   | 0    | 2    | 10   | 0    | 71   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 10   | 840  | 2    | 10   | 1344 | 6    | 29   | 0    | 2    | 10   | 0    | 71   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 10   | 840  | 2    | 10   | 1344 | 6    | 29   | 0    | 2    | 10   | 0    | 71   |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Adjustment: | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 |
| Lanes:      | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 1700 | 3600 | 1800 | 1700 | 3600 | 1800 | 1700 | 0    | 1800 | 1700 | 0    | 1800 |

Capacity Analysis Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:     | 0.01 | 0.23 | 0.00 | 0.01 | 0.37 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.04 |
| Crit Moves:  | **** |      |      | **** |      |      |      |      |      | **** |      |      |
| Green/Cycle: | 0.08 | 0.60 | 0.60 | 0.20 | 0.72 | 0.72 | 0.15 | 0.00 | 0.15 | 0.15 | 0.00 | 0.15 |
| Volume/Cap:  | 0.07 | 0.39 | 0.00 | 0.03 | 0.52 | 0.00 | 0.11 | 0.00 | 0.01 | 0.04 | 0.00 | 0.26 |
| Delay/Veh:   | 55.9 | 13.4 | 10.2 | 42.4 | 8.1  | 5.0  | 47.5 | 0.0  | 46.6 | 46.9 | 0.0  | 48.9 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:  | 55.9 | 13.4 | 10.2 | 42.4 | 8.1  | 5.0  | 47.5 | 0.0  | 46.6 | 46.9 | 0.0  | 48.9 |
| LOS by Move: | E    | B    | B    | D    | A    | A    | D    | A    | D    | D    | A    | D    |
| HCM2kAvgQ:   | 0    | 8    | 0    | 0    | 12   | 0    | 1    | 0    | 0    | 0    | 0    | 3    |

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
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\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.837
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

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2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.943
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 14.0
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.608
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.5
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow metrics including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis metrics including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

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Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.473
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 13 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #10 Waterman Street (NS) at Project South Driveway (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: B[ 11.7]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (0-2-0-0).

Volume Module:

Table with 12 columns representing different volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 4 rows of data.

Critical Gap Module:

Table with 12 columns for critical gap and follow-up time metrics, showing values like 6.9 and 3.3.

Capacity Module:

Table with 12 columns for capacity metrics (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 rows of data.

Level Of Service Module:

Table with 12 columns for level of service metrics (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 rows of data.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #10 Waterman Street (NS) at Project South Driveway (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[ 13.8]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns showing Critical Gp, FollowUpTim, and other gap-related metrics.

Capacity Module: Table with 12 columns showing Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module: Table with 12 columns showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., etc.

Note: Queue reported is the number of cars per lane.

**Year 2035 With Project**

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.466
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.609
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 41.3
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 12 columns representing different volume metrics and 12 rows of data.

Saturation Flow Module:

Table with 12 columns representing saturation flow metrics and 4 rows of data.

Capacity Analysis Module:

Table with 12 columns representing capacity analysis metrics and 12 rows of data.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.952
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 8.3
Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.964
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.7
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: A[ 8.7]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different traffic movements and 10 rows of volume-related data.

Critical Gap Module: Table with 13 columns and 2 rows showing critical gap and follow-up time.

Capacity Module: Table with 13 columns and 4 rows showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 13 columns and 10 rows showing delay, LOS, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 13 columns representing traffic movements. Rows include Volume Module: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume.

Table with 13 columns representing traffic movements. Rows include Critical Gap Module: Critical Gp, FollowUpTim.

Table with 13 columns representing traffic movements. Rows include Capacity Module: Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Table with 13 columns representing traffic movements. Rows include Level Of Service Module: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 11 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 4 rows including Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 4 columns for different gap types and their values.

Capacity Module: Table with 4 columns for capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module: Table with 4 columns for LOS-related metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.498
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic components and 13 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module:

Table with 13 columns and 4 rows of saturation flow data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns and 10 rows of capacity analysis data including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.784
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 37.9
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 12 columns and 14 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 12 columns and 5 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 12 columns and 11 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 16.7]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 6 rows including Cnflict Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C [ 20.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 12 columns representing different traffic movements and 10 rows of volume data.

Critical Gap Module table with 12 columns and 2 rows of gap and follow-up time data.

Capacity Module table with 12 columns and 6 rows of capacity and volume/capacity data.

Level of Service Module table with 12 columns and 10 rows of delay and LOS data.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: F[ 91.5]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module:

Table with 12 columns representing critical gap and follow-up times for different movements.

Capacity Module:

Table with 12 columns representing capacity metrics like Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module:

Table with 12 columns representing level of service metrics like 2Way95thQ, Control Del, LOS by Move, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour With Improvements

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Cycle (sec): 65 Critical Vol./Cap.(X): 0.333
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.9
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 13 columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 13 columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Average Delay (sec/veh): 5.3 Worst Case Level Of Service: F[390.4]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns for gap metrics like Critical Gp, FollowUpTim.

Capacity Module: Table with 12 columns for capacity metrics like Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Level of Service Module: Table with 12 columns for LOS metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

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 Waterman Industrial Center  
 Year 2035 With Project  
 Evening Peak Hour With Improvements  
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 70 Critical Vol./Cap.(X): 0.489  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 15.0  
 Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 0  | 0          | 1  | 0  | 0          | 1  | 0  |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 0           | 960  | 2    | 10          | 1441 | 0    | 0          | 0    | 0    | 10         | 0    | 70   |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 0           | 960  | 2    | 10          | 1441 | 0    | 0          | 0    | 0    | 10         | 0    | 70   |
| Added Vol:     | 9           | 2    | 0    | 0           | 14   | 6    | 27         | 0    | 2    | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 9           | 962  | 2    | 10          | 1455 | 6    | 27         | 0    | 2    | 10         | 0    | 70   |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 0.95        | 0.95 | 0.95 | 0.95        | 0.95 | 0.95 | 0.95       | 0.95 | 0.95 | 0.95       | 0.95 | 0.95 |
| PHF Volume:    | 9           | 1013 | 2    | 11          | 1532 | 6    | 28         | 0    | 2    | 11         | 0    | 74   |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 9           | 1013 | 2    | 11          | 1532 | 6    | 28         | 0    | 2    | 11         | 0    | 74   |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:   | 9           | 1013 | 2    | 11          | 1532 | 6    | 28         | 0    | 2    | 11         | 0    | 74   |

| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:             | 0.95        | 1.00 | 1.00 | 0.95        | 1.00 | 1.00 | 0.95       | 1.00 | 1.00 | 0.95       | 1.00 | 1.00 |
| Lanes:                  | 1.00        | 2.00 | 1.00 | 1.00        | 2.00 | 1.00 | 1.00       | 0.00 | 1.00 | 1.00       | 0.00 | 1.00 |
| Final Sat.:             | 1800        | 3800 | 1900 | 1800        | 3800 | 1900 | 1800       | 0    | 1900 | 1800       | 0    | 1900 |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.01        | 0.27 | 0.00 | 0.01        | 0.40 | 0.00 | 0.02       | 0.00 | 0.00 | 0.01       | 0.00 | 0.04 |
| Crit Moves:               | ****        |      |      | ****        |      |      | ****       |      |      | ****       |      |      |
| Green/Cycle:              | 0.14        | 0.48 | 0.48 | 0.15        | 0.49 | 0.49 | 0.29       | 0.00 | 0.29 | 0.29       | 0.00 | 0.29 |
| Volume/Cap:               | 0.04        | 0.56 | 0.00 | 0.04        | 0.83 | 0.01 | 0.06       | 0.00 | 0.00 | 0.02       | 0.00 | 0.14 |
| Delay/Veh:                | 26.1        | 11.8 | 7.8  | 25.5        | 16.7 | 7.3  | 18.3       | 0.0  | 17.8 | 18.0       | 0.0  | 19.0 |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 26.1        | 11.8 | 7.8  | 25.5        | 16.7 | 7.3  | 18.3       | 0.0  | 17.8 | 18.0       | 0.0  | 19.0 |
| LOS by Move:              | C           | B    | A    | C           | B    | A    | B          | A    | B    | B          | A    | B    |
| HCM2kAvgQ:                | 0           | 7    | 0    | 0           | 15   | 0    | 0          | 0    | 0    | 0          | 0    | 1    |

\*\*\*\*\*  
 Note: Queue reported is the number of cars per lane.  
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Waterman Industrial Center
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Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 8.4
Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.972

Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.3

Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit, Permitted), Rights (Include), Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.624
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 23.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat., etc.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.542
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.8
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #10 Waterman Street (NS) at Project South Driveway (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: B[ 12.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement (L-T-R), Control, Rights, and Lanes.

Table with 12 columns representing traffic volumes. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Table with 12 columns. Rows include Critical Gap Module and FollowUpTim.

Table with 12 columns. Rows include Capacity Module: Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with 12 columns. Rows include Level Of Service Module: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #10 Waterman Street (NS) at Project South Driveway (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C[ 15.2]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 12 columns representing traffic movements. Rows include Volume Module metrics: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume.

Table with 12 columns. Rows include Critical Gap Module metrics: Critical Gp, FollowUpTim.

Table with 12 columns. Rows include Capacity Module metrics: Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Table with 12 columns. Rows include Level Of Service Module metrics: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

**APPENDIX C**

**Traffic Signal Warrant Worksheet**

# PEAK HOUR VOLUME WARRANT (Rural Areas)

## Existing + Ambient Growth

Major Street Name = **Waterman Avenue**

Total of Both Approaches (VPH) = **1941**

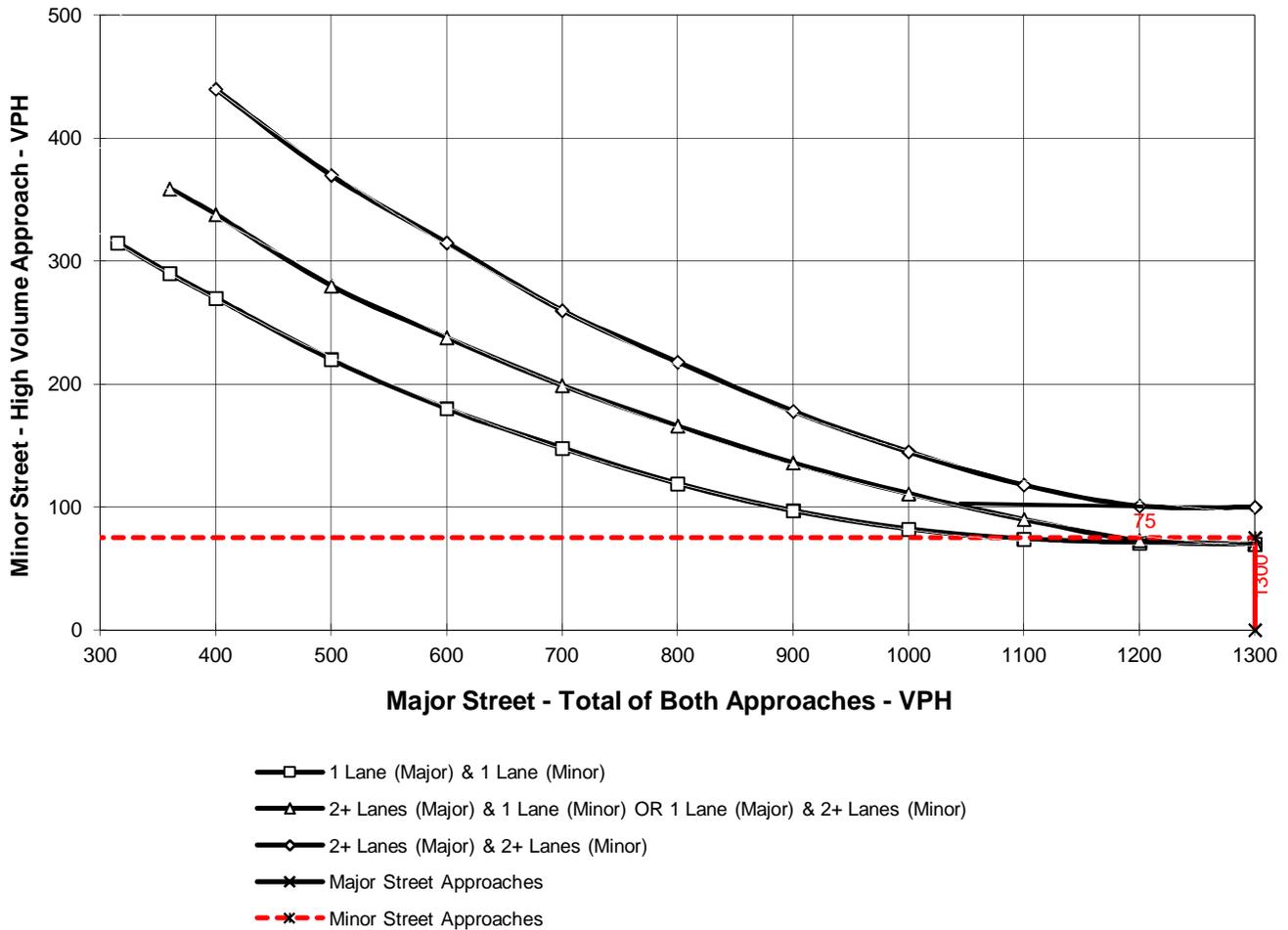
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Park Center North**

High Volume Approach (VPH) = **75**

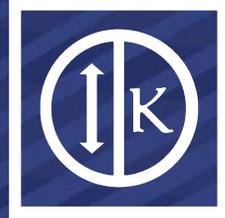
Number of Approach Lanes Minor Street = **1**

### WARRANTED FOR A SIGNAL



**\*\* NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.



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**KUNZMAN ASSOCIATES, INC.**

**WATERMAN INDUSTRIAL CENTER**

**TRAFFIC IMPACT ANALYSIS**

**September 9, 2015**



KUNZMAN ASSOCIATES, INC.

## WATERMAN INDUSTRIAL CENTER

### TRAFFIC IMPACT ANALYSIS

September 9, 2015

Prepared by:

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## I. Executive Summary

---

The purpose of this report is to provide an assessment of the traffic impacts resulting from the development of the proposed Waterman Industrial Center project, and to identify the traffic mitigation measures necessary to maintain the established level of service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act.

The City of San Bernardino is the lead agency responsible for preparation of the traffic impact analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the Existing Plus Project, the anticipated opening date with full occupancy of the development in Year 2017 at which time it will be generating trips at its full potential, and for the Year 2035.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

### A. Analysis Methodology

A series of scoping discussions were conducted with the City of San Bernardino to define the desired analysis locations for each future analysis year. The project scoping agreement with the City of San Bernardino is included in Appendix B.

The analysis of the traffic impacts from the proposed development and the assessment of the required mitigation measures were based on an evaluation of the existing and forecast traffic conditions in the vicinity of the site with and without the project. The following analysis years are considered in this report:

- Existing Conditions (2015)
- Existing Plus Project<sup>1</sup> Conditions
- Existing Plus Ambient Growth (2017)                      Baseline Without Other Projects
- Opening Year (2017) Without Project                      With Cumulative Projects
- Opening Year (2017) With Project                      With Cumulative Projects
- Horizon Year Conditions (2035) Without Project
- Horizon Year Conditions (2035) With Project

The roadway elements that must be analyzed are dependent on both the analysis year (project Opening Year or Year 2035) and project generated trips. The identification of the study area, and the intersections and highway segments requiring analysis, was based on an estimate of the two-way traffic volumes on the roadway segments near the project site. All arterial segments have been included in the analysis when the anticipated project volume

---

<sup>1</sup> The existing plus project conditions has been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time. This scenario is provided for informational purposes only, and will not be used for impact determinations or mitigation.

equals or exceeds 50 two-way trips in the peak hours. The requirement is 100 two-way peak hour trips for freeways.

The project does not contribute trips greater than the freeway threshold volume of 100 two-way peak hour trips. The project does not contribute trips greater than the arterial link threshold volume of 50 two-way trips in the peak hours on intersections outside the City of San Bernardino.

**B. Definition of Deficiency and Significant Impact**

The following definitions of deficiencies and significant impacts have been developed in accordance with the City of San Bernardino requirements.

1. Definition of Deficiency

The definition of an intersection deficiency has been obtained from the City of San Bernardino General Plan. The General Plan states that peak hour intersection operations of Level of Service D or better are generally acceptable. Therefore, any intersection operating Level of Service E to F will be considered deficient.

For freeway facilities, the definition of deficiency is based on maintaining a level of service standard of Level of Service E or better, except where an existing Level of Service F condition is identified. A deficiency is, therefore, defined as any freeway segment operating or projected to operate at Level of Service F, unless the segment is currently identified.

2. Definition of Significant Impact

Based on the City of San Bernardino Development Services Department, Traffic Impact Study Guidelines (2015), the impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |                 |                      |
|--|-----------------|----------------------|
| Level of Service                               | Volume/Capacity | Incremental Increase |
| C  | 0.71-0.80       | 0.04 or more         |
| D  | 0.81-0.90       | 0.02 or more         |
| E/F  | 0.91 - more     | 0.01 or more         |

An intersection mitigation measure shall either fix the deficiency, or reduce the volume to capacity ratio so that it is below the level that occurs without the project.

A traffic impact is considered significant if the project both: i) contributes measurable traffic to and ii) substantially and adversely changes the level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the City of San Bernardino General Plan cannot be constructed.

**C. Project Description**

The proposed development is located on the southwest corner of the Waterman Avenue at Dumas Street intersection in the City of San Bernardino. A vicinity map showing the project location is provided on Figure 1.

The approximately 25 acre project site is proposed to be developed with 564,652 square feet of high-cube warehouse distribution center. The proposed project will have access to Waterman Avenue and Dumas Street. Figure 2 illustrates the project site plan.

**D. Existing Conditions**

The study area intersections currently operate at an acceptable Level of Service during the peak hours for existing traffic conditions.

**E. Project Traffic**

Project traffic volumes for all future projections were estimated using the manual approach. Trip generation has been estimated based on the Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012 and City of Fontana, Truck Trip Generation Study, August 2003.

The proposed development is projected to generate approximately 1,282 daily vehicle trips in Passenger Car Equivalents, 87 Passenger Car Equivalents of which will occur during the morning peak hour and 95 Passenger Car Equivalents of which will occur during the evening peak hour.

To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

**F. Future Conditions**

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, with improvements (see Table 4).

As shown in Table 5 for Existing Plus Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Ambient Growth traffic conditions without and with improvements (see Table 6).

For Existing Plus Ambient Growth traffic conditions, a traffic signal is projected to be warranted at the following study area intersection (see Appendix G):

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The unsignalized intersection has been evaluated for a traffic signal using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the California Manual of Uniform Traffic Control Devices (2014 Edition).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) Without Project traffic conditions without and with improvements (see Table 7).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, with improvements (see Table 8).

As shown in Table 9 for Opening Year (2017) With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 Without Project traffic conditions without and with improvements (see Table 10).

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, except for the following

intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, with improvements (see Table 11).

As shown in Table 12 for Year 2035 With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

## **G. Recommendations**

The recommendations in this section address on-site improvements, off-site improvements and the phasing (as needed) of all necessary study area transportation improvements.

### **1. On-Site Improvements**

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 40).

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary.

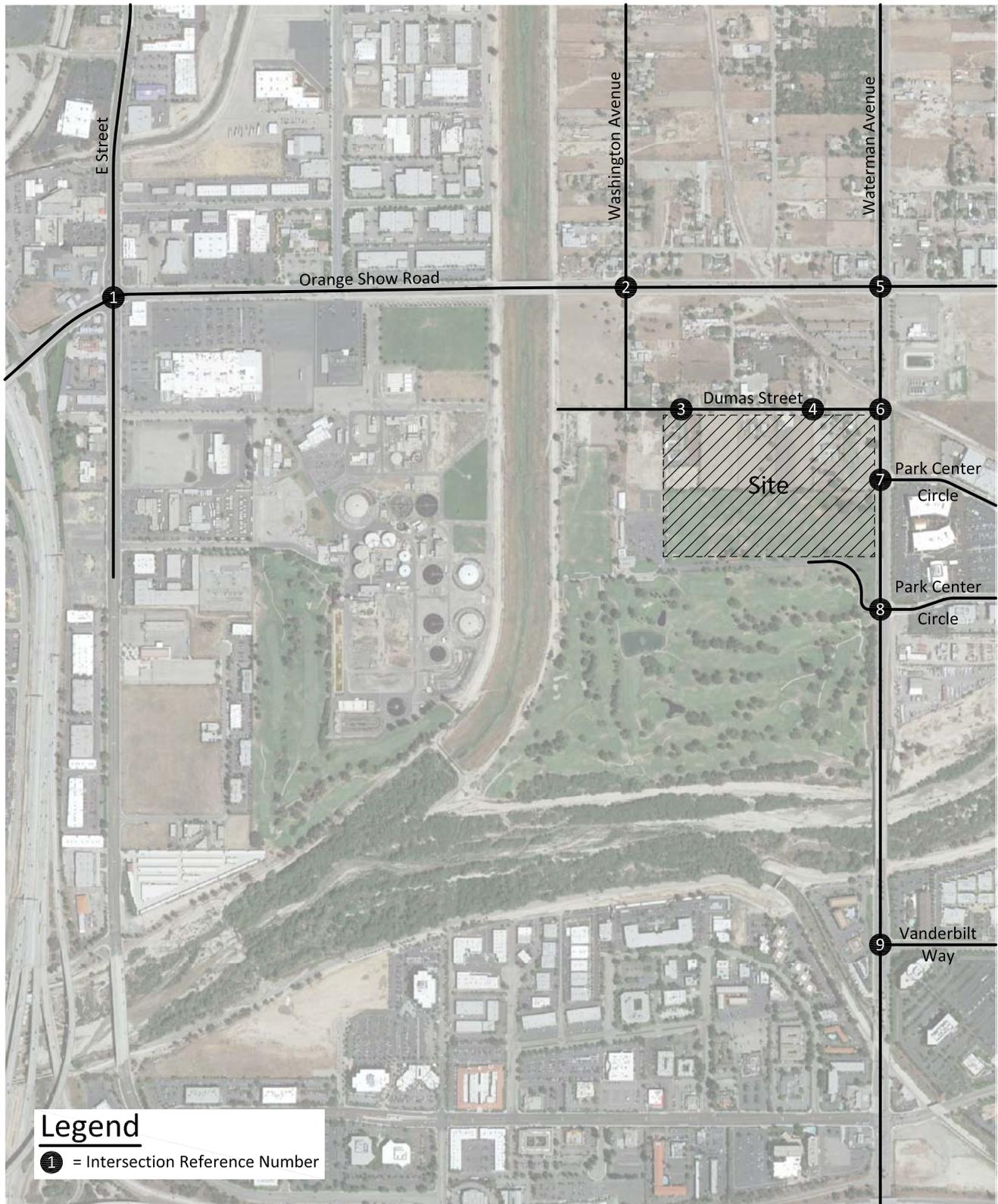
Install traffic signal at Waterman Avenue and Park Center Circle North including Waterman Avenue northbound left turn lane improvements. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.

2. Off-Site Improvements

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

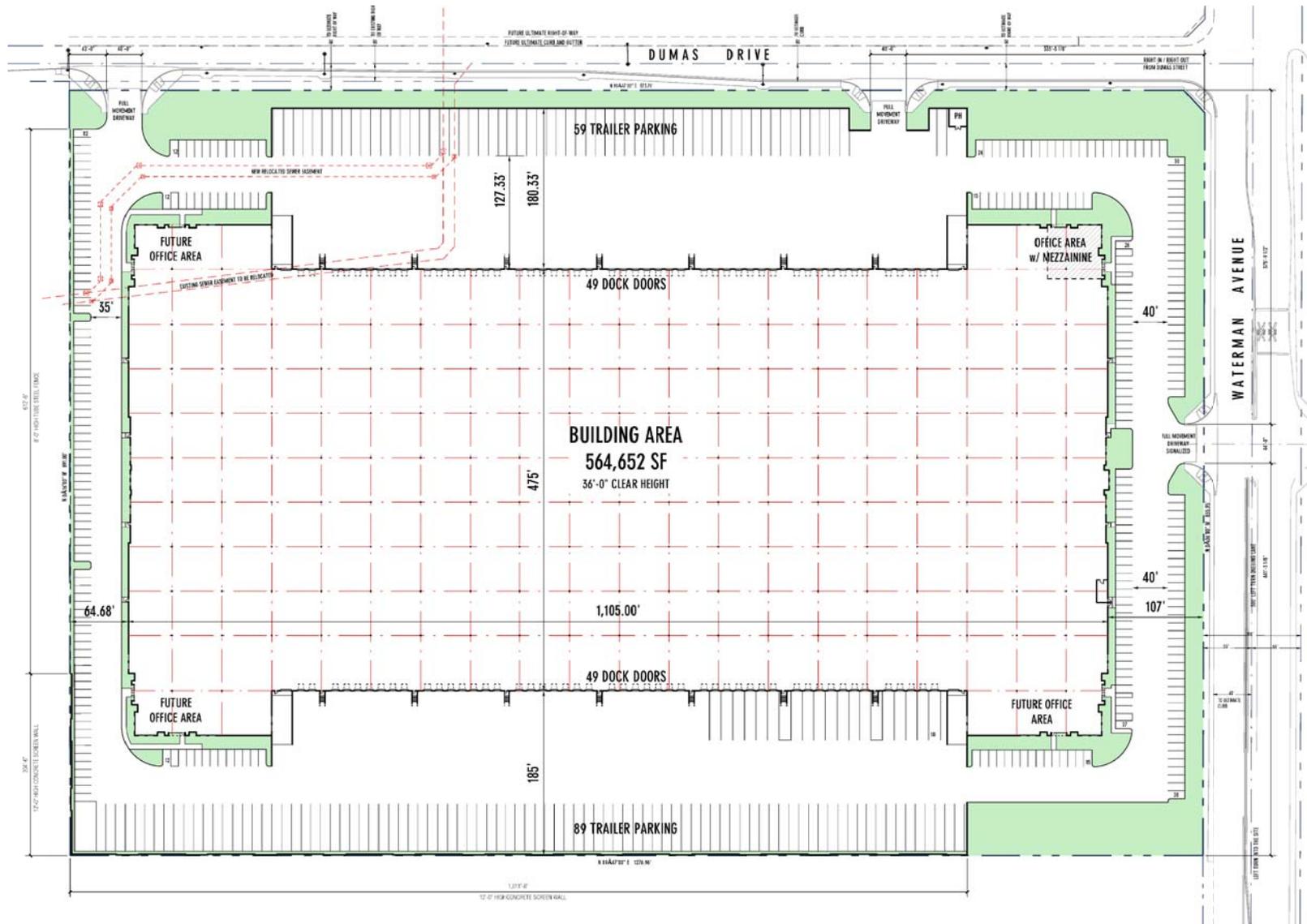
Figure 1  
Project Location Map



**Legend**

① = Intersection Reference Number

Figure 2  
Site Plan



## II. Existing Conditions

---

### A. Existing Roadway System

Figure 3 identifies the existing conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

Local access is provided by various roadways in the vicinity of the site. The east-west roadways which will be most affected by the project include Orange Show Road, Dumas Street, Park Center Circle, and Vanderbilt Way. North-south roadways expected to provide local access include E Street, Washington Avenue, and Waterman Avenue.

### B. Existing Volumes

Figure 4 depicts the existing average daily traffic volumes. The existing average daily traffic volumes were factored from peak hour counts in Passenger Car Equivalent's (see Appendix C) obtained by Kunzman Associates, Inc. using the following formula for each intersection leg:

$$\text{PM Peak Hour (Approach + Exit Volume)} \times 11.5 = \text{Daily Leg Volume.}$$

This is a conservative estimate and may overestimate the average daily traffic volumes.

Existing intersection traffic conditions were established through morning and evening peak hour traffic counts obtained by Kunzman Associates, Inc. from August 2015 (see Appendix C). In addition, truck classification counts were conducted at the study area intersections. The existing volumes and types (number of axles) of trucks was used in the conversion of trucks to Passenger Car Equivalent's. The truck trips were converted using the following factors: 2 axle trucks = 2.0, 3 axle trucks = 2.5, and 4+ axle trucks = 3.0. The resulting Passenger Car Equivalents are shown on Figures 5 and 6, respectively. Explicit peak hour factors have been calculated using the data collected for this effort as well. The morning and evening peak hour traffic volumes were identified by counting the two-hour periods from 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM.

### C. Existing Level of Service

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F) based on the Highway Capacity Manual – Transportation Research Board Special Report 209. To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection. The signalized intersections are considered deficient (Level of Service F) if the overall intersection critical volume to capacity ratio equals or exceeds 1.0, even if the level of service defined by the delay value is below the defined Level of Service standard. The volume to capacity ratio is defined as the critical volumes divided by the intersection capacity. A volume to capacity ratio greater than 1.0 implies an infinite queue.

The Level of Service analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of two seconds per phase. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis. The following formula has been used to calculate the pedestrian minimum times for all Highway Capacity Manual runs:

$$(\text{Curb to curb distance}) / (3.5 \text{ feet/second}) + 7 \text{ seconds.}$$

For existing/Existing Plus Project/and Opening Year traffic conditions, saturation flow rates of 1,800 vehicles per hour of green for through and right turn lanes and 1,700 vehicles per lane for single left turn lanes, 1,600 vehicles per lane for dual left turn lanes and 1,500 vehicles per lane for triple left turn lanes have been assumed for the capacity analysis.

For Year 2035 traffic conditions, saturation flow rates of 1,900 vehicles per hour of green for through and right turn lanes and 1,800 vehicles per lane for single left turn lanes, 1,700 vehicles per lane for dual left turn lanes and 1,800 vehicles per lane for double right turn lanes have been assumed for the capacity analysis.

The peak hour traffic volumes have been adjusted to peak 15 minute volumes for analysis purposes using the existing observed peak 15 minute to peak hour factors (see Appendix C). The Year 2035 peak hour factor has been adjusted to 0.95. This is to account for the effects of congestion on peak spreading. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

The existing delay and Level of Service for intersections in the vicinity of the project are shown in Table 1. The study area intersections currently operate at an acceptable Level of Service during the peak hours for existing traffic conditions. Existing delay worksheets are provided in Appendix F.

**D. Planned Transportation Improvements and Relationship to General Plan**

The City of San Bernardino General Plan Circulation Element is shown on Figure 7. Both existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 7. This figure shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the land use element of the General Plan. The City of San Bernardino General Plan roadway cross-sections are illustrated on Figure 8.

**E. Transit Service**

Figure 9 depicts the San Bernardino Bus Transit System Map. Transit service is provided by Omnitrans. Transit Route 5 operates on Waterman Avenue, and Transit Routes 2 and 15 operate on E Street.

**F. Bicycle and Pedestrian Facilities**

The City of San Bernardino designated bike paths are illustrated on Figure 10 and the existing pedestrian facilities adjacent to the project are shown in Figure 11.

**Table 1**

**Existing Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 29.4               | C                | 0.377            | 36.6               | D                | 0.557            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 10.2               | B                | 0.677            | 10.9               | B                | 0.759            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 28.1               | C                | 0.443            | 31.9               | C                | 0.694            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 15.6               | C                | N/A              | 27.8               | D                | N/A              |
| Park Center Circle N (EW) - #7                           | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.8               | B                | N/A              | 14.1               | B                | N/A              |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 11.6               | B                | 0.763            | 13.6               | B                | 0.926            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 22.0               | C                | 0.577            | 18.6               | B                | 0.434            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De facto Right Turn.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Figure 3**  
Existing Through Travel Lanes and Intersection Controls

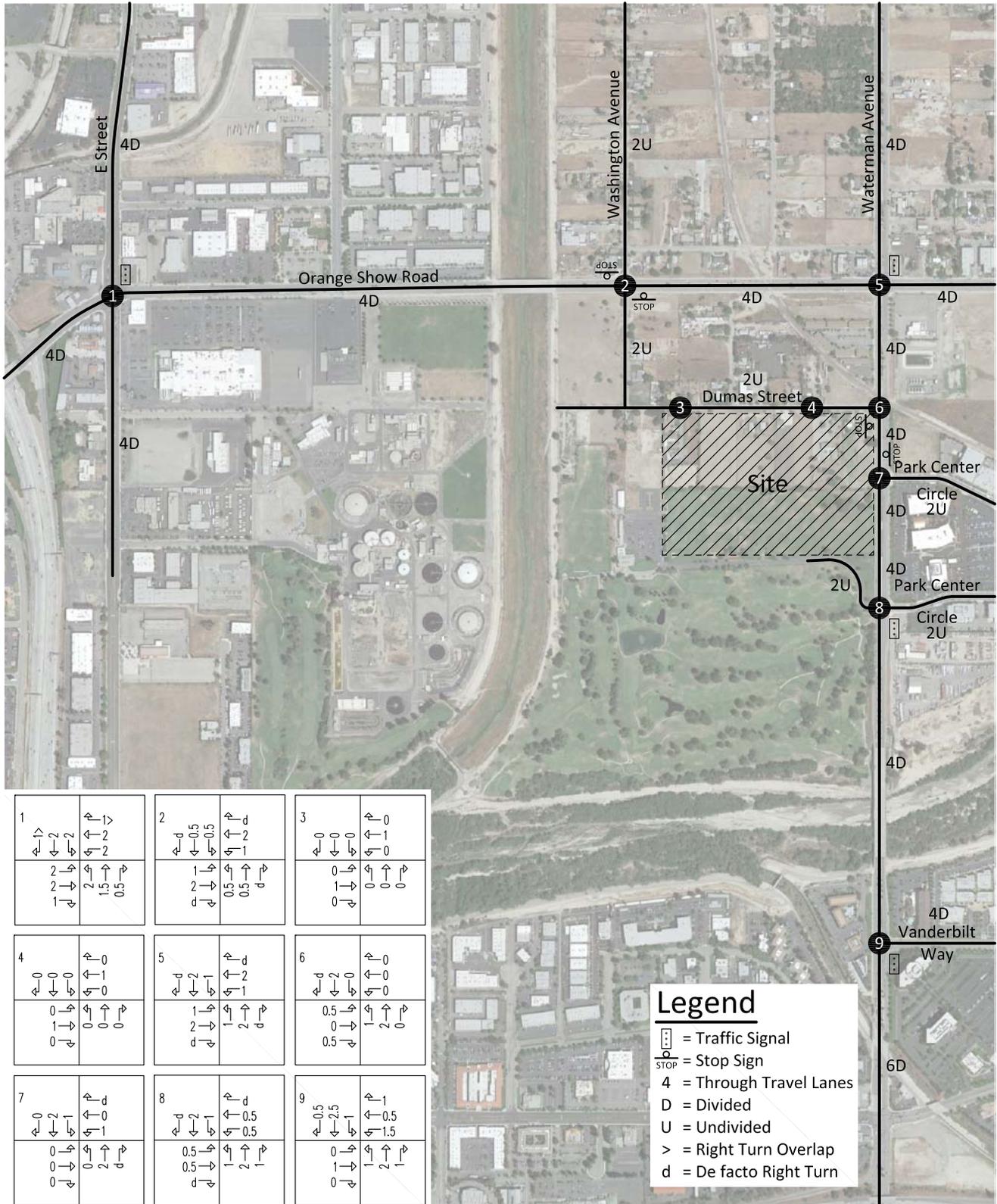
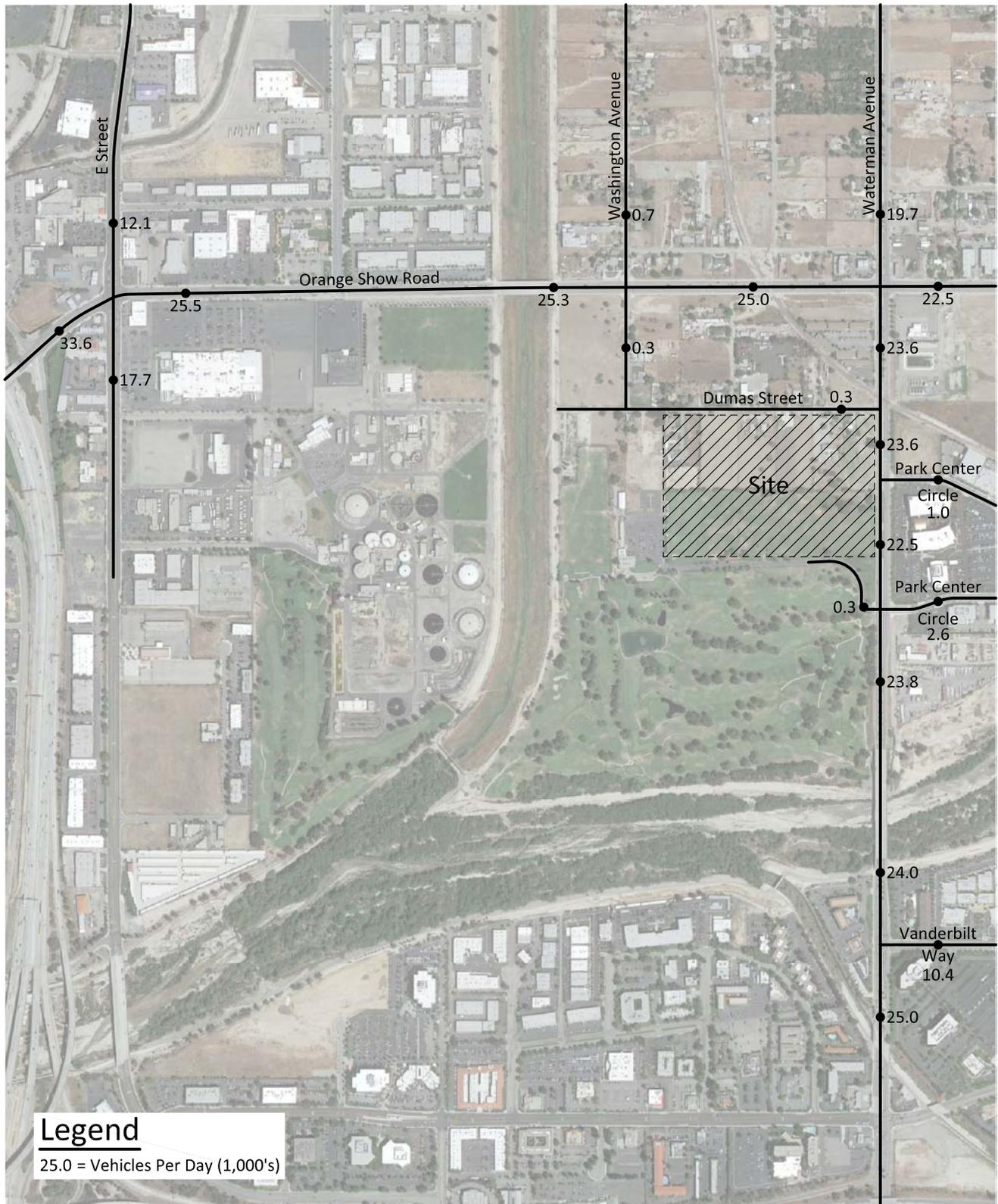


Figure 4  
Existing Average Daily Traffic Volumes

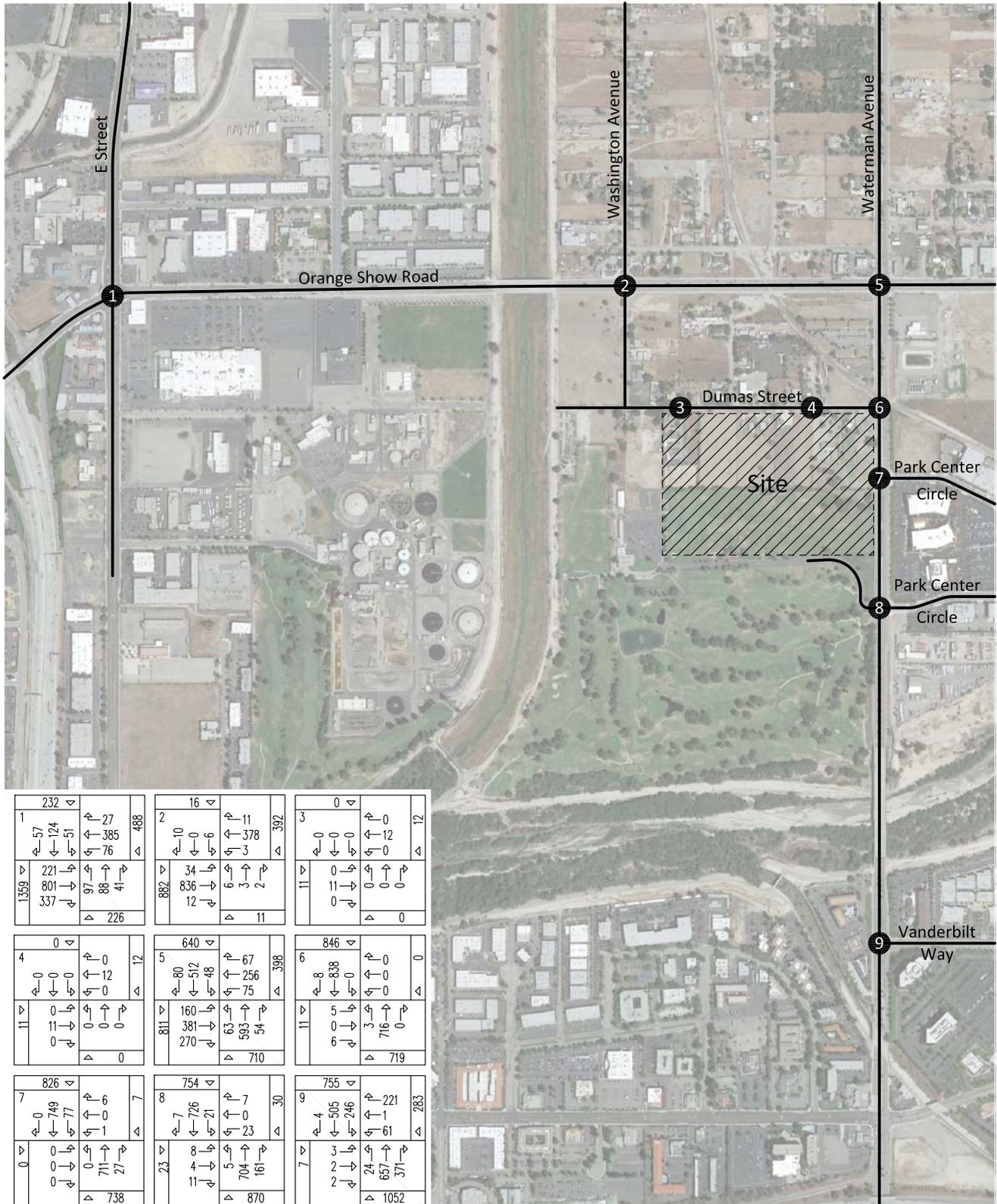


**Legend**

25.0 = Vehicles Per Day (1,000's)



# Figure 5 Existing Morning Peak Hour Intersection Turning Movement Volumes



# Figure 6 Existing Evening Peak Hour Intersection Turning Movement Volumes

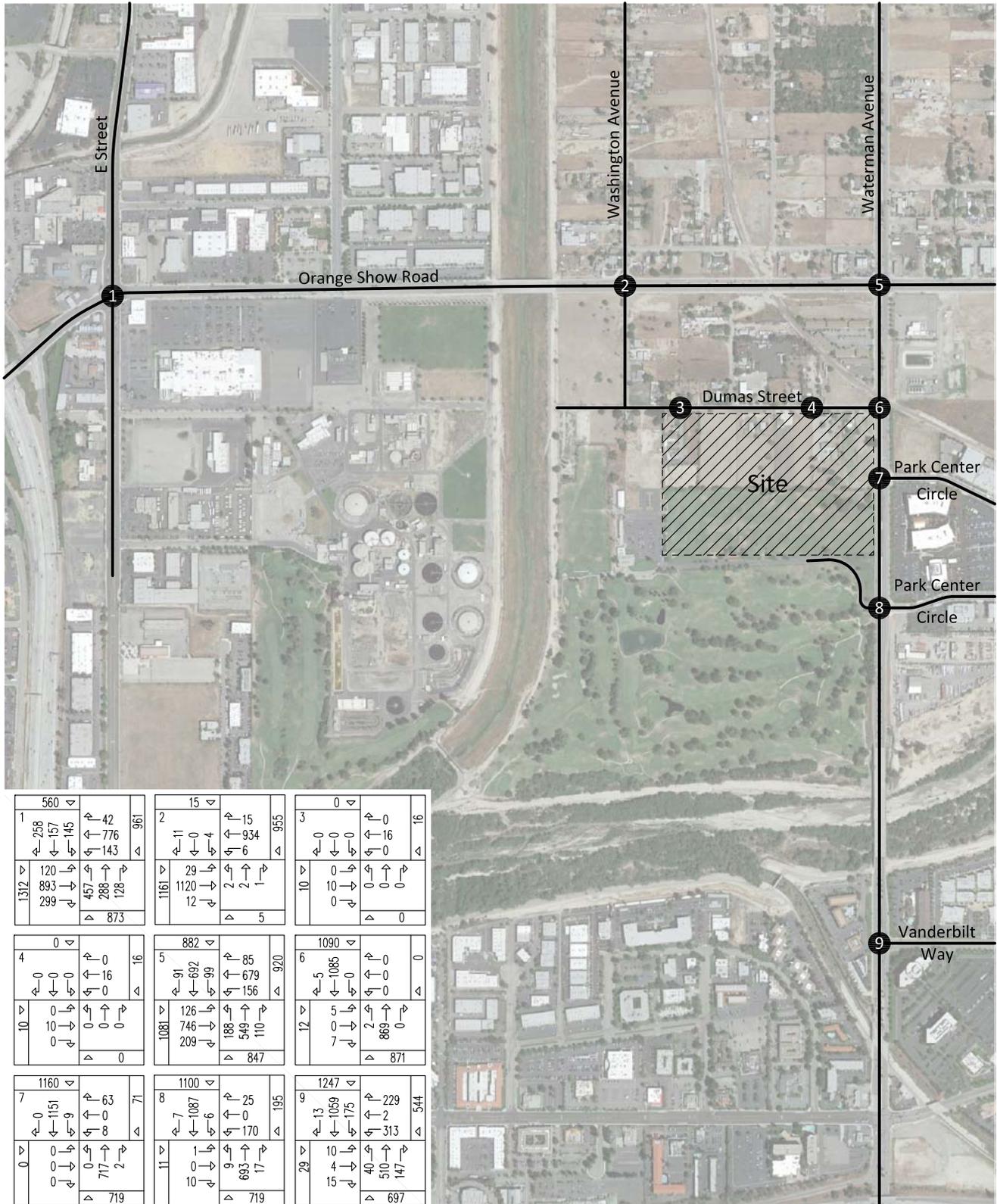
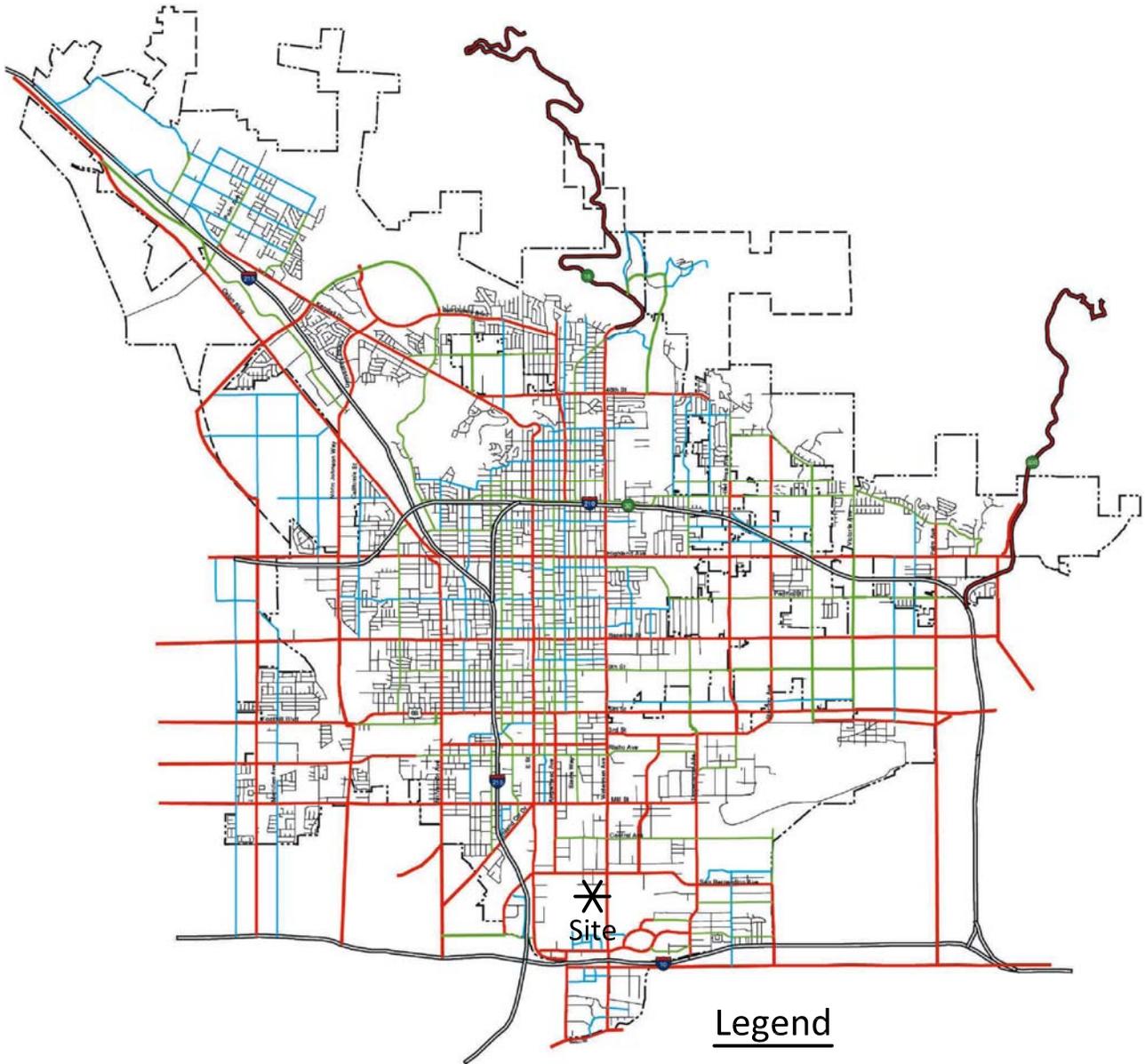


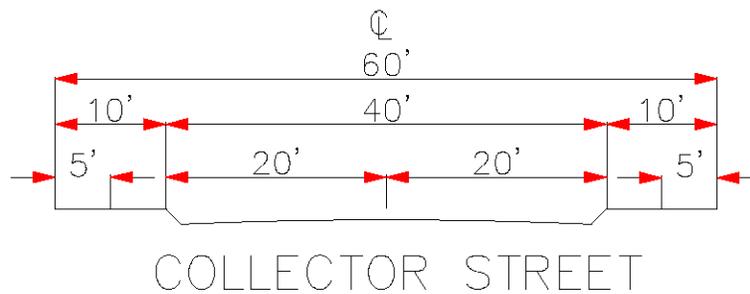
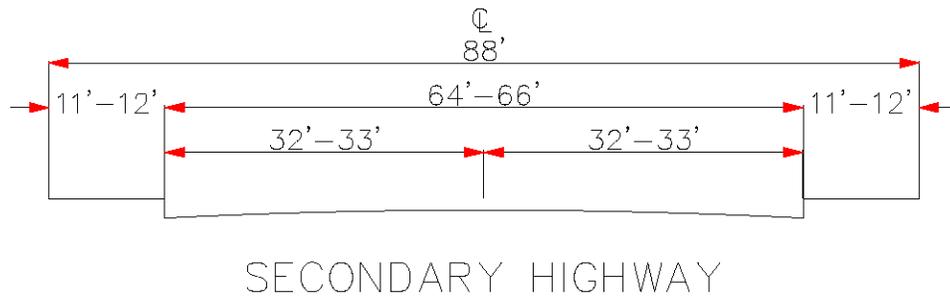
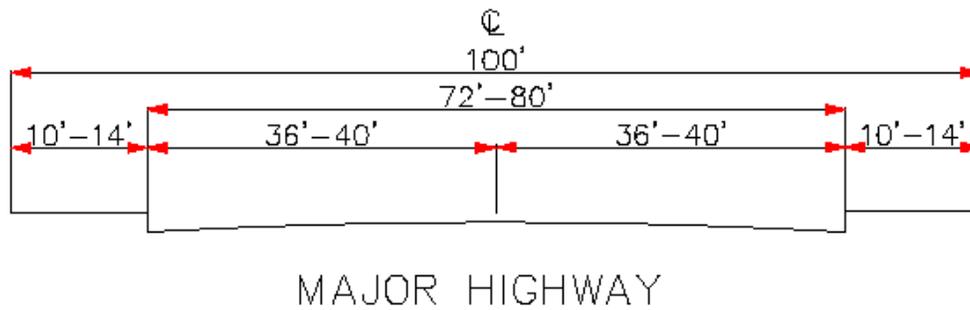
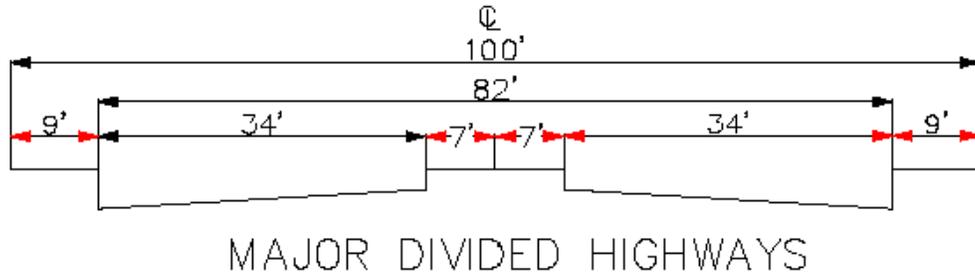
Figure 7  
 City of San Bernardino General Plan Circulation Element



**Legend**

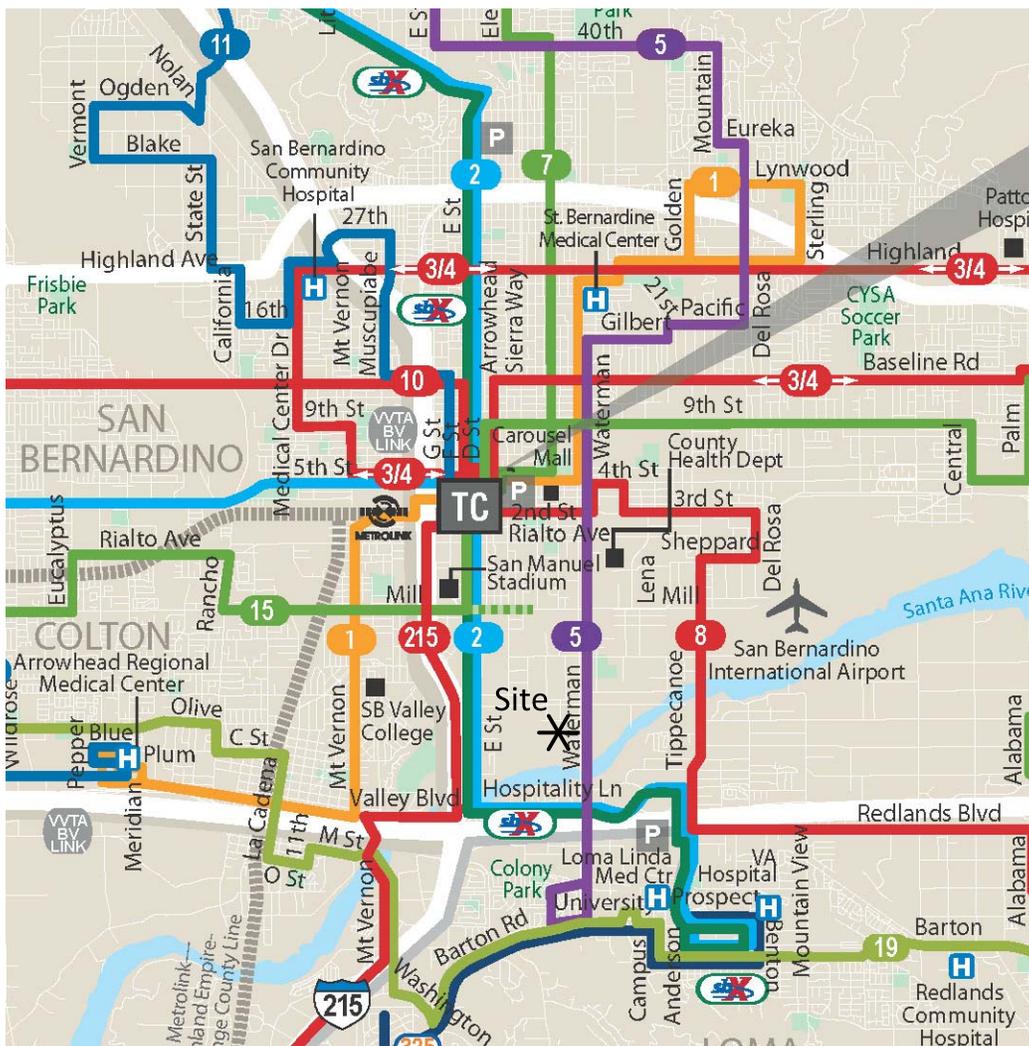
-  Freeway
-  State Highway
-  Major Arterial
-  Secondary Arterial
-  Collector
-  Local
-  City Boundary
-  Sphere of Influence Boundary

Figure 8  
 City of San Bernardino General Plan Roadway Cross-Sections



FOR USE IN QUARTER MILE STREETS,  
 SCHOOL AND INDUSTRIAL AREAS.

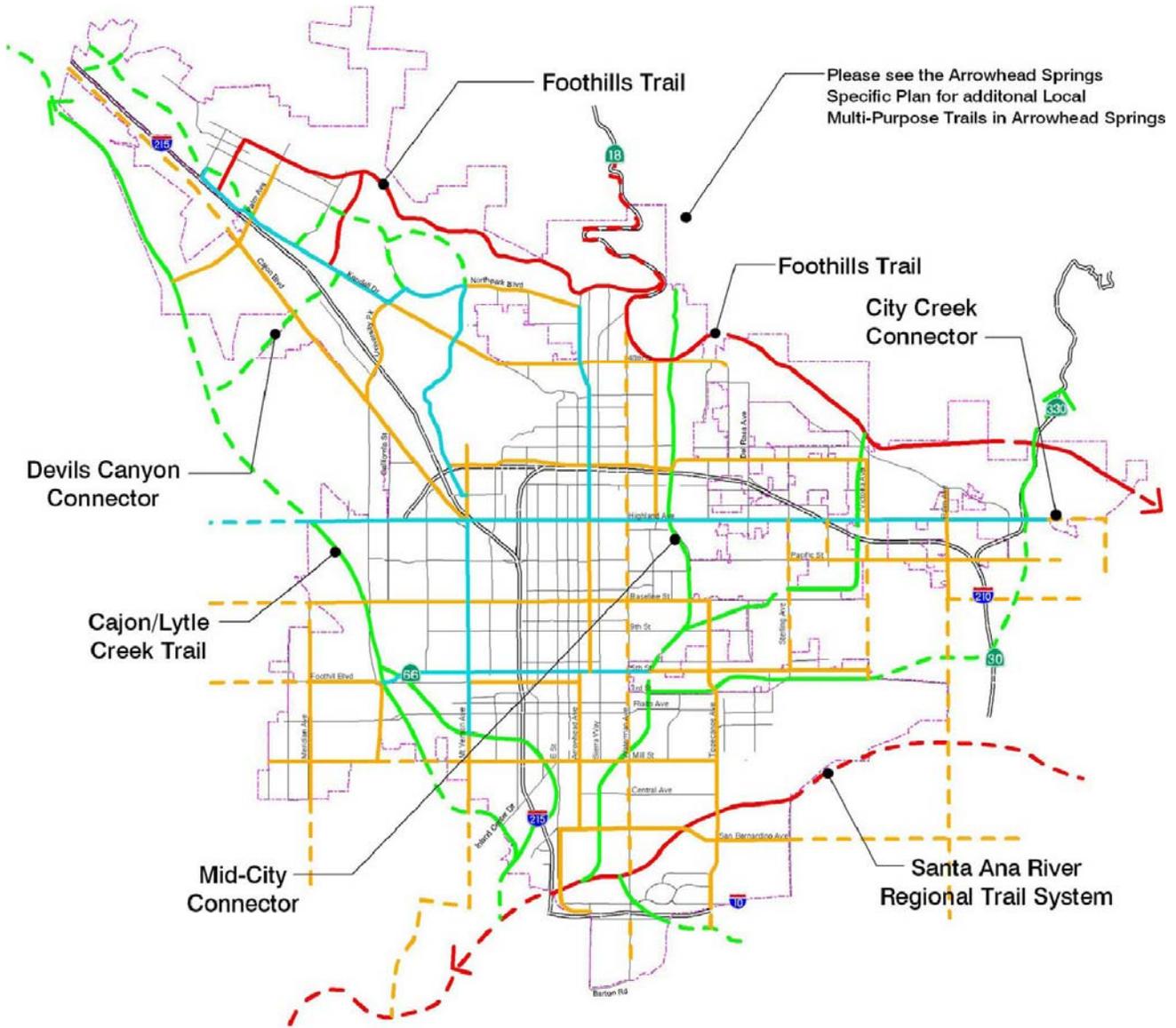
Figure 9  
City of San Bernardino Transit Routes



**Legend**

- | Route       | Route Name                                   |
|-------------|--|
| 308/309/310 | Palm/Kendall - CSUSB - VA Hospital           |
| 1           | ARMC - San Bernardino Del Rosa               |
| 2           | Cal St - E St - Loma Linda                   |
| 3/4         | Baseline - Highland - San Bdn                |
| 5           | South Waterman - Del Rosa - Cal State        |
| 7           | N San Bdn - Sierra Way - San Bdn             |
| 8           | San Bdn - Mentone - Crafton Hills College    |
| 10          | Fontana - Baseline - San Bernardino          |
| 11          | San Bernardino - Muscocy - Cal State         |
| 14          | Fontana - Foothill - San Bernardino          |
| 15          | Fontana - San Bernardino/Highland - Redlands |
| 19          | Fontana - Colton - Redlands - Yucaipa        |
| 20          | Fontana - Metrolink - Via Hemlock - Kaiser   |
| 22          | North Rialto - Riverside Ave - ARMC          |
| 29          | Bloomington - Valley Blvd - Kaiser           |
| 61          | Fontana - Ontario Mills - Pomona             |
| 63          | Chino - Ontario - Upland                     |
| 65          | Montclair - Chino Hills                      |
| 66          | Fontana - Foothill Blvd - Montclair          |
| 67          | Montclair - Baseline - Fontana               |
| 68          | Chino - Montclair - Chaffey College          |
| 80          | Montclair - Ont Coriv Cntr - Chaffey College |
| 81          | Ontario - Ontario Mills - Chaffey College    |
| 82          | Rancho Cucamonga - Fontana - Sierra Lakes    |
| 83          | Upland - Euclid - Chino                      |
| 215         | San Bernardino - Riverside                   |
| 308/309/310 | OmniGo Yucaipa                               |
| 325         | OmniGo Grand Terrace                         |
| 385         | OmniGo Chino/Chino Hills                     |

Figure 10  
 City of San Bernardino General Plan Bicycle Routes

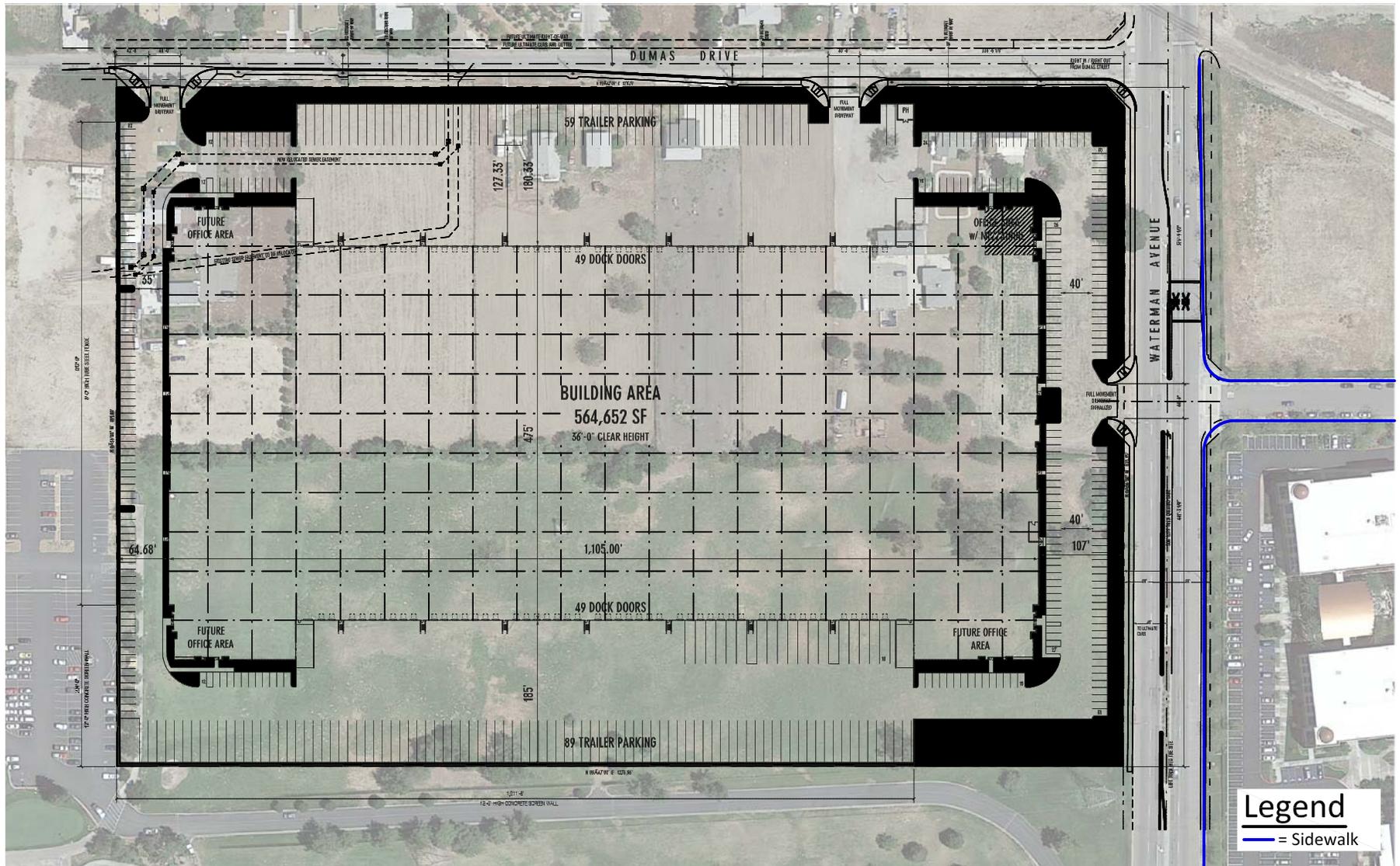


Please see the Arrowhead Springs Specific Plan for additional Local Multi-Purpose Trails in Arrowhead Springs

**Legend**

- |   |                   |                                       |
|---|-------------------|---------------------------------------|
| Proposed by or Within Other Jurisdictions | Existing Proposed |                                       |
|   |                   | Primary Regional Multi-Purpose Trails |
|   |                   | Regional Multi-Purpose Trails         |
|   |                   | Local Multi-Purpose Trails            |
|   |                   | Bicycle Routes                        |
|   |                   | City Boundary                         |

Figure 11  
Existing Pedestrian Facilities



**Legend**  
— = Sidewalk

### III. Project Trips

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#### A. Project Description

The approximately 25 acre project site is proposed to be developed with 564,652 square feet of high-cube warehouse distribution center. The proposed project will have access to Waterman Avenue and Dumas Street.

#### B. Trip Generation

The trips generated by the project are determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic and morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land use. By multiplying the trip generation rates by the land use quantity, the traffic volumes are determined. Table 2 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012 and City of Fontana, Truck Trip Generation Study, August 2003.

The proposed development is projected to generate approximately 1,282 daily vehicle trips in Passenger Car Equivalents, 87 Passenger Car Equivalents of which will occur during the morning peak hour and 95 Passenger Car Equivalents of which will occur during the evening peak hour.

#### C. Trip Distribution

Figures 12 and 13 contain the directional distributions of the project trips for the proposed land use. To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

#### D. Trip Assignment

Based on the identified trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 14. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 15 and 16, respectively.

**E. Traffic Contribution Test**

No analysis is required further than 5 miles from the project site. The roadway elements that must be analyzed are dependent on both the analysis year (project Opening Year or Year 2035) and project generated trips. The identification of the study area, and the intersections and highway segments requiring analysis, was based on an estimate of the two-way traffic volumes on the roadway segments near the project site. All arterial segments have been included in the analysis when the anticipated project volume equals or exceeds 50 two-way trips in the peak hours. The requirement is 100 two-way peak hour trips for freeways. Figure 17 graphically depicts the project traffic contribution test volumes on all of the roadway segments adjacent to the potential intersection analysis locations until the project volume contribution has clearly dropped below the 50 trip threshold.

The project does not contribute trips greater than the freeway threshold volume of 100 two-way peak hour trips. The project does not contribute trips greater than the arterial link threshold volume of 50 two-way trips in the peak hours on intersections outside of the City of San Bernardino.

**Table 2**

**Project Trip Generation<sup>1</sup>**

| Descriptor   | Quantity | Units <sup>2</sup> | Type of Vehicle |              |              |               | Total Trucks | Total |
|--|----------|--------------------|-----------------|--------------|--------------|---------------|--------------|-------|
|  |          |                    | Passenger Car   | 2 Axle Truck | 3 Axle Truck | 4+ Axle Truck |              |       |
| Land Use: High-Cube Warehouse                          | 564.652  | TSF                | 79.57%          | 3.46%        | 4.64%        | 12.33%        | 20.43%       | 100%  |
| Traffic Generation Rates in trips per TSF              |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 1.337           | 0.058        | 0.078        | 0.207         | 0.343        | 1.68  |
| Morning Peak Hour                                      |          |                    | 0.088           | 0.004        | 0.005        | 0.014         | 0.023        | 0.11  |
| Evening Peak Hour                                      |          |                    | 0.096           | 0.004        | 0.006        | 0.015         | 0.025        | 0.12  |
| Traffic Generation in Vehicles                         |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 33           | 44           | 117           | 194          | 949   |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Outbound   |          |                    | 13              | 1            | 1            | 2             | 4            | 17    |
| Total  |          |                    | 49              | 3            | 3            | 8             | 14           | 63    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 1            | 1            | 3             | 5            | 23    |
| Outbound   |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Total  |          |                    | 54              | 3            | 3            | 9             | 15           | 69    |
| Passenger Car Equivalent's (PCE'S) Factor <sup>3</sup> |          |                    |                 |              |              |               |              |       |
|  |          |                    | 1.00            | 2.00         | 2.50         | 3.00          |              |       |
| Traffic Generation in PCE's                            |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 66           | 110          | 351           | 527          | 1,282 |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Outbound   |          |                    | 13              | 2            | 3            | 6             | 11           | 24    |
| Total  |          |                    | 49              | 6            | 8            | 24            | 38           | 87    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 2            | 3            | 9             | 14           | 32    |
| Outbound   |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Total  |          |                    | 54              | 6            | 8            | 27            | 41           | 95    |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Category 152 and City of Fontana, Truck Trip Generation Study, August 2003.

<sup>2</sup> TSF = Thousand Square Feet

<sup>3</sup> Source: City of San Bernardino Development Services Department, Traffic Impact Study Guidelines, June 2015.

Figure 12  
Project Trip Distribution - Cars

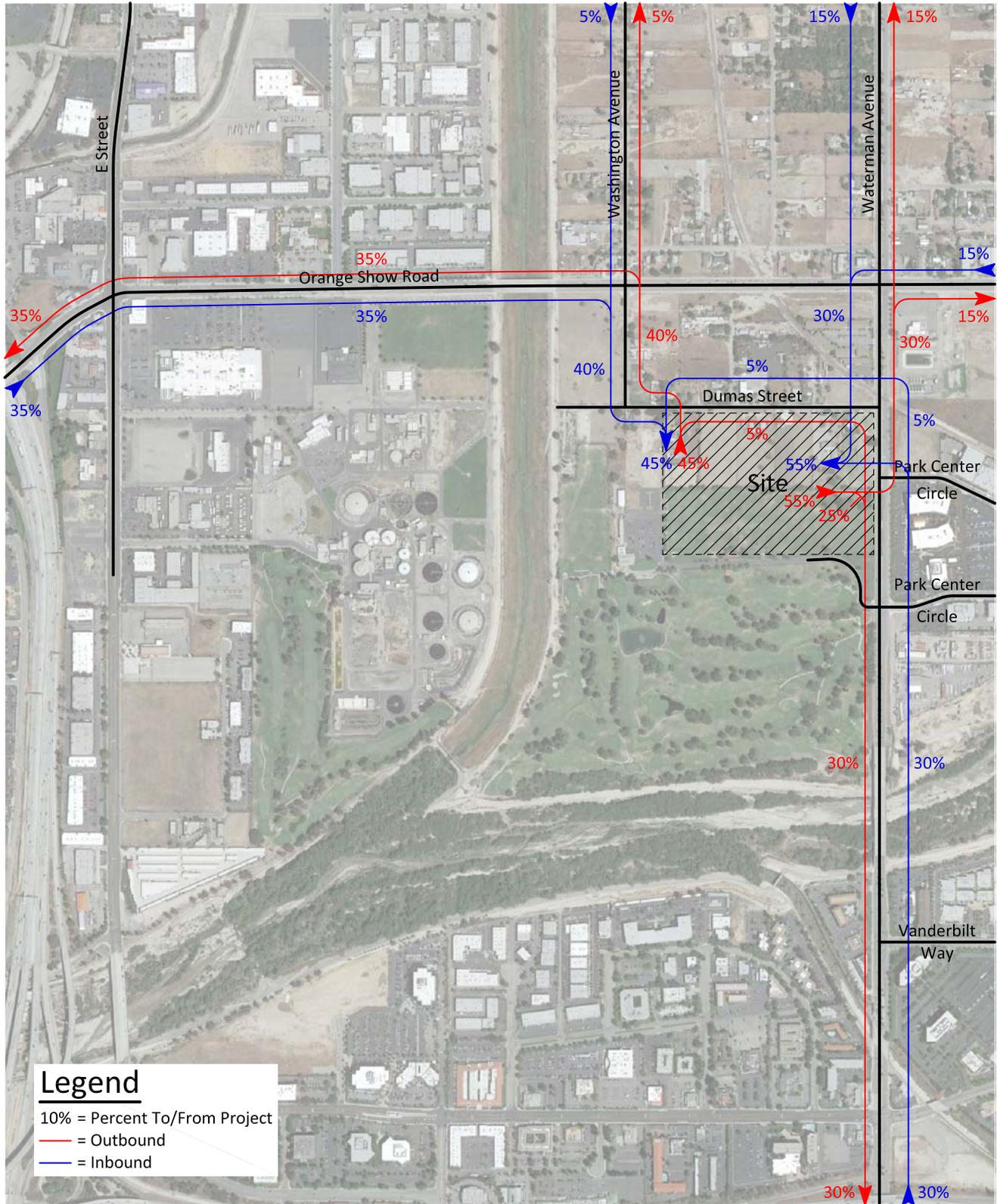


Figure 13  
Project Trip Distribution - Trucks

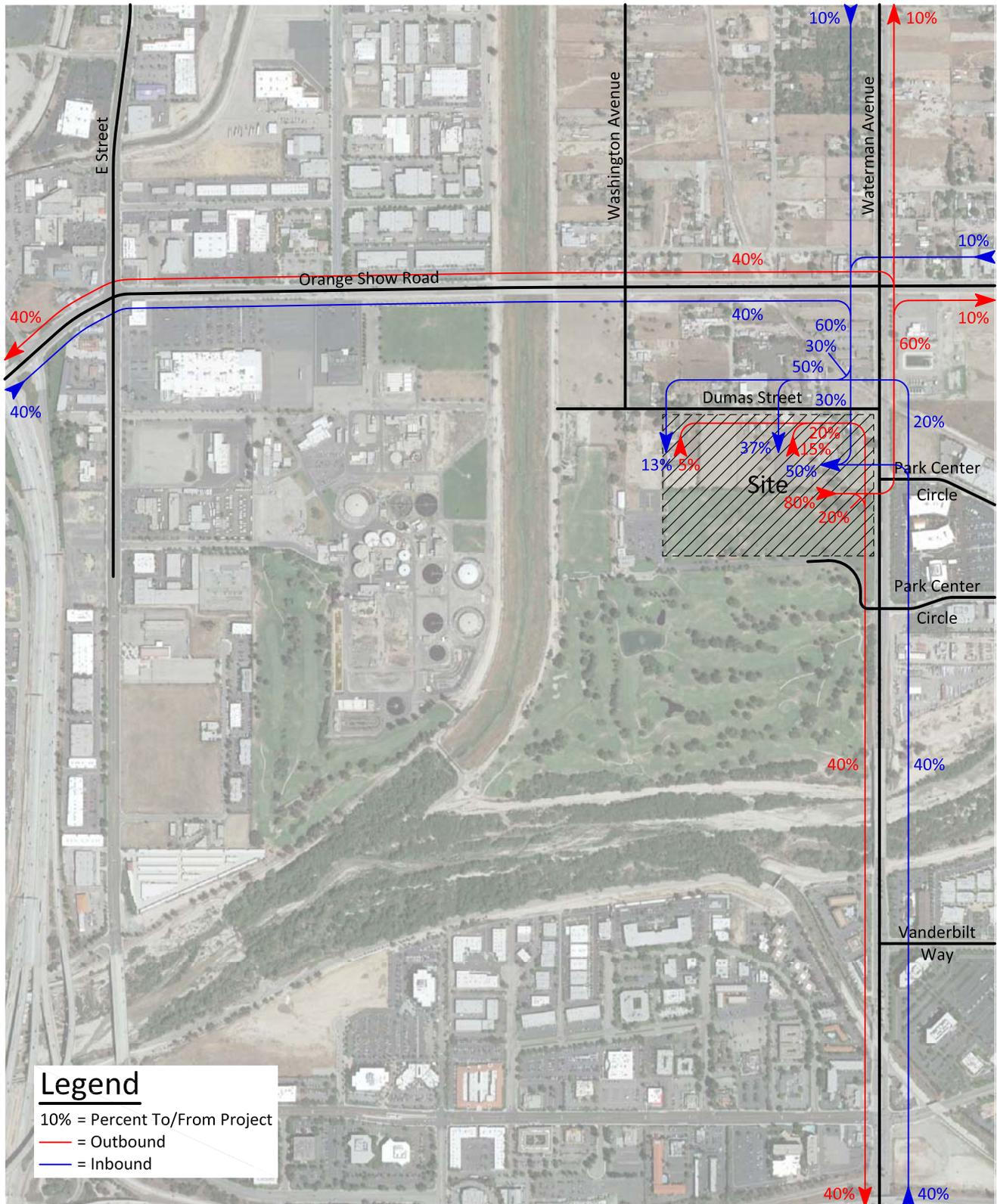
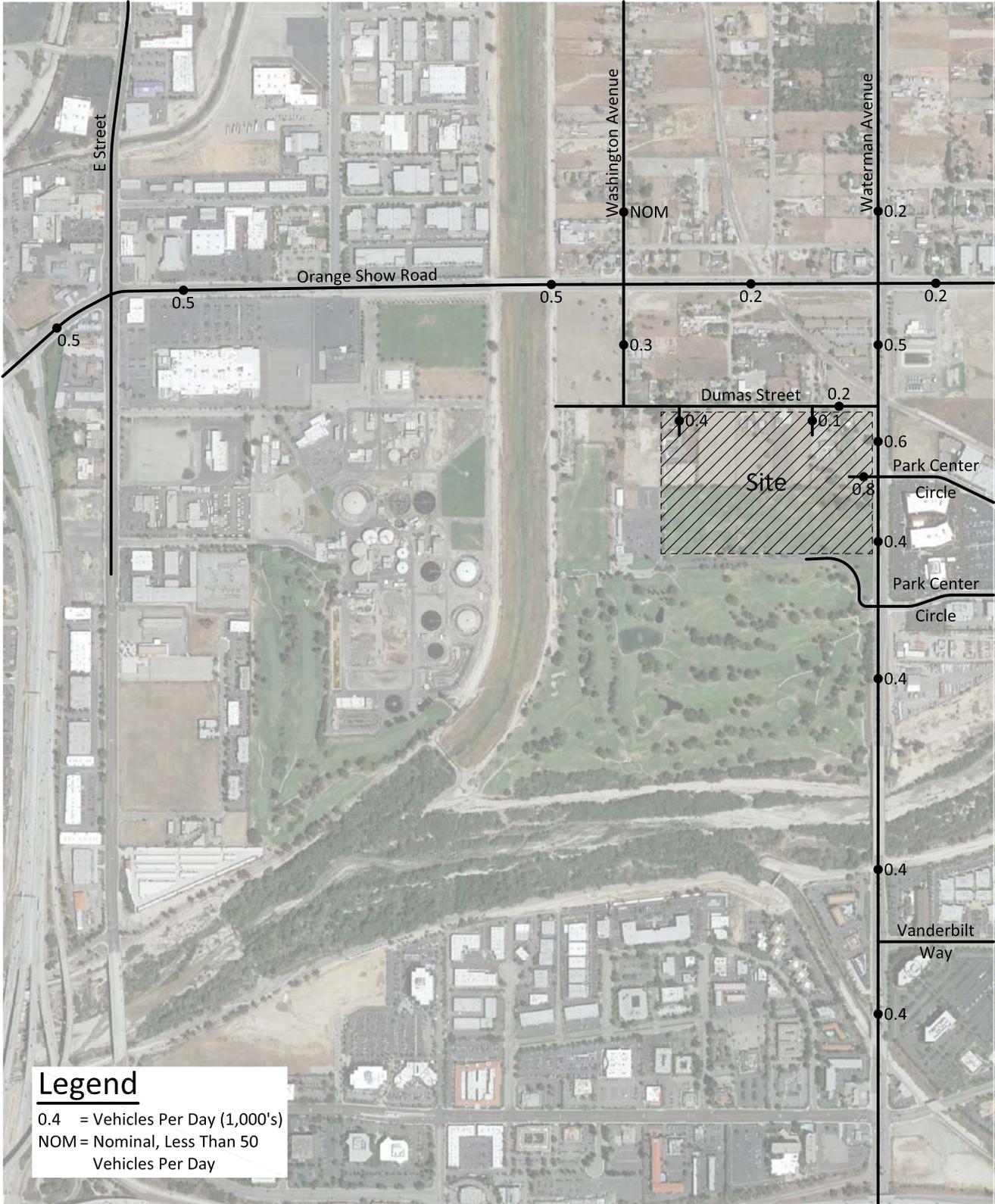


Figure 14  
 Project Average Daily Traffic Volumes

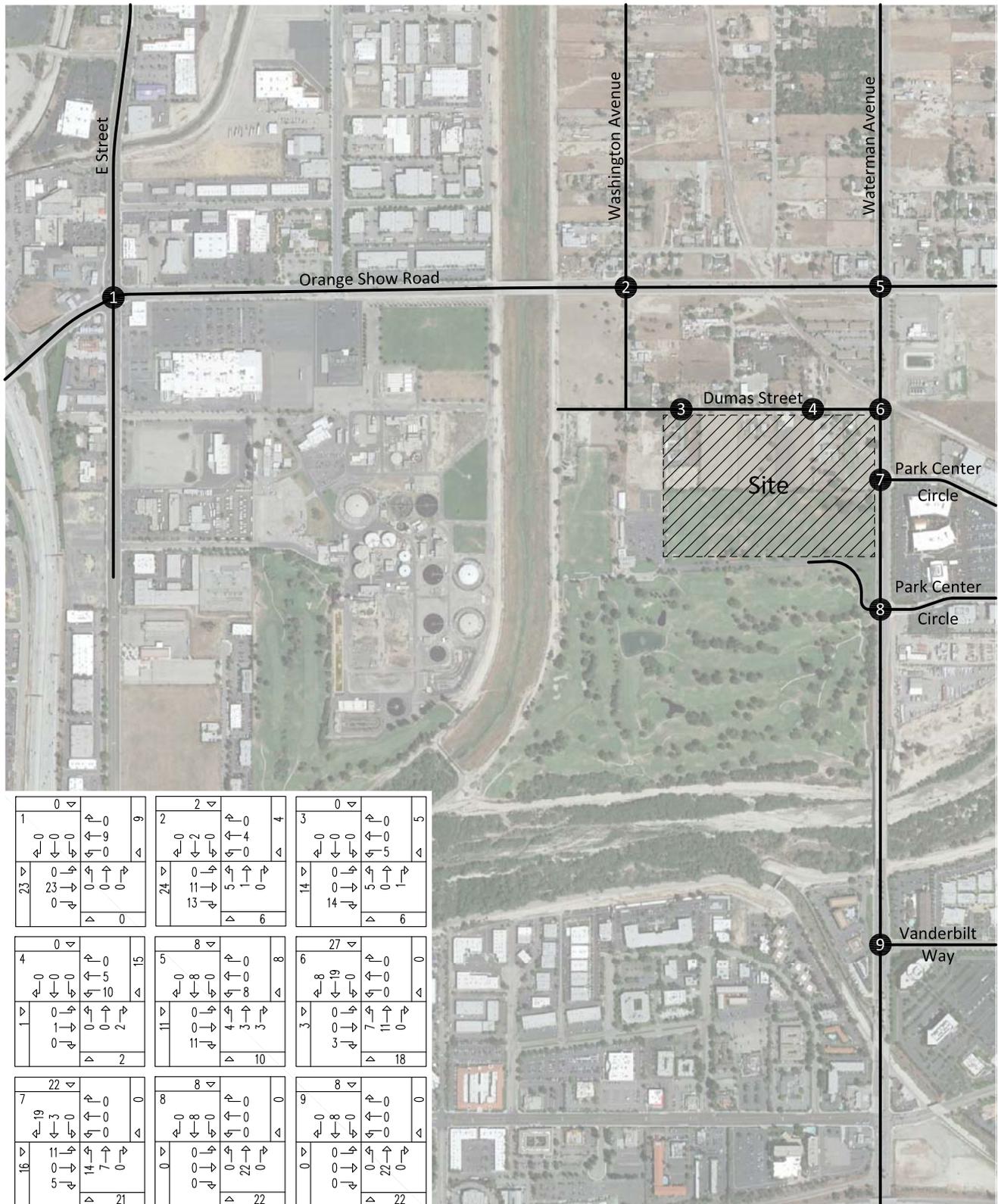


**Legend**

0.4 = Vehicles Per Day (1,000's)  
 NOM = Nominal, Less Than 50  
 Vehicles Per Day



# Figure 15 Project Morning Peak Hour Intersection Turning Movement Volumes



# Figure 16 Project Evening Peak Hour Intersection Turning Movement Volumes

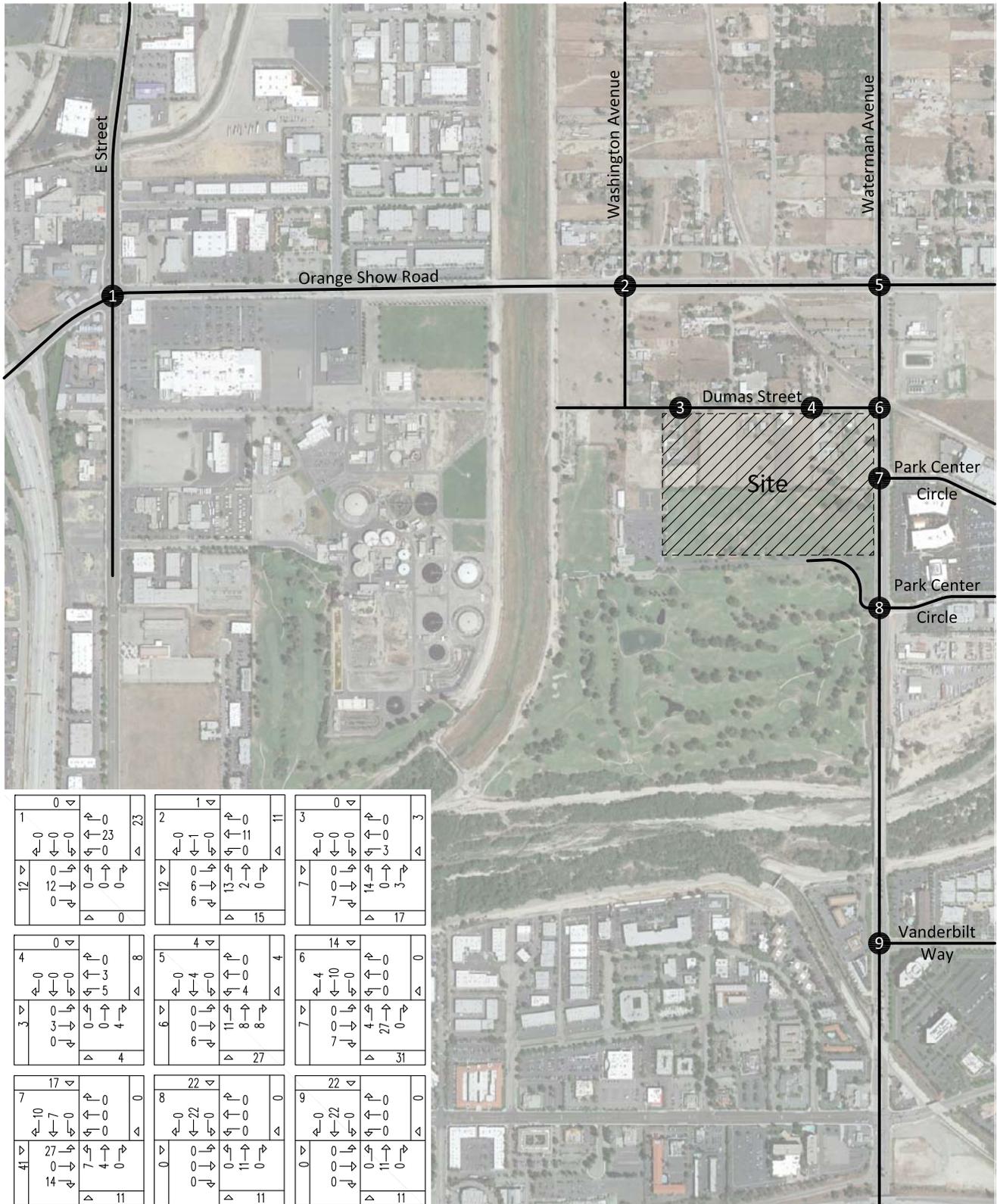
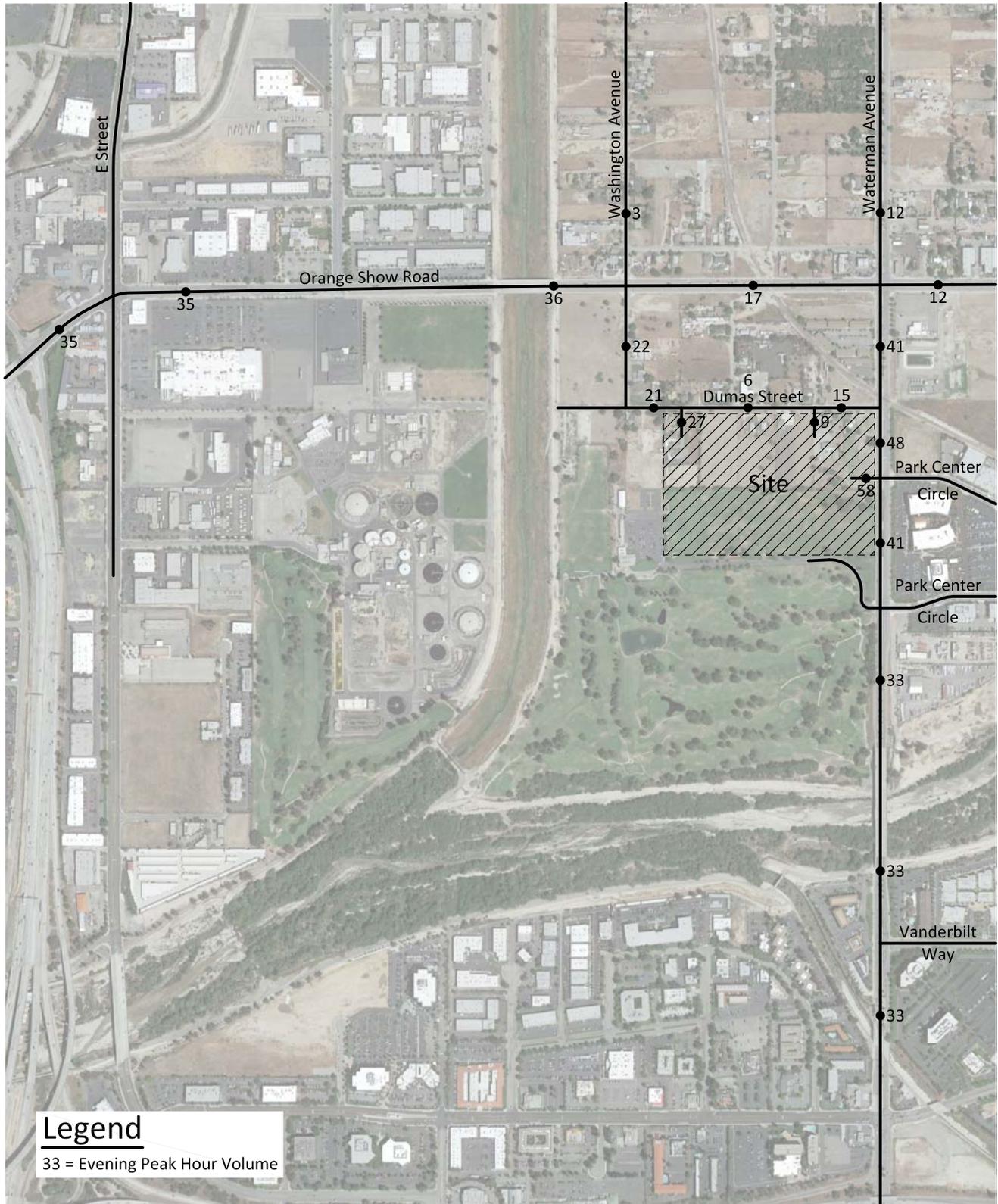


Figure 17  
Project Trip Contribution Test Volumes



## IV. Future Conditions

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To assess future traffic conditions, existing traffic is combined with ambient growth, other development, and project traffic. The opening year for analysis purposes in this report is 2017. The horizon year is 2035.

### A. Method of Projection

#### 1. Ambient Growth Opening Year

To account for ambient growth on roadways, Opening Year (2017) traffic volumes have been interpolated from the Year 2035 traffic volumes based upon a proportion of the future growth increment from the San Bernardino Transportation Analysis Model (SBTAM) traffic model Year 2008 and Year 2035 average daily traffic volume forecasts (see Appendix D). The SBTAM traffic model plots are included in Appendix E.

#### 2. Other Development

Potential developments within 1.5 mile radius of the study area are included in the analysis if they are not currently built, they are approved, their approval has not expired, and they would contribute trips to the study area intersections.

Table 4 lists the proposed land uses for the other developments (see Figure 18), and shows the daily and peak hour vehicle trips generated by the other development in the study area.

Based on the identified trip generation and distributions, other development average daily traffic volumes have been calculated and shown on Figure 19. Figures 20 and 21 shows the other development morning and evening peak hour intersection turning movement volumes, respectively.

#### 3. Opening Year Traffic Conditions

To assess Opening Year traffic conditions, existing traffic is combined with ambient growth, and other development traffic. The opening year for analysis purposes in this report is 2017.

#### 4. Horizon Year Traffic Conditions

The average daily traffic volume forecasts have been determined using the growth increment approach on the San Bernardino Transportation Analysis Model (SBTAM) traffic model Year 2008 and Year 2035 average daily traffic volume forecasts (see Appendix D). This difference defines the growth in traffic over the 27 year period. The incremental growth in average daily traffic volume has been factored to reflect the forecast growth between Year 2015 and Year 2035. For this purpose, linear growth between the Year 2008 base condition and the forecast Year 2035 condition was

assumed. Since the increment between Year 2015 and Year 2035 is 20 years of the 27 year time frame, a factor of 0.74 (i.e., 20/27) was used.

The Year 2035 Without Project daily and peak hour directional roadway segment volume forecasts have been determined using the growth increment approach on the SBTAM traffic model Year 2008 and Year 2035 peak hour volumes. The SBTAM traffic model plots are included in Appendix E. Current peak hour intersection approach/departure data is a necessary input to this approach. The existing traffic count data serves as both the starting point for the refinement process, and also provides important insight into current travel patterns and the relationship between peak hour and daily traffic conditions. The initial turning movement proportions are estimated based upon the relationship of each approach leg's forecast traffic volume to the other legs forecast volumes at the intersection. The initial estimate of turning movement proportions is then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program Report 255. A linear programming algorithm is used to calculate individual turning movements that match the known directional roadway segment volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Project traffic volumes were then added to the Year 2035 SBTAM traffic model volumes. Quality control checks and forecast adjustments were performed as necessary to ensure that all future traffic volume forecasts reflect a minimum of 10% growth over existing traffic volumes. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

## **B. Average Daily Traffic Volumes**

### **1. Existing Plus Project**

The average daily traffic volumes for Existing Plus Project traffic conditions have been determined. Existing Plus Project average daily traffic volumes are shown on Figure 22.

### **2. Existing Plus Ambient Growth**

The average daily traffic volumes for Existing Plus Ambient Growth traffic conditions have been determined as described above using the growth interpolation process (see Section IV.A). Existing Plus Ambient Growth average daily traffic volumes are shown on Figure 23.

### **3. Opening Year (2017) Without Project**

The average daily traffic volumes for Opening Year (2017) Without Project traffic conditions have been determined as described above using the growth interpolation process (see Section IV.A). Opening Year (2017) Without Project average daily traffic volumes are shown on Figure 24.

4. Opening Year (2017) With Project

The average daily traffic volumes for Opening Year (2017) With Project traffic conditions have been determined as described above using the volume addition process (see Section IV.A). Opening Year (2017) With Project average daily traffic volumes are shown on Figure 25.

5. Year 2035 Without Project

The average daily traffic volumes for Year 2035 Without Project traffic conditions have been determined as described above using the growth increment process (see Section IV.A). Year 2035 Without Project average daily traffic volumes are shown on Figure 26.

6. Year 2035 With Project

The average daily traffic volumes for Year 2035 With Project traffic conditions have been determined as described above using the volume addition process (see Section IV.A). Year 2035 With Project average daily traffic volumes are shown on Figure 27.

**C. Intersection Level of Service**

Level of Service calculation worksheets are provided in Appendix F for all traffic condition scenarios.

1. Existing Plus Project

The Existing Plus Project delay and Level of Service for the study area roadway network are shown in Table 4. Table 4 shows delay values based on the geometrics at the study area intersections, without and with improvements. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figures 28 and 29, respectively.

As shown in Table 4, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Project traffic conditions, with improvements.

Table 5 depicts the Existing Plus Project trip contribution at the study area intersections. As shown in Table 5 for Existing Plus Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

2. Existing Plus Ambient Growth

The Existing Plus Ambient Growth (2017) delay and Level of Service for the study area roadway network without other development or the proposed project are shown in Table 6. Table 6 shows delay values based on the existing geometrics at the study area intersections. Existing Plus Ambient Growth morning and evening peak hour intersection turning movement volumes are shown on Figures 30 and 31, respectively.

As shown in Table 6, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Existing Plus Ambient Growth traffic conditions.

3. Opening Year (2017) Without Project

The Opening Year (2017) delay and Level of Service for the study area roadway network without the proposed project are shown in Table 7. Table 7 shows delay values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2017) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 32 and 33, respectively.

As shown in Table 7, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) Without Project traffic conditions without and with improvements.

4. Opening Year (2017) With Project

The Opening Year (2017) delay and Level of Service for the study area roadway network with the proposed project are shown in Table 8. Table 8 shows delay values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2017) With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 34 and 35, respectively.

As shown in Table 8, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Opening Year (2017) With Project traffic conditions, with improvements

Table 9 depicts the Opening Year (2017) With Project trip contribution at the study area intersections. As shown in Table 9 for Opening Year (2017) With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

5. Year 2035 Without Project

The Year 2035 delay and Level of Service for the study area roadway network without the proposed project are shown in Table 10. Table 10 shows delay values based on the geometrics at the study area intersections, without and with improvements. Year 2035 Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 36 and 37, respectively.

As shown in Table 10, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 Without Project traffic conditions without and with improvements.

6. Year 2035 With Project

The Year 2035 delay and Level of Service for the study area roadway network with the proposed project are shown in Table 11. Table 11 shows delay values based on the geometrics at the study area intersections, without and with improvements. Year 2035 With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 38 and 39, respectively.

As shown in Table 11, the study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, except for the intersection, except for the following intersection which is projected to operate at an unacceptable Level of Service during the peak hours:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The study area intersections are projected to operate at an acceptable Level of Service during the peak hours for Year 2035 With Project traffic conditions, with improvements.

Table 12 depicts the Year 2035 With Project trip contribution at the study area intersections. As shown in Table 12 for Year 2035 With Project traffic conditions, the project generated trips result in a significant impact at the following study area intersection:

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

**D. Future Traffic Signal Warrant Analysis**

For Existing Plus Ambient Growth traffic conditions, a traffic signal is projected to be warranted at the following study area intersection (see Appendix G):

Waterman Avenue (NS) at:  
Park Center Circle N (EW) - #7

The unsignalized intersection has been evaluated for a traffic signal using the California Department of Transportation Warrant 3 Peak Hour traffic signal warrant analysis, as specified in the California Manual of Uniform Traffic Control Devices (2014 Edition).

**E. Freeway Evaluation**

The project does not contribute trips greater than the freeway threshold of 100 two-way trips.

Table 3

Other Development Trip Generation<sup>1</sup>

| Project                      | Land Use                                | Quantity                                | Units <sup>2</sup> | PCE Factor <sup>3</sup> | Vehicle Percent <sup>4</sup> | Peak Hour |          |       |         |          |       | Daily |       |
|------------------------------|---|---|--------------------|-------------------------|------------------------------|-----------|----------|-------|---------|----------|-------|-------|-------|
|                              |   |   |                    |                         |                              | Morning   |          |       | Evening |          |       |       |       |
|                              |   |   |                    |                         |                              | Inbound   | Outbound | Total | Inbound | Outbound | Total |       |       |
| 1                            | Restaurant                              | 2.999                                   | TSF                | -                       | -                            | 17        | 15       | 32    | 18      | 12       | 30    | 381   |       |
|                              | Pass-by <sup>5</sup> (43% PM)           |   |                    |                         |                              |           |          |       | -8      | -5       | -13   |       |       |
|                              | Restaurant Total                        |   |                    |                         |                              | 17        | 15       | 32    | 10      | 7        | 17    | 381   |       |
| 2                            | General Light Industrial Trucks 2 Axle  |   |                    | 2.0                     | 8.00%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | General Light Industrial Trucks 3 Axle  |   |                    | 2.5                     | 3.90%                        | 1         | 0        | 1     | 0       | 1        | 1     | 5     |       |
|                              | General Light Industrial Trucks 4+ Axle |   |                    | 3.0                     | 9.50%                        | 2         | 0        | 2     | 0       | 2        | 2     | 15    |       |
|                              | General Light Industrial Truck Subtotal |   | PCE                |                         | 21.4%                        | 4         | 0        | 4     | 0       | 4        | 4     | 28    |       |
|                              | General Light Industrial Car Subtotal   |   | PCE                | 1.0                     | 78.6%                        | 5         | 1        | 6     | 1       | 5        | 6     | 41    |       |
|                              | General Light Industrial Total          | 7.500                                   | TSF                | -                       | -                            | 9         | 1        | 10    | 1       | 9        | 10    | 69    |       |
|                              | Warehouse Trucks 2 Axle                 |   |                    | 2.0                     | 5.20%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 3 Axle                 |   |                    | 2.5                     | 4.50%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 4+ Axle                |   |                    | 3.0                     | 10.00%                       | 1         | 0        | 1     | 0       | 1        | 1     | 22    |       |
|                              | Warehouse Truck Subtotal                |   | PCE                |                         | 19.7%                        | 3         | 0        | 3     | 0       | 3        | 3     | 38    |       |
| Warehouse Car Subtotal       |   | PCE                                     | 1.0                | 80.3%                   | 4                            | 1         | 5        | 1     | 4       | 5        | 59    |       |       |
| Warehouse Total              | 20.600                                  | TSF                                     | -                  | -                       | 7                            | 1         | 8        | 1     | 7       | 8        | 97    |       |       |
| Industrial/Warehouse Total   | 28.100                                  | TSF                                     | -                  | -                       | 16                           | 2         | 18       | 2     | 16      | 18       | 166   |       |       |
| 3                            | DP-D15-03                               | Recreational Facility                   | 33.600             | TSF                     | -                            | -         | 45       | 24    | 69      | 45       | 47    | 92    | 1,136 |
| 4                            | TPM 19573                               | High-Cube Warehouse Trucks 2 Axle       |                    |                         | 2.0                          | 3.46%     | 2        | 1     | 3       | 1        | 2     | 3     | 50    |
|                              |   | High-Cube Warehouse Trucks 3 Axle       |                    |                         | 2.5                          | 4.64%     | 4        | 1     | 5       | 2        | 4     | 6     | 83    |
|                              |   | High-Cube Warehouse Trucks 4+ Axle      |                    |                         | 3.0                          | 12.33%    | 13       | 5     | 18      | 6        | 13    | 19    | 265   |
|                              |   | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 20.4%     | 19       | 7     | 26      | 9        | 19    | 28    | 398   |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     | 1.0                          | 79.6%     | 27       | 10    | 37      | 14       | 27    | 41    | 571   |
|                              |   | High-Cube Warehouse Total               | 427.000            | TSF                     | -                            | -         | 46       | 17    | 63      | 23       | 46    | 69    | 969   |
| 5                            | DP-D13-08                               | General Light Industrial Trucks 2 Axle  |                    |                         | 2.0                          | 8.00%     | 1        | 0     | 1       | 0        | 1     | 1     | 8     |
|                              |   | General Light Industrial Trucks 3 Axle  |                    |                         | 2.5                          | 3.90%     | 1        | 0     | 1       | 0        | 1     | 1     | 5     |
|                              |   | General Light Industrial Trucks 4+ Axle |                    |                         | 3.0                          | 9.50%     | 2        | 0     | 2       | 0        | 2     | 2     | 15    |
|                              |   | General Light Industrial Truck Subtotal |                    | PCE                     |                              | 21.4%     | 4        | 0     | 4       | 0        | 4     | 4     | 28    |
|                              |   | General Light Industrial Car Subtotal   |                    | PCE                     | 1.0                          | 78.6%     | 5        | 1     | 6       | 1        | 5     | 6     | 41    |
|                              |   | General Light Industrial Total          | 9.490              | TSF                     | -                            | -         | 9        | 1     | 10      | 1        | 9     | 10    | 69    |
|                              |   | Automobile Care Center                  | 9.000              | TSF                     | -                            | -         | 13       | 7     | 20      | 13       | 15    | 28    | 213   |
| Total                        | 18.490                                  | TSF                                     | -                  | -                       | 22                           | 8         | 30       | 14    | 24      | 38       | 282   |       |       |
| 6                            | TPM 19487                               | High-Cube Warehouse Trucks 2 Axle       |                    |                         | 2.0                          | 3.46%     | 7        | 2     | 9       | 3        | 7     | 10    | 139   |
|                              |   | High-Cube Warehouse Trucks 3 Axle       |                    |                         | 2.5                          | 4.64%     | 11       | 4     | 15      | 6        | 11    | 17    | 234   |
|                              |   | High-Cube Warehouse Trucks 4+ Axle      |                    |                         | 3.0                          | 12.33%    | 35       | 13    | 48      | 18       | 35    | 53    | 745   |
|                              |   | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 20.4%     | 53       | 19    | 72      | 27       | 53    | 80    | 1118  |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     | 1.0                          | 79.6%     | 76       | 29    | 105     | 38       | 76    | 114   | 1603  |
|                              |   | High-Cube Warehouse Total               | 1,199.360          | TSF                     | -                            | -         | 129      | 48    | 177     | 65       | 129   | 194   | 2,721 |
| 7                            | DP-D14-17                               | Restaurant                              | 11.300             | TSF                     | -                            | -         | 67       | 55    | 122     | 67       | 45    | 111   | 1,437 |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -29      | -19   | -48   |       |
|                              |   | Restaurant Total                        |                    |                         |                              |           | 67       | 55    | 122     | 38       | 26    | 63    | 1,437 |
| 8                            | CUP-15-06                               | Restaurant                              | 3.999              | TSF                     | -                            | -         | 24       | 19    | 43      | 23       | 16    | 39    | 508   |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -10      | -7    | -17   |       |
| 9                            | ADP15-02                                | Supermarket Market                      | 29.000             | TSF                     | -                            | -         | 62       | 37    | 99      | 140      | 135   | 275   | 2,965 |
|                              |   | Pass-by <sup>5</sup> (36% PM)           |                    |                         |                              |           |          |       |         | -50      | -49   | -99   |       |
|                              |   | Supermarket Market Total                |                    |                         |                              |           | 62       | 37    | 99      | 90       | 86    | 176   | 2,965 |
| 10                           | CUP-13-26                               | Convenience Market with Gas Pumps       | 3.050              | TSF                     | -                            | -         | 63       | 62    | 125     | 77       | 78    | 155   | 2,579 |
|                              |   | Pass-by <sup>5</sup> (63% am & 66% PM)  |                    |                         |                              |           |          |       |         | -40      | -39   | -79   |       |
|                              |   | Conv Market w Gas Pumps Total           |                    |                         |                              |           | 23       | 23    | 46      | 26       | 27    | 53    | 2,579 |
|                              |   | Restaurant                              | 2.000              | TSF                     | -                            | -         | 12       | 10    | 22      | 12       | 8     | 20    | 254   |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -5       | -3    | -9    |       |
| Restaurant Total             |   |   |                    |                         | 12                           | 10        | 22       | 7     | 5       | 11       | 254   |       |       |
| Conv Market/Restaurant Total |   |   |                    |                         | 35                           | 33        | 68       | 33    | 32      | 64       | 2,833 |       |       |

<sup>1</sup> Source: Institute of Transportation Engineers, *Trip Generation*, 9th Edition, 2012, Land Use Categories 110, 150, 152, 495, 850, 853, 932 and 942.<sup>2</sup> TSF = Thousand Square Feet; PCE = Passenger Car Equivalent.<sup>3</sup> Source: City of San Bernardino Development Services Department, *Traffic Impact Study Guidelines*, June 2015.<sup>4</sup> Source: City of Fontana *Truck Trip Generation Study*, August 2003.<sup>5</sup> Institute of Transportation Engineers, *Trip Generation*, 9th Edition, 2012, Passby percentages for 850, 853 and 932.

**Table 4**

**Existing Plus Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.4               | C                | 0.385            | 36.8               | D                | 0.561            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.4               | B                | 0.681            | 11.1               | B                | 0.761            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.2               | C                | 0.444            | 32.6               | C                | 0.702            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.0               | C                | N/A              | 22.8               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 46.3               | E                | N/A              | 83.9               | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 13.1               | B                | 0.316            | 12.2               | B                | 0.406            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.926            | 13.6               | B                | 0.926            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.0               | C                | 0.577            | 18.6               | B                | 0.437            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = defacto Right Turn; ^ = Mult-directional Lane; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 5**

**Existing Plus Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Existing Plus Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|----------|------------------|------------------|-----------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                 | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 29.4     | C                | 0.377            | 29.4                  | C                | 0.385            | +0.008         | No                                 |
|  |              |                              | Evening   | 36.6     | D                | 0.557            | 36.8                  | D                | 0.561            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 10.2     | B                | 0.677            | 10.4                  | B                | 0.681            | +0.004         | No                                 |
|  |              |                              | Evening   | 10.9     | B                | 0.759            | 11.1                  | B                | 0.761            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9                   | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 28.1     | C                | 0.443            | 28.2                  | C                | 0.444            | +0.001         | No                                 |
|  |              |                              | Evening   | 31.9     | C                | 0.694            | 32.6                  | C                | 0.702            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 15.6     | C                | N/A              | 15.0                  | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 27.8     | D                | N/A              | 22.8                  | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 46.3                  | E                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 14.1     | B                | N/A              | 83.9                  | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 11.6     | B                | 0.763            | 11.6                  | B                | 0.926            | +0.163         | No                                 |
|  |              |                              | Evening   | 13.6     | B                | 0.926            | 13.6                  | B                | 0.926            | +0.000         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 22.0     | C                | 0.577            | 22.0                  | C                | 0.577            | +0.000         | No                                 |
|  |              |                              | Evening   | 18.6     | B                | 0.434            | 18.6                  | B                | 0.437            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 6

Existing Plus Ambient Growth Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 29.6               | C                | 0.388            | 37.1               | D                | 0.567            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 10.3               | B                | 0.682            | 11.2               | B                | 0.762            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 28.3               | C                | 0.452            | 32.7               | C                | 0.706            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 23.1               | C                | N/A              | 29.4               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.0               | B                | N/A              | 14.8               | B                | N/A              |
| With Improvements  |              | <u>TS</u>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 9.1                | A                | 0.309            | 7.3                | A                | 0.283            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 11.7               | B                | 0.926            | 13.8               | B                | 0.978            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 22.2               | C                | 0.587            | 19.0               | B                | 0.450            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; TS = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> Traffic signal is projected to be warranted.

Table 7

Opening Year 2017 Without Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 29.8               | C                | 0.411            | 38.4               | D                | 0.582            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 10.3               | B                | 0.700            | 11.1               | B                | 0.771            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 28.3               | C                | 0.452            | 34.6               | C                | 0.750            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 16.6               | C                | N/A              | 32.6               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.8               | B                | N/A              | 15.4               | B                | N/A              |
| With Improvements  |              | <b>TS</b>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 9.1                | A                | 0.330            | 7.4                | A                | 0.292            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 11.6               | B                | 0.837            | 14.0               | B                | 0.936            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 22.5               | C                | 0.608            | 19.2               | B                | 0.470            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = defacto Right Turn; ^ = Mult-directional Lane; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 8**

**Opening Year 2017 With Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.8               | C                | 0.419            | 38.7               | D                | 0.586            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.5               | B                | 0.704            | 11.4               | B                | 0.773            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.6               | C                | 0.459            | 35.5               | D                | 0.762            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.8               | C                | N/A              | 26.1               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 57.7               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 13.2               | B                | 0.341            | 12.4               | B                | 0.435            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.876            | 14                 | B                | 0.943            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.5               | C                | 0.608            | 19.2               | B                | 0.473            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

**Table 9**

**Opening Year 2017 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Opening Year 2017 |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|----------|------------------|------------------|-------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay             | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 29.8     | C                | 0.411            | 29.8              | C                | 0.419            | +0.008         | No                                 |
|  |              |                              | Evening   | 38.4     | D                | 0.582            | 38.7              | D                | 0.586            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 10.3     | B                | 0.700            | 10.5              | B                | 0.704            | +0.004         | No                                 |
|  |              |                              | Evening   | 11.1     | B                | 0.771            | 11.4              | B                | 0.773            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8               | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9               | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4               | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4               | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 28.3     | C                | 0.452            | 28.6              | C                | 0.459            | +0.007         | No                                 |
|  |              |                              | Evening   | 34.6     | C                | 0.750            | 35.5              | D                | 0.762            | +0.012         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 16.6     | C                | N/A              | 15.8              | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 32.6     | D                | N/A              | 26.1              | D                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 57.7              | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 15.4     | B                | N/A              | 99.9              | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 11.6     | B                | 0.837            | 11.6              | B                | 0.876            | +0.039         | No                                 |
|  |              |                              | Evening   | 14.0     | B                | 0.936            | 14.0              | B                | 0.943            | +0.007         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 22.5     | C                | 0.608            | 22.5              | C                | 0.608            | +0.000         | No                                 |
|  |              |                              | Evening   | 19.2     | B                | 0.470            | 19.2              | B                | 0.473            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 10

Year 2035 Without Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 32.1               | C                | 0.459            | 40.8               | D                | 0.606            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 7.3                | A                | 0.851            | 10.6               | B                | 0.962            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 29.4               | C                | 0.493            | 37.1               | D                | 0.776            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 17.2               | C                | N/A              | 23.0               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.8               | B                | N/A              | 19.3               | C                | N/A              |
| With Improvements  |              | <u>TS</u>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 8.5                | A                | 0.310            | 13.0               | B                | 0.330            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 7.7                | A                | 0.837            | 11.3               | B                | 0.966            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 23.4               | C                | 0.624            | 19.8               | B                | 0.539            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De facto Right Turn.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 11**

**Year 2035 With Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 32.4               | C                | 0.466            | 41.3               | D                | 0.609            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 8.3                | A                | 0.952            | 10.7               | B                | 0.964            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.7                | A                | N/A              | 8.8                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 29.6               | C                | 0.498            | 37.9               | D                | 0.784            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 16.6               | C                | N/A              | 20.8               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 69.0               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 12.8               | B                | 0.327            | 14.9               | B                | 0.486            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 8.4                | A                | 0.926            | 11.3               | B                | 0.972            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 23.4               | C                | 0.624            | 19.8               | B                | 0.542            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 12**

**Year 2035 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Year 2035 |                  |                  | Year 2035 With Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|-----------|------------------|------------------|------------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay     | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                  | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 32.1      | C                | 0.459            | 32.4                   | C                | 0.466            | +0.007         | No                                 |
|  |              |                              | Evening   | 40.8      | D                | 0.606            | 41.3                   | D                | 0.609            | +0.003         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 7.3       | A                | 0.851            | 8.3                    | A                | 0.952            | +0.101         | No                                 |
|  |              |                              | Evening   | 10.6      | B                | 0.962            | 10.7                   | B                | 0.964            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.7                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.8                    | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 29.4      | C                | 0.493            | 29.6                   | C                | 0.498            | +0.005         | No                                 |
|  |              |                              | Evening   | 37.1      | D                | 0.776            | 37.9                   | D                | 0.784            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 17.2      | C                | N/A              | 16.6                   | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 23.0      | C                | N/A              | 20.8                   | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8      | B                | N/A              | 69.0                   | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 19.3      | C                | N/A              | 99.9                   | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 7.7       | A                | 0.837            | 8.4                    | A                | 0.926            | +0.089         | No                                 |
|  |              |                              | Evening   | 11.3      | B                | 0.966            | 11.3                   | B                | 0.972            | +0.006         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 23.4      | C                | 0.624            | 23.4                   | C                | 0.624            | +0.000         | No                                 |
|  |              |                              | Evening   | 19.8      | B                | 0.539            | 19.8                   | B                | 0.542            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 3

Other Development Trip Generation<sup>1</sup>

| Project                      | Land Use                                | Quantity                                | Units <sup>2</sup> | PCE Factor <sup>3</sup> | Vehicle Percent <sup>4</sup> | Peak Hour |          |       |         |          |       | Daily |       |
|------------------------------|---|---|--------------------|-------------------------|------------------------------|-----------|----------|-------|---------|----------|-------|-------|-------|
|                              |   |   |                    |                         |                              | Morning   |          |       | Evening |          |       |       |       |
|                              |   |   |                    |                         |                              | Inbound   | Outbound | Total | Inbound | Outbound | Total |       |       |
| 1                            | Restaurant                              | 2.999                                   | TSF                | -                       | -                            | 17        | 15       | 32    | 18      | 12       | 30    | 381   |       |
|                              | Pass-by <sup>5</sup> (43% PM)           |   |                    |                         |                              |           |          |       | -8      | -5       | -13   |       |       |
|                              | Restaurant Total                        |   |                    |                         |                              | 17        | 15       | 32    | 10      | 7        | 17    | 381   |       |
| 2                            | General Light Industrial Trucks 2 Axle  |   |                    | 2.0                     | 8.00%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | General Light Industrial Trucks 3 Axle  |   |                    | 2.5                     | 3.90%                        | 1         | 0        | 1     | 0       | 1        | 1     | 5     |       |
|                              | General Light Industrial Trucks 4+ Axle |   |                    | 3.0                     | 9.50%                        | 2         | 0        | 2     | 0       | 2        | 2     | 15    |       |
|                              | General Light Industrial Truck Subtotal |   | PCE                |                         | 21.4%                        | 4         | 0        | 4     | 0       | 4        | 4     | 28    |       |
|                              | General Light Industrial Car Subtotal   |   | PCE                | 1.0                     | 78.6%                        | 5         | 1        | 6     | 1       | 5        | 6     | 41    |       |
|                              | General Light Industrial Total          | 7.500                                   | TSF                | -                       | -                            | 9         | 1        | 10    | 1       | 9        | 10    | 69    |       |
|                              | Warehouse Trucks 2 Axle                 |   |                    | 2.0                     | 5.20%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 3 Axle                 |   |                    | 2.5                     | 4.50%                        | 1         | 0        | 1     | 0       | 1        | 1     | 8     |       |
|                              | Warehouse Trucks 4+ Axle                |   |                    | 3.0                     | 10.00%                       | 1         | 0        | 1     | 0       | 1        | 1     | 22    |       |
|                              | Warehouse Truck Subtotal                |   | PCE                |                         | 19.7%                        | 3         | 0        | 3     | 0       | 3        | 3     | 38    |       |
| Warehouse Car Subtotal       |   | PCE                                     | 1.0                | 80.3%                   | 4                            | 1         | 5        | 1     | 4       | 5        | 59    |       |       |
| Warehouse Total              | 20.600                                  | TSF                                     | -                  | -                       | 7                            | 1         | 8        | 1     | 7       | 8        | 97    |       |       |
| Industrial/Warehouse Total   | 28.100                                  | TSF                                     | -                  | -                       | 16                           | 2         | 18       | 2     | 16      | 18       | 166   |       |       |
| 3                            | DP-D15-03                               | Recreational Facility                   | 33.600             | TSF                     | -                            | -         | 45       | 24    | 69      | 45       | 47    | 92    | 1,136 |
| 4                            | TPM 19573                               | High-Cube Warehouse Trucks 2 Axle       |                    |                         | 2.0                          | 3.46%     | 2        | 1     | 3       | 1        | 2     | 3     | 50    |
|                              |   | High-Cube Warehouse Trucks 3 Axle       |                    |                         | 2.5                          | 4.64%     | 4        | 1     | 5       | 2        | 4     | 6     | 83    |
|                              |   | High-Cube Warehouse Trucks 4+ Axle      |                    |                         | 3.0                          | 12.33%    | 13       | 5     | 18      | 6        | 13    | 19    | 265   |
|                              |   | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 20.4%     | 19       | 7     | 26      | 9        | 19    | 28    | 398   |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     | 1.0                          | 79.6%     | 27       | 10    | 37      | 14       | 27    | 41    | 571   |
|                              |   | High-Cube Warehouse Total               | 427.000            | TSF                     | -                            | -         | 46       | 17    | 63      | 23       | 46    | 69    | 969   |
| 5                            | DP-D13-08                               | General Light Industrial Trucks 2 Axle  |                    |                         | 2.0                          | 8.00%     | 1        | 0     | 1       | 0        | 1     | 1     | 8     |
|                              |   | General Light Industrial Trucks 3 Axle  |                    |                         | 2.5                          | 3.90%     | 1        | 0     | 1       | 0        | 1     | 1     | 5     |
|                              |   | General Light Industrial Trucks 4+ Axle |                    |                         | 3.0                          | 9.50%     | 2        | 0     | 2       | 0        | 2     | 2     | 15    |
|                              |   | General Light Industrial Truck Subtotal |                    | PCE                     |                              | 21.4%     | 4        | 0     | 4       | 0        | 4     | 4     | 28    |
|                              |   | General Light Industrial Car Subtotal   |                    | PCE                     | 1.0                          | 78.6%     | 5        | 1     | 6       | 1        | 5     | 6     | 41    |
|                              |   | General Light Industrial Total          | 9.490              | TSF                     | -                            | -         | 9        | 1     | 10      | 1        | 9     | 10    | 69    |
| Automobile Care Center       | 9.000                                   | TSF                                     | -                  | -                       | 13                           | 7         | 20       | 13    | 15      | 28       | 213   |       |       |
| Total                        | 18.490                                  | TSF                                     | -                  | -                       | 22                           | 8         | 30       | 14    | 24      | 38       | 282   |       |       |
| 6                            | TPM 19487                               | High-Cube Warehouse Trucks 2 Axle       |                    |                         | 2.0                          | 3.46%     | 7        | 2     | 9       | 3        | 7     | 10    | 139   |
|                              |   | High-Cube Warehouse Trucks 3 Axle       |                    |                         | 2.5                          | 4.64%     | 11       | 4     | 15      | 6        | 11    | 17    | 234   |
|                              |   | High-Cube Warehouse Trucks 4+ Axle      |                    |                         | 3.0                          | 12.33%    | 35       | 13    | 48      | 18       | 35    | 53    | 745   |
|                              |   | High-Cube Warehouse Truck Subtotal      |                    | PCE                     |                              | 20.4%     | 53       | 19    | 72      | 27       | 53    | 80    | 1118  |
|                              |   | High-Cube Warehouse Car Subtotal        |                    | PCE                     | 1.0                          | 79.6%     | 76       | 29    | 105     | 38       | 76    | 114   | 1603  |
|                              |   | High-Cube Warehouse Total               | 1,199.360          | TSF                     | -                            | -         | 129      | 48    | 177     | 65       | 129   | 194   | 2,721 |
| 7                            | DP-D14-17                               | Restaurant                              | 11.300             | TSF                     | -                            | -         | 67       | 55    | 122     | 67       | 45    | 111   | 1,437 |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -29      | -19   | -48   |       |
|                              |   | Restaurant Total                        |                    |                         |                              |           | 67       | 55    | 122     | 38       | 26    | 63    | 1,437 |
| 8                            | CUP-15-06                               | Restaurant                              | 3.999              | TSF                     | -                            | -         | 24       | 19    | 43      | 23       | 16    | 39    | 508   |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -10      | -7    | -17   |       |
| 9                            | ADP15-02                                | Restaurant Total                        |                    |                         |                              |           | 24       | 19    | 43      | 13       | 9     | 22    | 508   |
|                              |   | Supermarket Market                      | 29.000             | TSF                     | -                            | -         | 62       | 37    | 99      | 140      | 135   | 275   | 2,965 |
|                              |   | Pass-by <sup>5</sup> (36% PM)           |                    |                         |                              |           |          |       |         | -50      | -49   | -99   |       |
| Supermarket Market Total     |   |   |                    |                         | 62                           | 37        | 99       | 90    | 86      | 176      | 2,965 |       |       |
| 10                           | CUP-13-26                               | Convenience Market with Gas Pumps       | 3.050              | TSF                     | -                            | -         | 63       | 62    | 125     | 77       | 78    | 155   | 2,579 |
|                              |   | Pass-by <sup>5</sup> (63% am & 66% PM)  |                    |                         |                              |           |          |       |         | -40      | -39   | -79   |       |
|                              |   | Conv Market w Gas Pumps Total           |                    |                         |                              |           | 23       | 23    | 46      | 26       | 27    | 53    | 2,579 |
|                              |   | Restaurant                              | 2.000              | TSF                     | -                            | -         | 12       | 10    | 22      | 12       | 8     | 20    | 254   |
|                              |   | Pass-by <sup>5</sup> (43% PM)           |                    |                         |                              |           |          |       |         | -5       | -3    | -9    |       |
| Restaurant Total             |   |   |                    |                         | 12                           | 10        | 22       | 7     | 5       | 11       | 254   |       |       |
| Conv Market/Restaurant Total |   |   |                    |                         | 35                           | 33        | 68       | 33    | 32      | 64       | 2,833 |       |       |

<sup>1</sup> Source: Institute of Transportation Engineers, *Trip Generation*, 9th Edition, 2012, Land Use Categories 110, 150, 152, 495, 850, 853, 932 and 942.

<sup>2</sup> TSF = Thousand Square Feet; PCE = Passenger Car Equivalent.

<sup>3</sup> Source: City of San Bernardino Development Services Department, *Traffic Impact Study Guidelines*, June 2015.

<sup>4</sup> Source: City of Fontana *Truck Trip Generation Study*, August 2003.

<sup>5</sup> Institute of Transportation Engineers, *Trip Generation*, 9th Edition, 2012, Passby percentages for 850, 853 and 932.

**Table 4**

**Existing Plus Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.4               | C                | 0.385            | 36.8               | D                | 0.561            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.4               | B                | 0.681            | 11.1               | B                | 0.761            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.2               | C                | 0.444            | 32.6               | C                | 0.702            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.0               | C                | N/A              | 22.8               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 46.3               | E                | N/A              | 83.9               | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 13.1               | B                | 0.316            | 12.2               | B                | 0.406            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.926            | 13.6               | B                | 0.926            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.0               | C                | 0.577            | 18.6               | B                | 0.437            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = defacto Right Turn; ^ = Mult-directional Lane; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 5**

**Existing Plus Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Existing Plus Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|----------|------------------|------------------|-----------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                 | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 29.4     | C                | 0.377            | 29.4                  | C                | 0.385            | +0.008         | No                                 |
|  |              |                              | Evening   | 36.6     | D                | 0.557            | 36.8                  | D                | 0.561            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 10.2     | B                | 0.677            | 10.4                  | B                | 0.681            | +0.004         | No                                 |
|  |              |                              | Evening   | 10.9     | B                | 0.759            | 11.1                  | B                | 0.761            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9                   | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4                   | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 28.1     | C                | 0.443            | 28.2                  | C                | 0.444            | +0.001         | No                                 |
|  |              |                              | Evening   | 31.9     | C                | 0.694            | 32.6                  | C                | 0.702            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 15.6     | C                | N/A              | 15.0                  | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 27.8     | D                | N/A              | 22.8                  | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 46.3                  | E                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 14.1     | B                | N/A              | 83.9                  | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 11.6     | B                | 0.763            | 11.6                  | B                | 0.926            | +0.163         | No                                 |
|  |              |                              | Evening   | 13.6     | B                | 0.926            | 13.6                  | B                | 0.926            | +0.000         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 22.0     | C                | 0.577            | 22.0                  | C                | 0.577            | +0.000         | No                                 |
|  |              |                              | Evening   | 18.6     | B                | 0.434            | 18.6                  | B                | 0.437            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

**Table 6**

**Existing Plus Ambient Growth Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 29.6               | C                | 0.388            | 37.1               | D                | 0.567            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 10.3               | B                | 0.682            | 11.2               | B                | 0.762            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 28.3               | C                | 0.452            | 32.7               | C                | 0.706            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 23.1               | C                | N/A              | 29.4               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.0               | B                | N/A              | 14.8               | B                | N/A              |
| With Improvements  |              | <u>TS</u>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 9.1                | A                | 0.309            | 7.3                | A                | 0.283            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 11.7               | B                | 0.926            | 13.8               | B                | 0.978            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 22.2               | C                | 0.587            | 19.0               | B                | 0.450            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; TS = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> Traffic signal is projected to be warranted.

**Table 7**

**Opening Year 2017 Without Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 29.8               | C                | 0.411            | 38.4               | D                | 0.582            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 10.3               | B                | 0.700            | 11.1               | B                | 0.771            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 28.3               | C                | 0.452            | 34.6               | C                | 0.750            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 16.6               | C                | N/A              | 32.6               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.8               | B                | N/A              | 15.4               | B                | N/A              |
| With Improvements  |              | <b>TS</b>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 9.1                | A                | 0.330            | 7.4                | A                | 0.292            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 11.6               | B                | 0.837            | 14.0               | B                | 0.936            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 22.5               | C                | 0.608            | 19.2               | B                | 0.470            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = defacto Right Turn; ^ = Mult-directional Lane; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 8**

**Opening Year 2017 With Project Intersection Delay and Level of Service**

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 29.8               | C                | 0.419            | 38.7               | D                | 0.586            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 10.5               | B                | 0.704            | 11.4               | B                | 0.773            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.8                | A                | N/A              | 8.9                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 28.6               | C                | 0.459            | 35.5               | D                | 0.762            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 15.8               | C                | N/A              | 26.1               | D                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 57.7               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <b>1</b>                                 | 2   | d          | 1          | 2   | <b>1</b> | <b>0.5</b> | <b>0.5</b> | <b>1</b> | 0.5       | 0.5 | d  | 13.2               | B                | 0.341            | 12.4               | B                | 0.435            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 11.6               | B                | 0.876            | 14                 | B                | 0.943            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 22.5               | C                | 0.608            | 19.2               | B                | 0.473            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

<sup>5</sup> 99.9 - F = Delay high, intersection unstable, Level of Service F.

**Table 9**

**Opening Year 2017 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Existing |                  |                  | Opening Year 2017 |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|----------|------------------|------------------|-------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay    | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay             | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 29.8     | C                | 0.411            | 29.8              | C                | 0.419            | +0.008         | No                                 |
|  |              |                              | Evening   | 38.4     | D                | 0.582            | 38.7              | D                | 0.586            | +0.004         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 10.3     | B                | 0.700            | 10.5              | B                | 0.704            | +0.004         | No                                 |
|  |              |                              | Evening   | 11.1     | B                | 0.771            | 11.4              | B                | 0.773            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.8               | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.9               | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0      | 0.0              | N/A              | 8.4               | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0      | 0.0              | N/A              | 8.4               | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 28.3     | C                | 0.452            | 28.6              | C                | 0.459            | +0.007         | No                                 |
|  |              |                              | Evening   | 34.6     | C                | 0.750            | 35.5              | D                | 0.762            | +0.012         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 16.6     | C                | N/A              | 15.8              | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 32.6     | D                | N/A              | 26.1              | D                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8     | B                | N/A              | 57.7              | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 15.4     | B                | N/A              | 99.9              | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 11.6     | B                | 0.837            | 11.6              | B                | 0.876            | +0.039         | No                                 |
|  |              |                              | Evening   | 14.0     | B                | 0.936            | 14.0              | B                | 0.943            | +0.007         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 22.5     | C                | 0.608            | 22.5              | C                | 0.608            | +0.000         | No                                 |
|  |              |                              | Evening   | 19.2     | B                | 0.470            | 19.2              | B                | 0.473            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Table 10

Year 2035 Without Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |     |            |     |     |           |     |     |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|-----|------------|-----|-----|-----------|-----|-----|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |     | Southbound |     |     | Eastbound |     |     | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R   | L          | T   | R   | L         | T   | R   | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5 | 2          | 2   | 1>  | 2         | 2   | 1   | 2         | 2   | 1> | 32.1               | C                | 0.459            | 40.8               | D                | 0.606            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d   | 0.5        | 0.5 | d   | 1         | 2   | d   | 1         | 2   | d  | 7.3                | A                | 0.851            | 10.6               | B                | 0.962            |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d   | 1          | 2   | d   | 1         | 2   | d   | 1         | 2   | d  | 29.4               | C                | 0.493            | 37.1               | D                | 0.776            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0   | 0          | 2   | d   | 0.5       | 0   | 0.5 | 0         | 0   | 0  | 17.2               | C                | N/A              | 23.0               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 14.8               | B                | N/A              | 19.3               | C                | N/A              |
| With Improvements  |              | <u>TS</u>                    | 0  | 2   | d   | 1          | 2   | 0   | 0         | 0   | 0   | 1         | 0   | d  | 8.5                | A                | 0.310            | 13.0               | B                | 0.330            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2   | d   | 0.5       | 0.5 | d   | 0.5       | 0.5 | d  | 7.7                | A                | 0.837            | 11.3               | B                | 0.966            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1   | 1          | 2.5 | 0.5 | 0         | 1   | 0   | 1.5       | 0.5 | 1  | 23.4               | C                | 0.624            | 19.8               | B                | 0.539            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De facto Right Turn.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

Table 11

Year 2035 With Project Intersection Delay and Level of Service

| Intersection   | Jurisdiction | Traffic Control <sup>2</sup> | Intersection Approach Lanes <sup>1</sup> |     |            |            |     |          |            |            |          |           |     |    | Peak Hour          |                  |                  |                    |                  |                  |
|--|--------------|------------------------------|--|-----|------------|------------|-----|----------|------------|------------|----------|-----------|-----|----|--------------------|------------------|------------------|--------------------|------------------|------------------|
|  |              |                              | Northbound                               |     |            | Southbound |     |          | Eastbound  |            |          | Westbound |     |    | Morning            |                  |                  | Evening            |                  |                  |
|  |              |                              | L  | T   | R          | L          | T   | R        | L          | T          | R        | L         | T   | R  | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> | Delay <sup>3</sup> | LOS <sup>4</sup> | V/C <sup>4</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1          | City of SB   | TS                           | 2  | 1.5 | 0.5        | 2          | 2   | 1>       | 2          | 2          | 1        | 2         | 2   | 1> | 32.4               | C                | 0.466            | 41.3               | D                | 0.609            |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2 | City of SB   | TS                           | 0.5                                      | 0.5 | d          | 0.5        | 0.5 | d        | 1          | 2          | d        | 1         | 2   | d  | 8.3                | A                | 0.952            | 10.7               | B                | 0.964            |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.7                | A                | N/A              | 8.8                | A                | N/A              |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4   | City of SB   | <b>CSS</b>                   | <b>0.5</b>                               | 0   | <b>0.5</b> | 0          | 0   | 0        | 0          | 0.5        | 0.5      | 0.5       | 0.5 | 0  | 8.4                | A                | N/A              | 8.4                | A                | N/A              |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5   | City of SB   | TS                           | 1  | 2   | d          | 1          | 2   | d        | 1          | 2          | d        | 1         | 2   | d  | 29.6               | C                | 0.498            | 37.9               | D                | 0.784            |
| Dumas Street (EW) - #6                                   | City of SB   | CSS                          | 1  | 2   | 0          | 0          | 2   | d        | 1          | 0          | <u>1</u> | 0         | 0   | 0  | 16.6               | C                | N/A              | 20.8               | C                | N/A              |
| Park Center Circle N (EW) - #7<br>Without Improvements   | City of SB   | CSS                          | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 69.0               | F                | N/A              | 99.9 <sup>5</sup>  | F                | N/A              |
| With Improvements  |              | <b>TS</b>                    | <u>1</u>                                 | 2   | d          | 1          | 2   | <u>1</u> | <u>0.5</u> | <u>0.5</u> | <u>1</u> | 0.5       | 0.5 | d  | 12.8               | B                | 0.327            | 14.9               | B                | 0.486            |
| Park Center Circle S (EW) - #8                           | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2   | d        | 0.5        | 0.5        | d        | 0.5       | 0.5 | d  | 8.4                | A                | 0.926            | 11.3               | B                | 0.972            |
| Vanderbilt Way (EW) - #9                                 | City of SB   | TS                           | 1  | 2   | 1          | 1          | 2.5 | 0.5      | 0          | 1          | 0        | 1.5       | 0.5 | 1  | 23.4               | C                | 0.624            | 19.8               | B                | 0.542            |

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = defacto Right Turn; **TS** = Improvements.

<sup>2</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>3</sup> Delay, level of service (LOS) and volume to capacity ratio (V/C) has been calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>4</sup> LOS = Level of Service; V/C = Volume to Capacity.

**Table 12**

**Year 2035 With Project Traffic Contribution**

| Intersection   | Jurisdiction | Traffic Control <sup>1</sup> | Peak Hour | Year 2035 |                  |                  | Year 2035 With Project |                  |                  |                |                                    |
|--|--------------|------------------------------|-----------|-----------|------------------|------------------|------------------------|------------------|------------------|----------------|------------------------------------|
|  |              |                              |           | Delay     | LOS <sup>2</sup> | V/C <sup>3</sup> | Delay                  | LOS <sup>2</sup> | V/C <sup>3</sup> | Project Impact | Significant Impact? <sup>4,5</sup> |
| E Street (NS) at:<br>Orange Show Road (EW) - #1            | City of SB   | TS                           | Morning   | 32.1      | C                | 0.459            | 32.4                   | C                | 0.466            | +0.007         | No                                 |
|  |              |                              | Evening   | 40.8      | D                | 0.606            | 41.3                   | D                | 0.609            | +0.003         | No                                 |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) - #2   | City of SB   | TS                           | Morning   | 7.3       | A                | 0.851            | 8.3                    | A                | 0.952            | +0.101         | No                                 |
|  |              |                              | Evening   | 10.6      | B                | 0.962            | 10.7                   | B                | 0.964            | +0.002         | No                                 |
| Project West Access (NS) at:<br>Dumas Street (EW) - #3     | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.7                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.8                    | A                | N/A              | N/A            | No                                 |
| Project East Access (NS) at:<br>Dumas Street (EW) - #4     | City of SB   | CSS                          | Morning   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 0.0       | 0.0              | N/A              | 8.4                    | A                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Orange Show Road (EW) - #5     | City of SB   | TS                           | Morning   | 29.4      | C                | 0.493            | 29.6                   | C                | 0.498            | +0.005         | No                                 |
|  |              |                              | Evening   | 37.1      | D                | 0.776            | 37.9                   | D                | 0.784            | +0.008         | No                                 |
| Waterman Avenue (NS) at:<br>Dumas Street (EW) - #6         | City of SB   | CSS                          | Morning   | 17.2      | C                | N/A              | 16.6                   | C                | N/A              | N/A            | No                                 |
|  |              |                              | Evening   | 23.0      | C                | N/A              | 20.8                   | C                | N/A              | N/A            | No                                 |
| Waterman Avenue (NS) at:<br>Park Center Circle N (EW) - #7 | City of SB   | CSS                          | Morning   | 14.8      | B                | N/A              | 69.0                   | F                | N/A              | N/A            | YES                                |
|  |              |                              | Evening   | 19.3      | C                | N/A              | 99.9                   | F                | N/A              | N/A            | YES                                |
| Waterman Avenue (NS) at:<br>Park Center Circle S (EW) - #8 | City of SB   | TS                           | Morning   | 7.7       | A                | 0.837            | 8.4                    | A                | 0.926            | +0.089         | No                                 |
|  |              |                              | Evening   | 11.3      | B                | 0.966            | 11.3                   | B                | 0.972            | +0.006         | No                                 |
| Waterman Avenue (NS) at:<br>Vanderbilt Way (EW) - #9       | City of SB   | TS                           | Morning   | 23.4      | C                | 0.624            | 23.4                   | C                | 0.624            | +0.000         | No                                 |
|  |              |                              | Evening   | 19.8      | B                | 0.539            | 19.8                   | B                | 0.542            | +0.003         | No                                 |

<sup>1</sup> TS = Traffic Signal; CSS = Cross Street Stop

<sup>2</sup> LOS = Level of Service

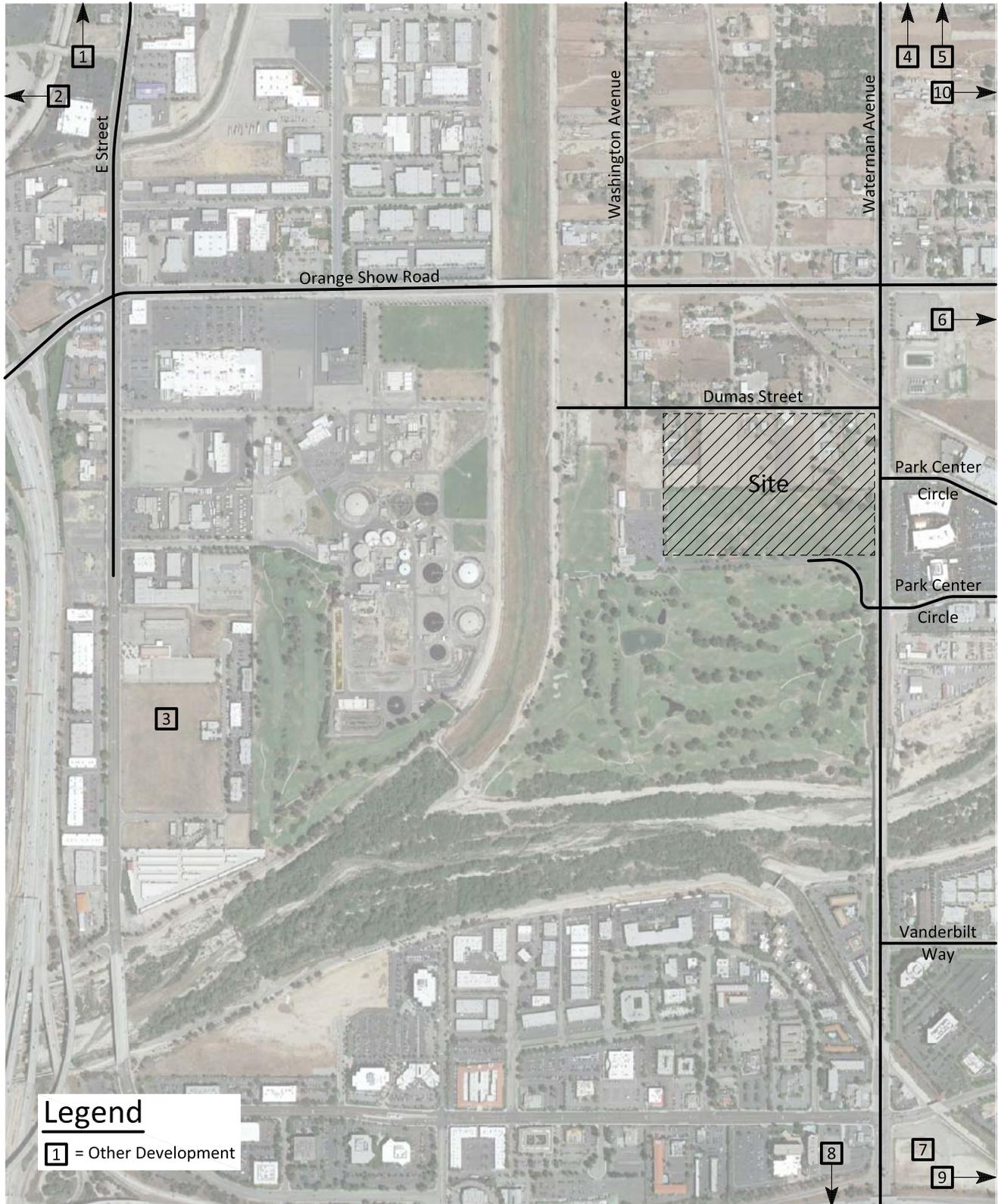
<sup>3</sup> V/C = Volume to Capacity

<sup>4</sup> For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Significant Impact Threshold for Intersections |   |
|--|---|
| Level of Service Without Project               | Volume to Capacity Incremental Increase |
| C  | equal to or greater than 0.04 or more   |
| D  | equal to or greater than 0.02 or more   |
| E/F  | equal to or greater than 0.01 or more   |

<sup>5</sup> For unsignalized intersections, an impact is considered significant if the intersection operates at Level of Service E or worse.

Figure 18  
Other Development Location Map



**Legend**

1 = Other Development

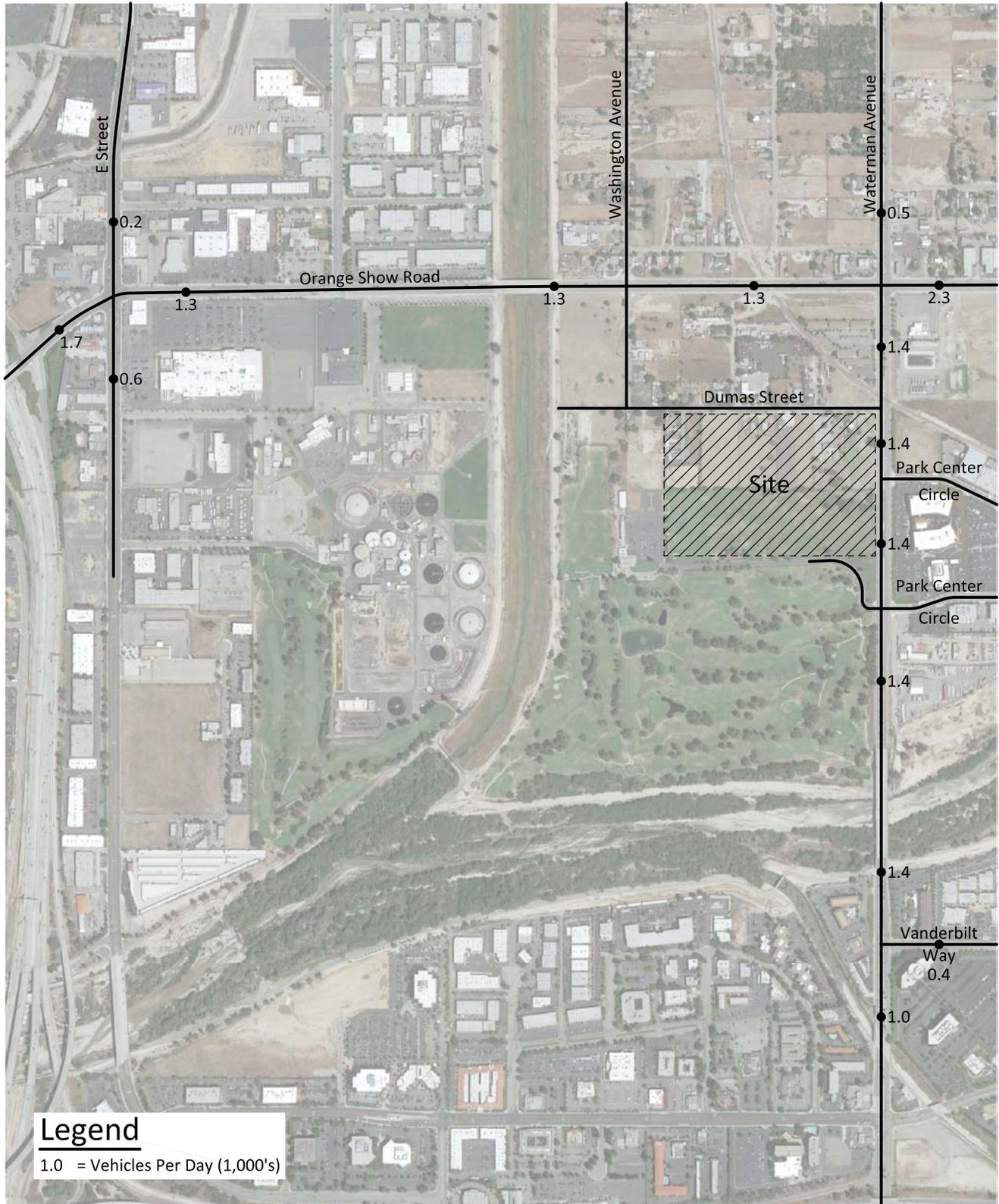


KUNZMAN ASSOCIATES, INC.

OVER 35 YEARS OF EXCELLENT SERVICE

5629/18

Figure 19  
Other Development Average Daily Traffic Volumes



**Legend**

1.0 = Vehicles Per Day (1,000's)



Figure 20  
Other Development  
Morning Peak Hour Intersection Turning Movement Volumes

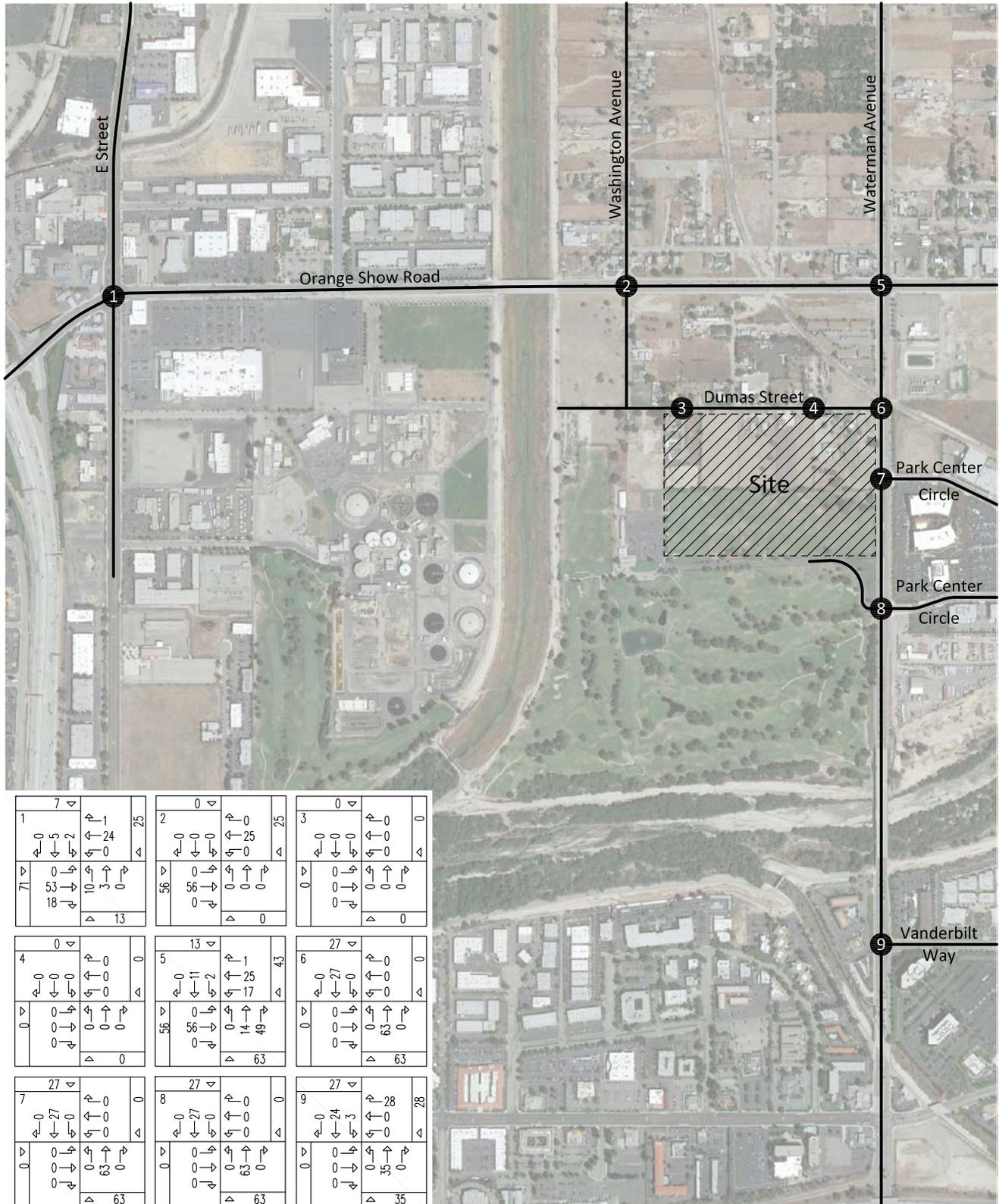
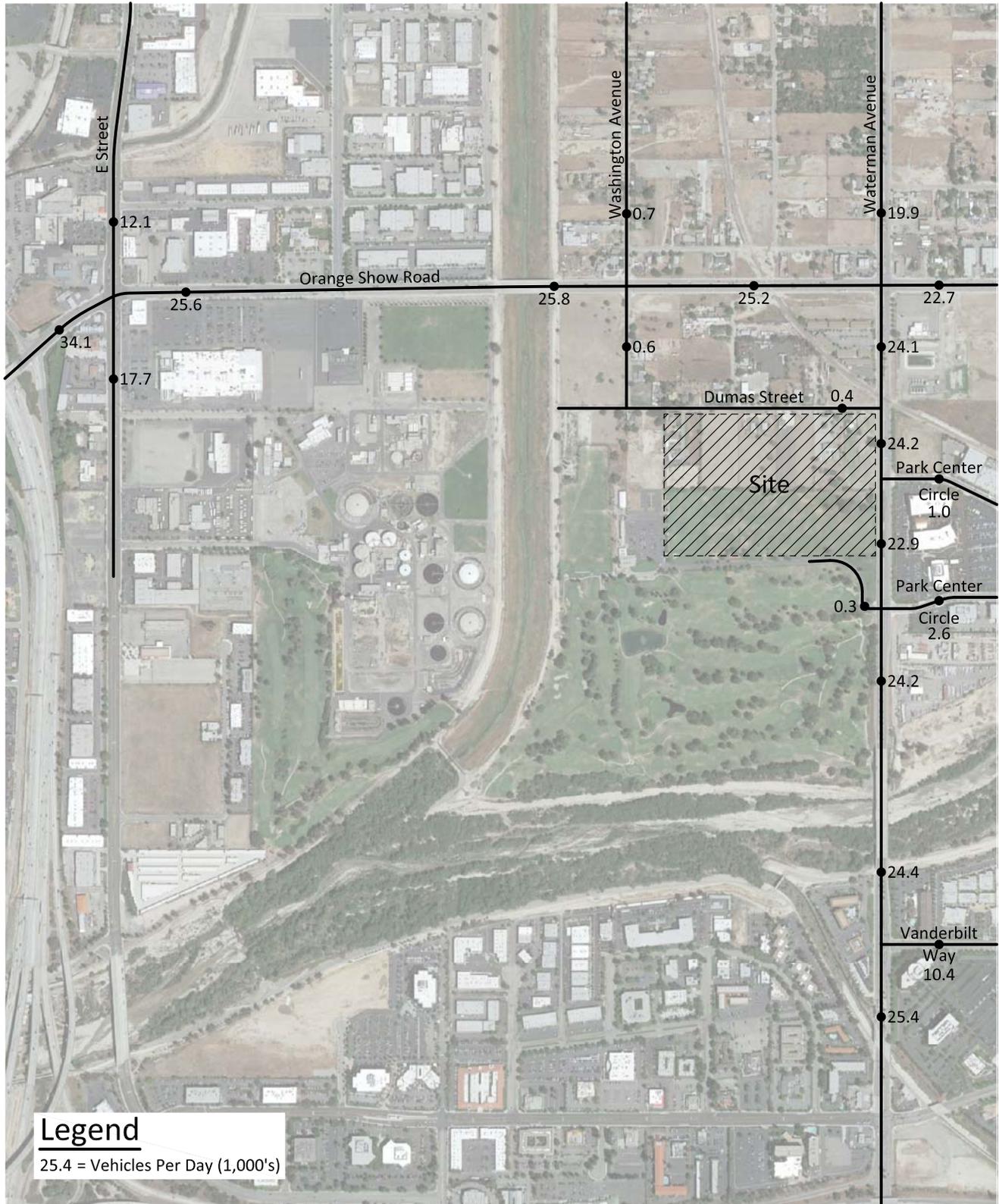




Figure 22  
Existing Plus Project Average Daily Traffic Volumes

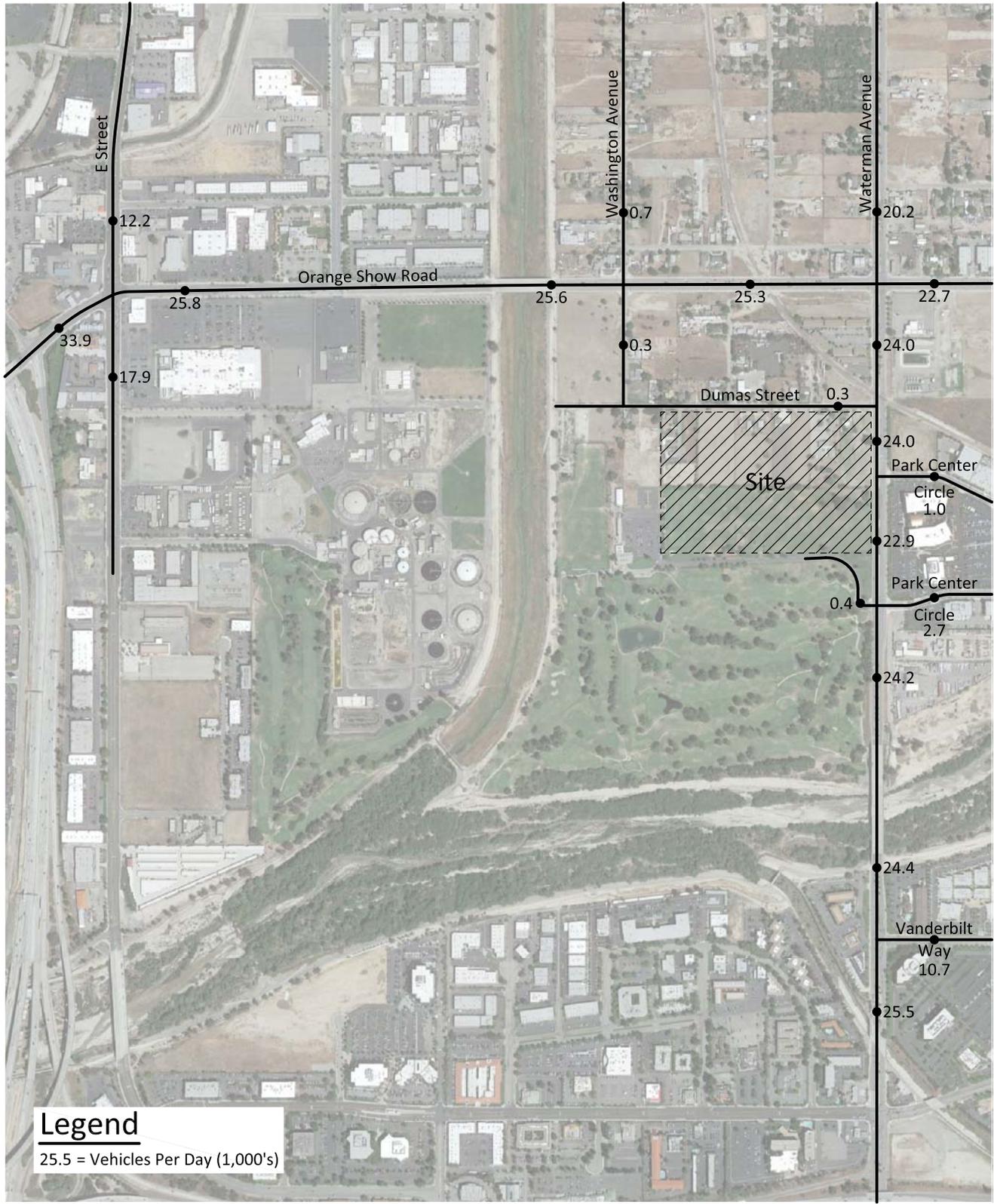


**Legend**

25.4 = Vehicles Per Day (1,000's)

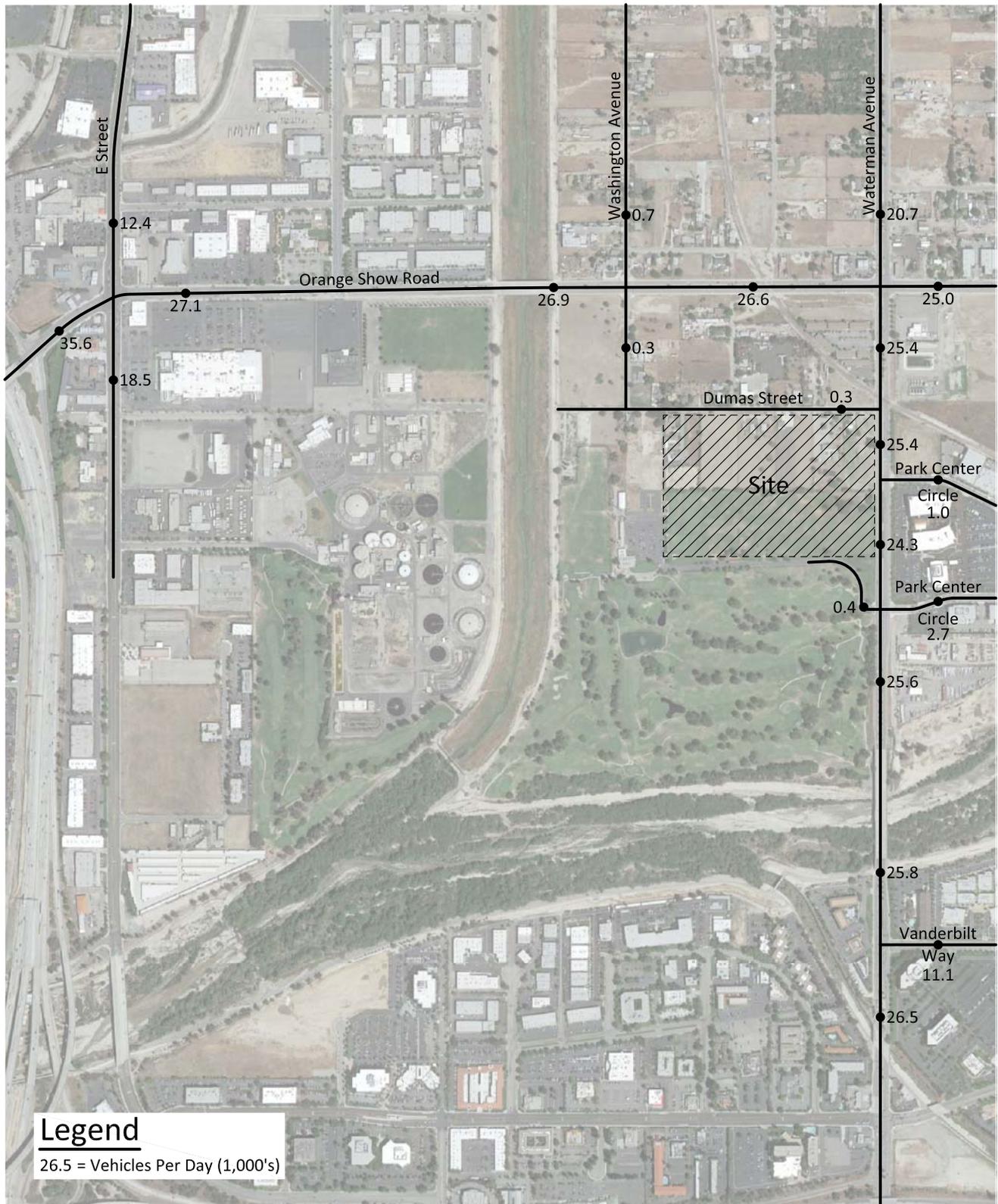


Figure 23  
Existing Plus Ambient Growth Average Daily Traffic Volumes



**Legend**  
25.5 = Vehicles Per Day (1,000's)

Figure 24  
 Opening Year (2017) Without Project Average Daily Traffic Volumes

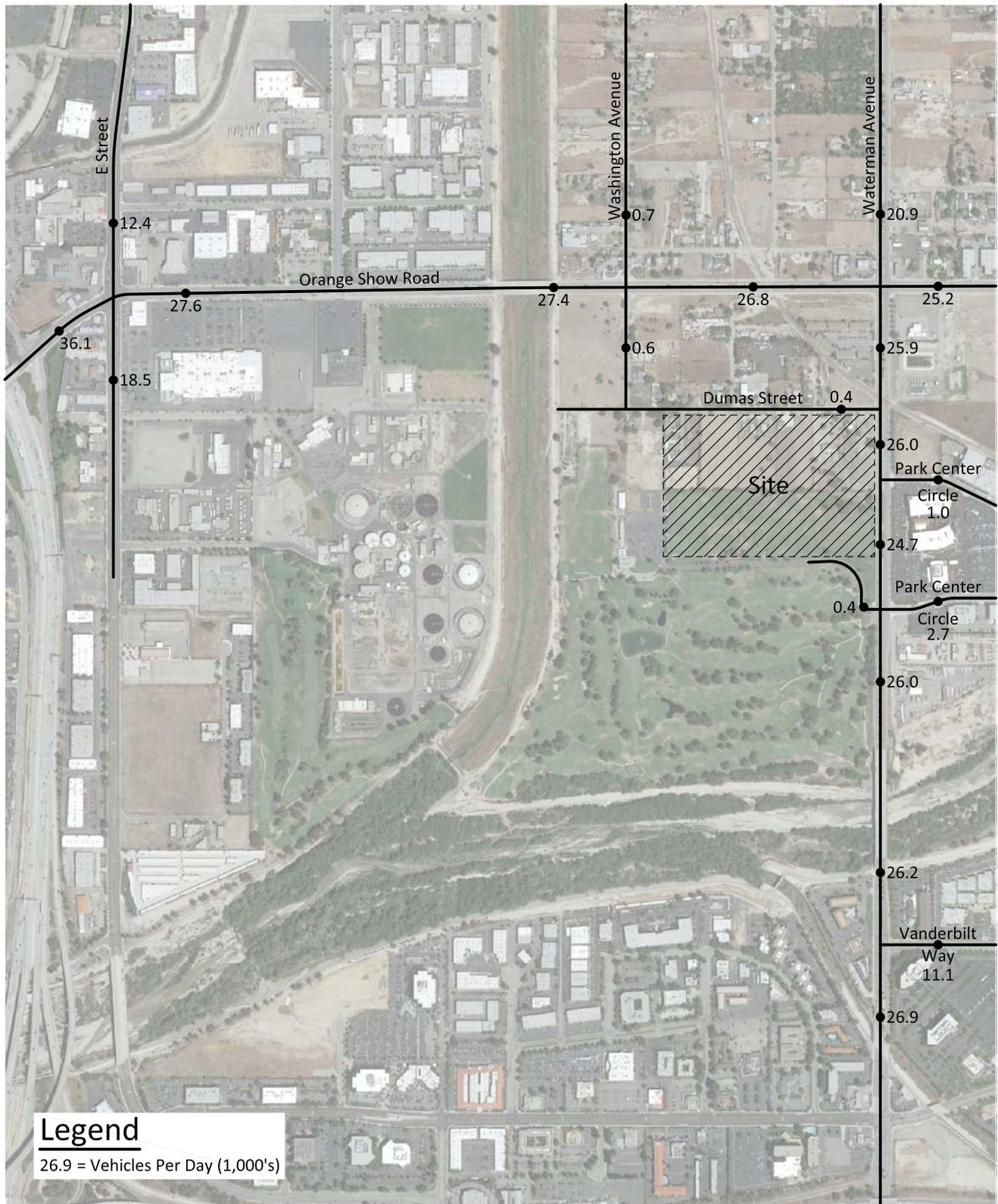


**Legend**

26.5 = Vehicles Per Day (1,000's)



Figure 25  
 Opening Year (2017) With Project Average Daily Traffic Volumes

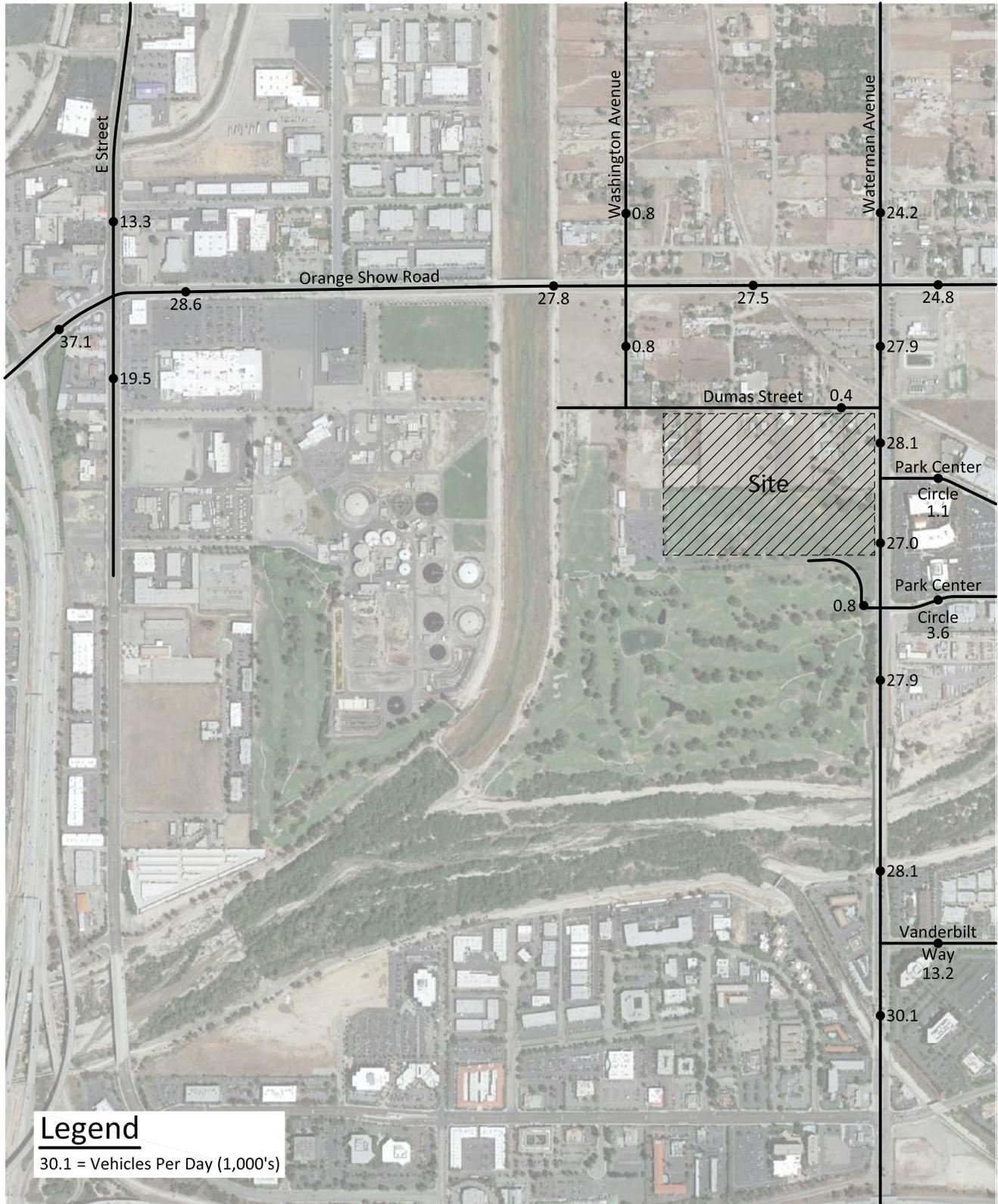


**Legend**

26.9 = Vehicles Per Day (1,000's)



Figure 26  
 Year 2035 Without Project Average Daily Traffic Volumes

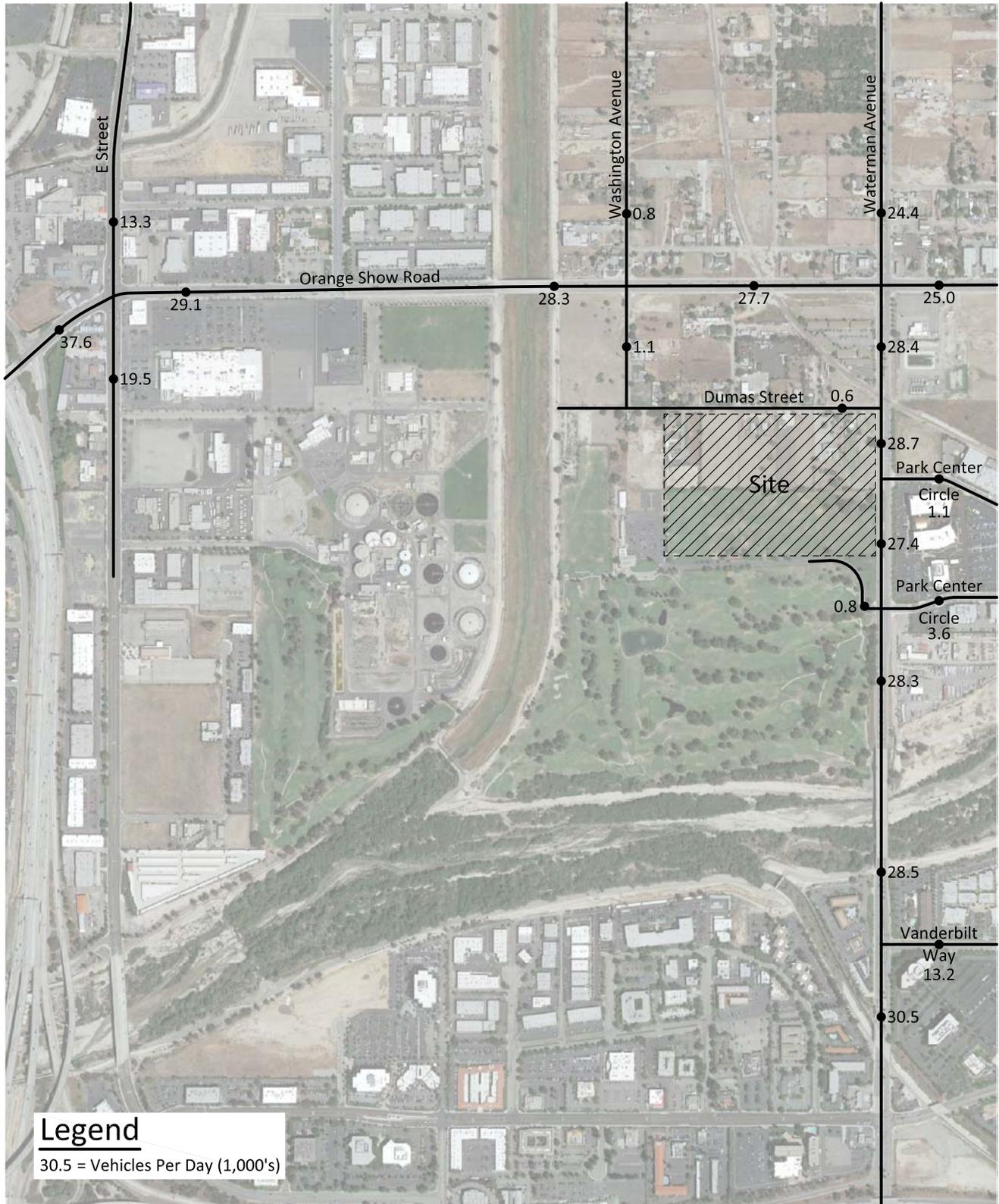


**Legend**

30.1 = Vehicles Per Day (1,000's)



Figure 27  
 Year 2035 With Project Average Daily Traffic Volumes



**Legend**

30.5 = Vehicles Per Day (1,000's)



**Figure 28**  
**Existing Plus Project**  
**Morning Peak Hour Intersection Turning Movement Volumes**

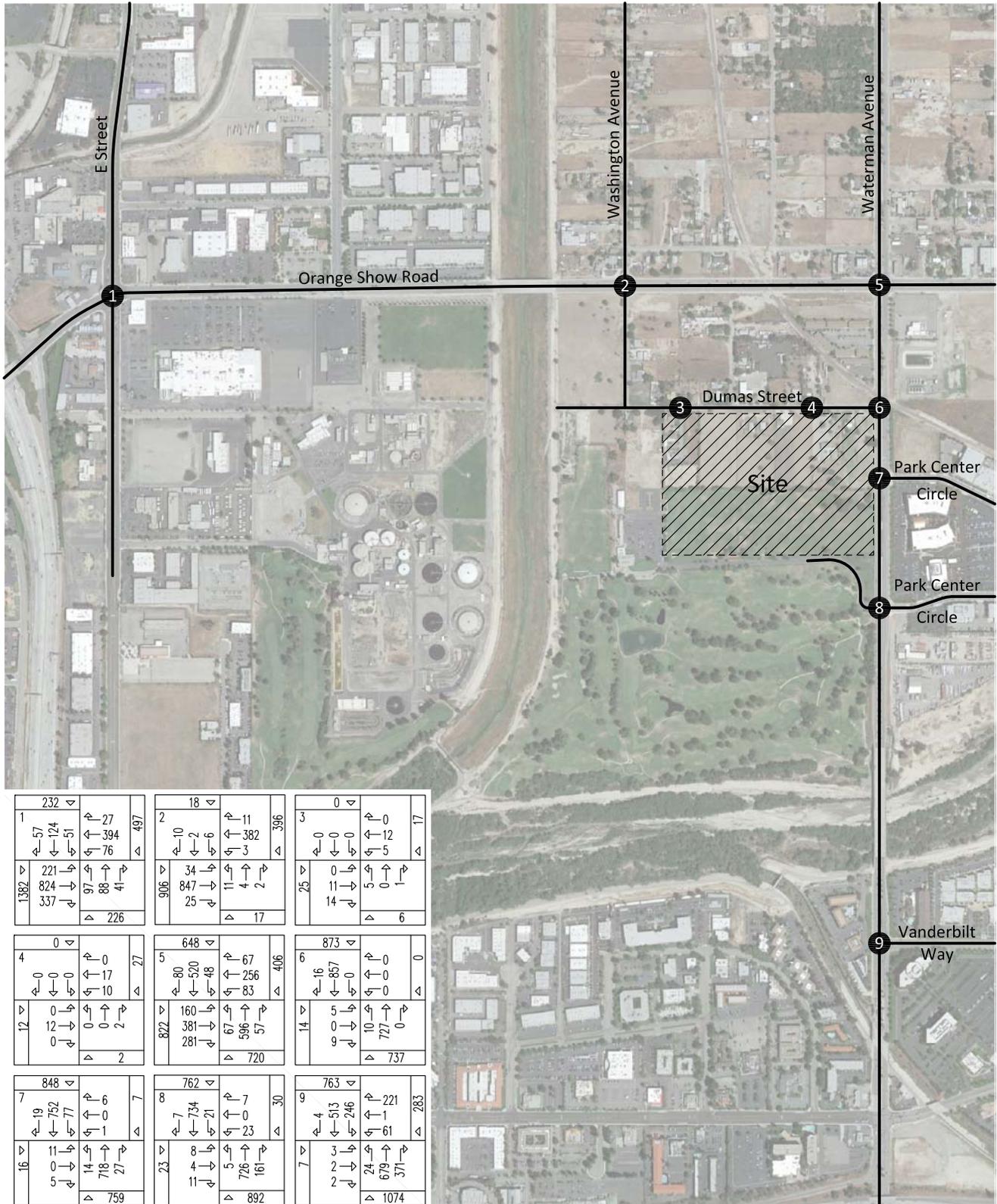
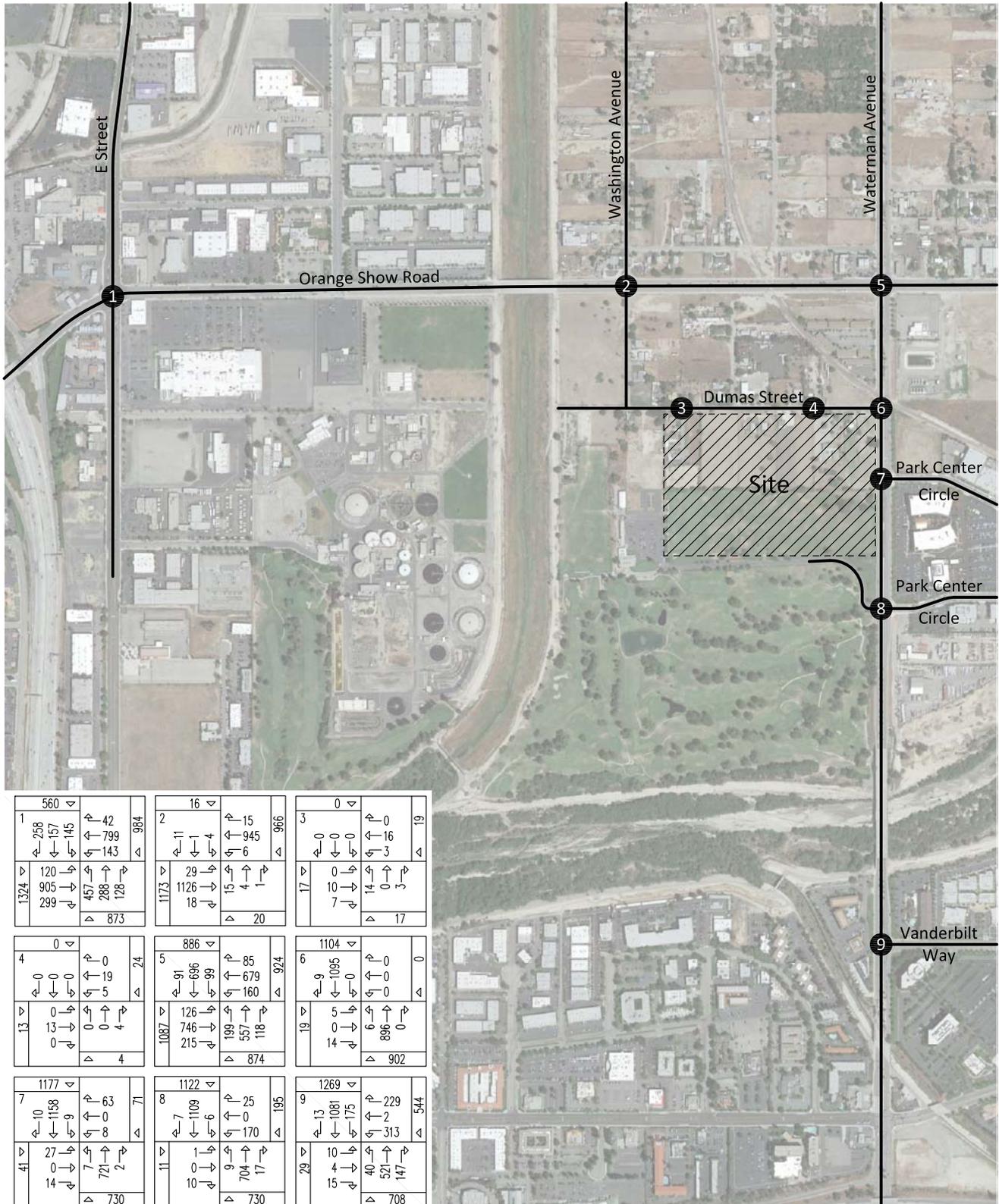
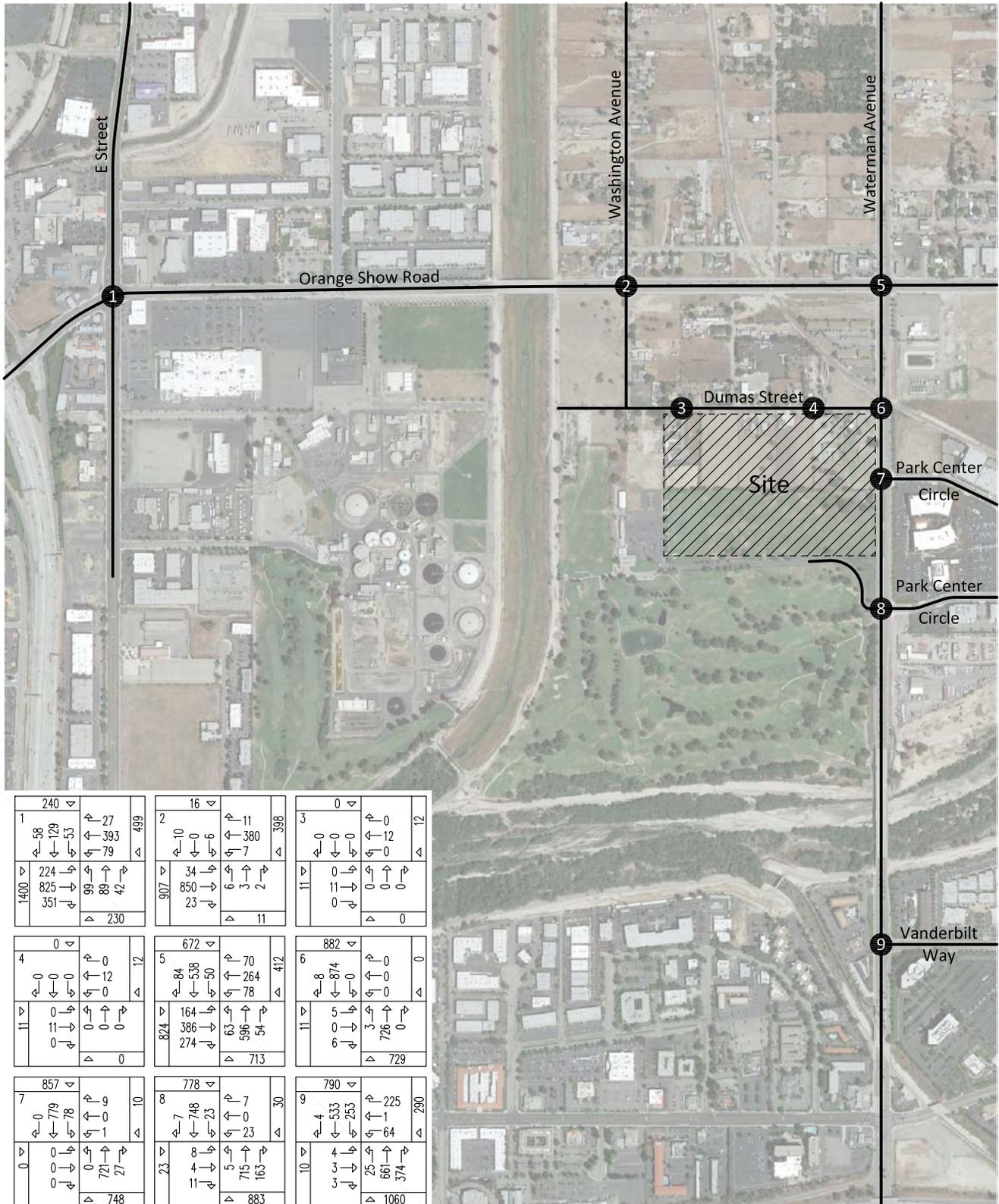


Figure 29  
Existing Plus Project  
Evening Peak Hour Intersection Turning Movement Volumes



**Figure 30**  
**Existing Plus Ambient Growth**  
**Morning Peak Hour Intersection Turning Movement Volumes**



**Figure 31**  
**Existing Plus Ambient Growth**  
**Evening Peak Hour Intersection Turning Movement Volumes**

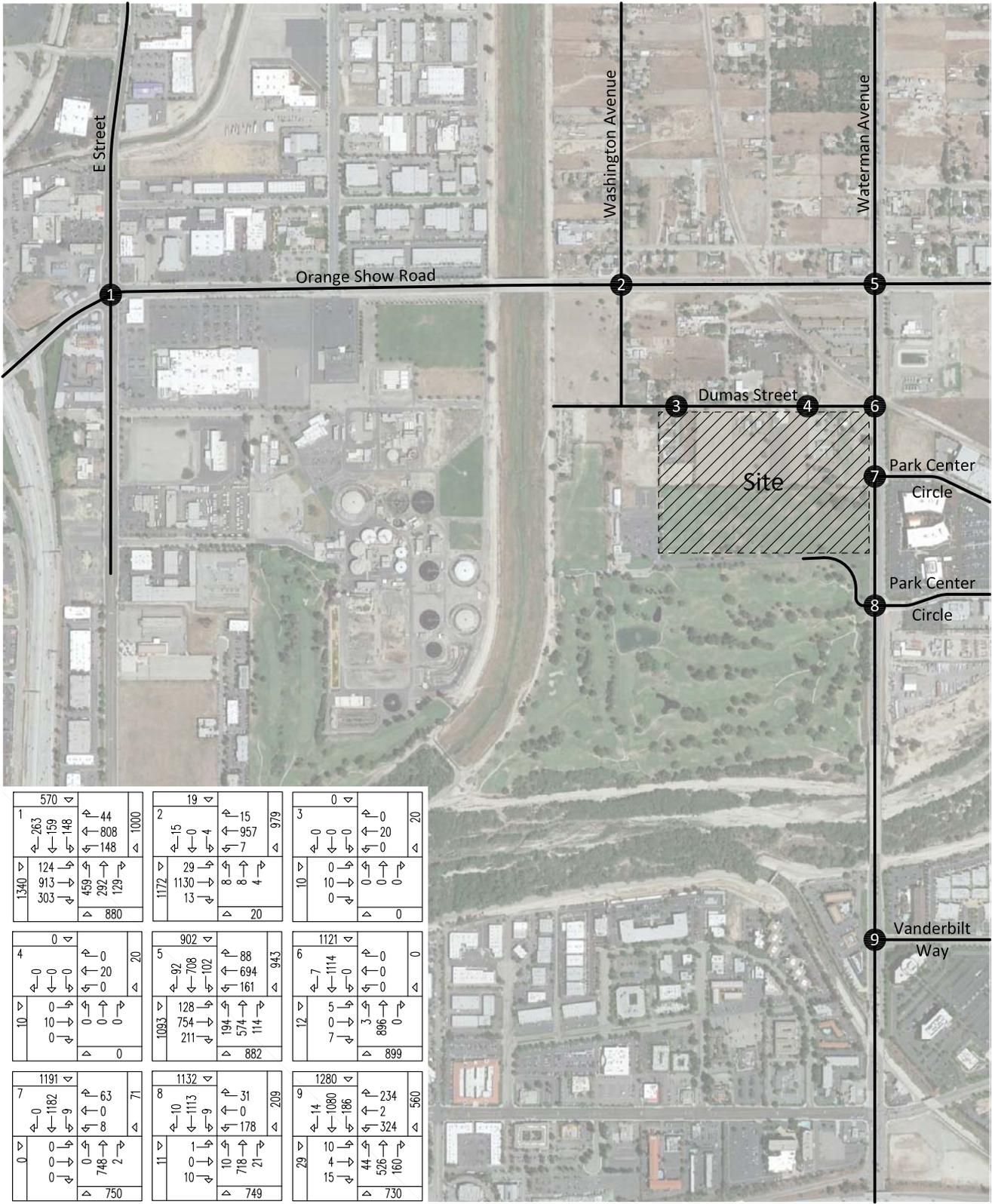
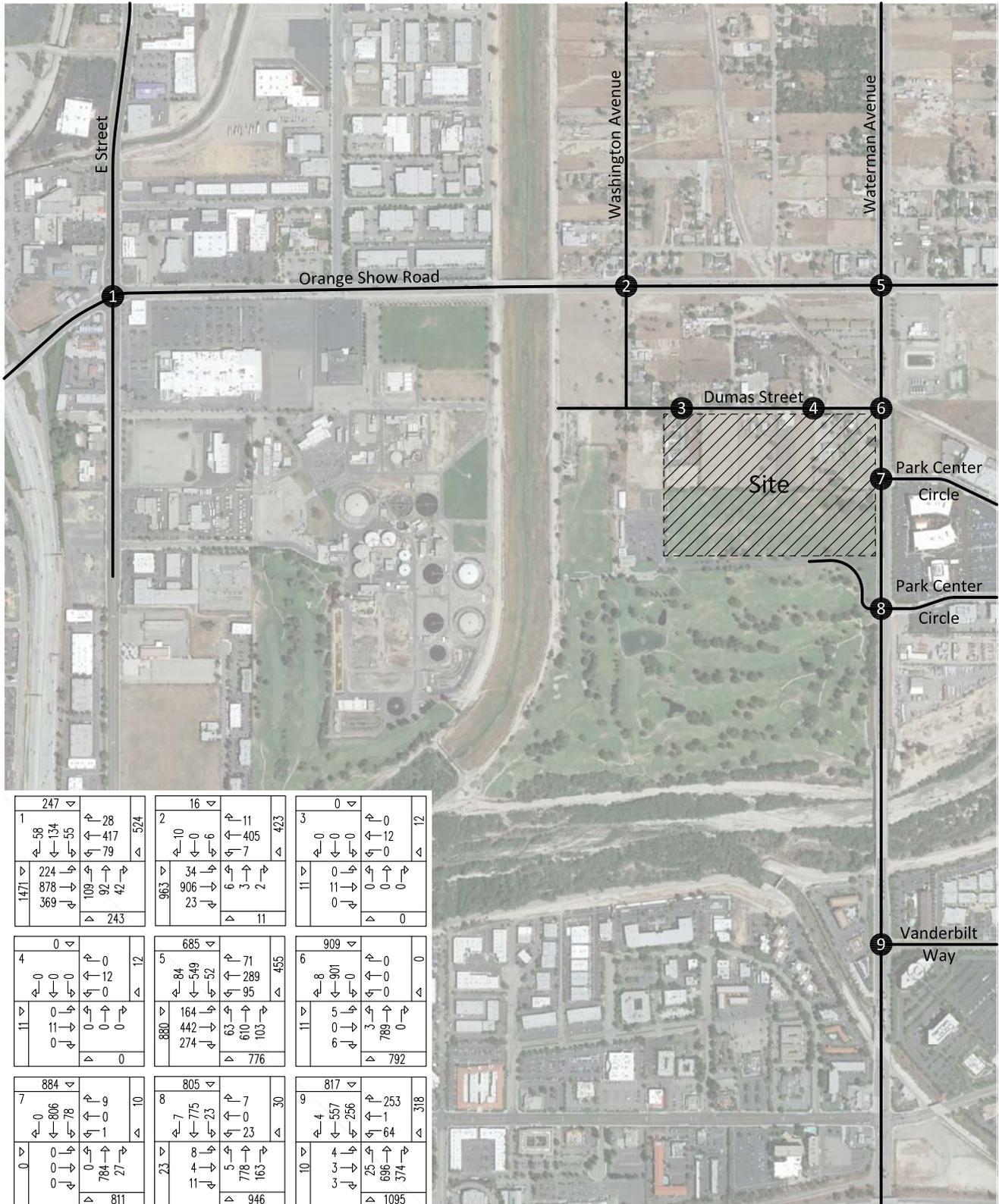
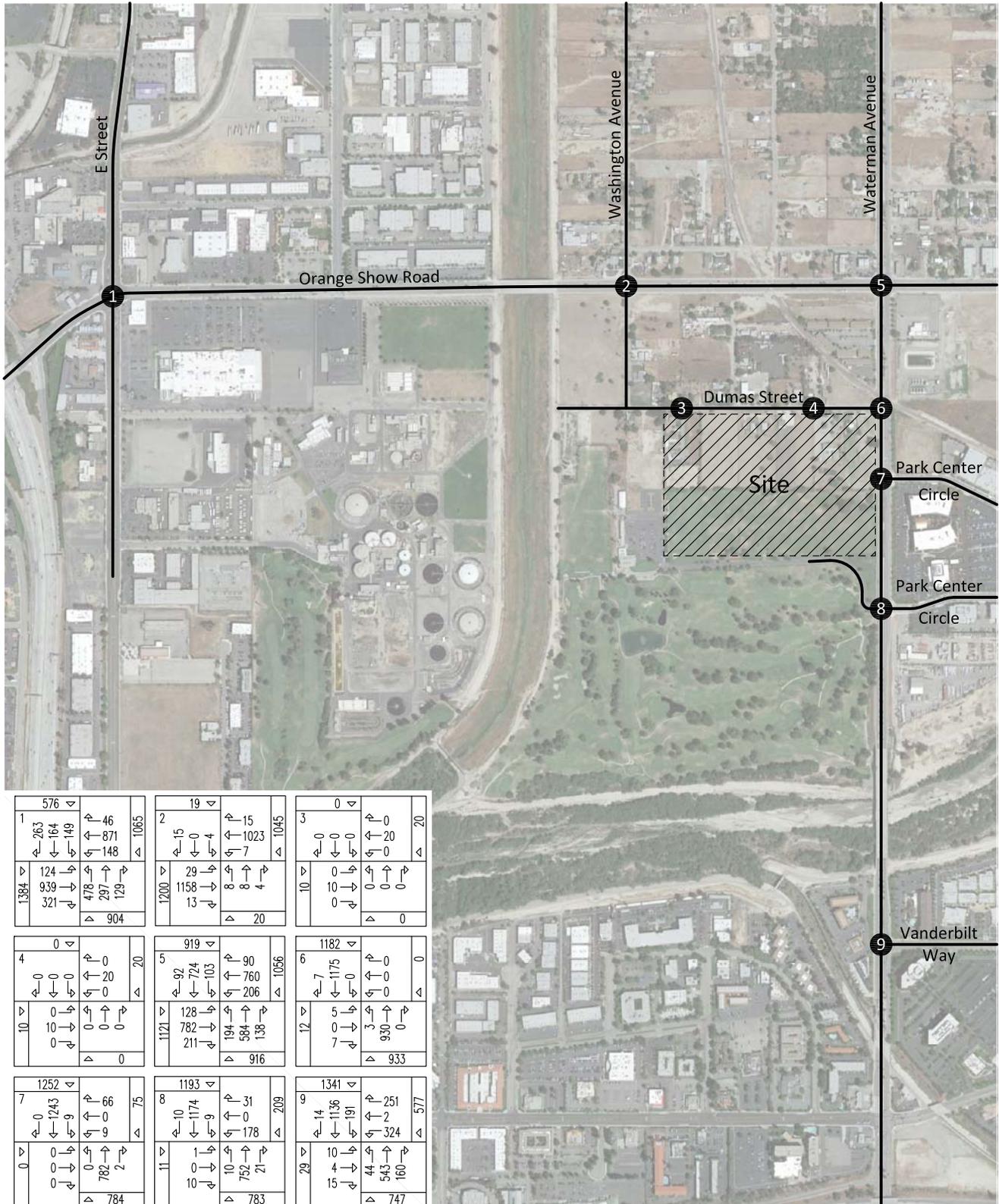


Figure 32  
 Opening Year (2017) Without Project  
 Morning Peak Hour Intersection Turning Movement Volumes



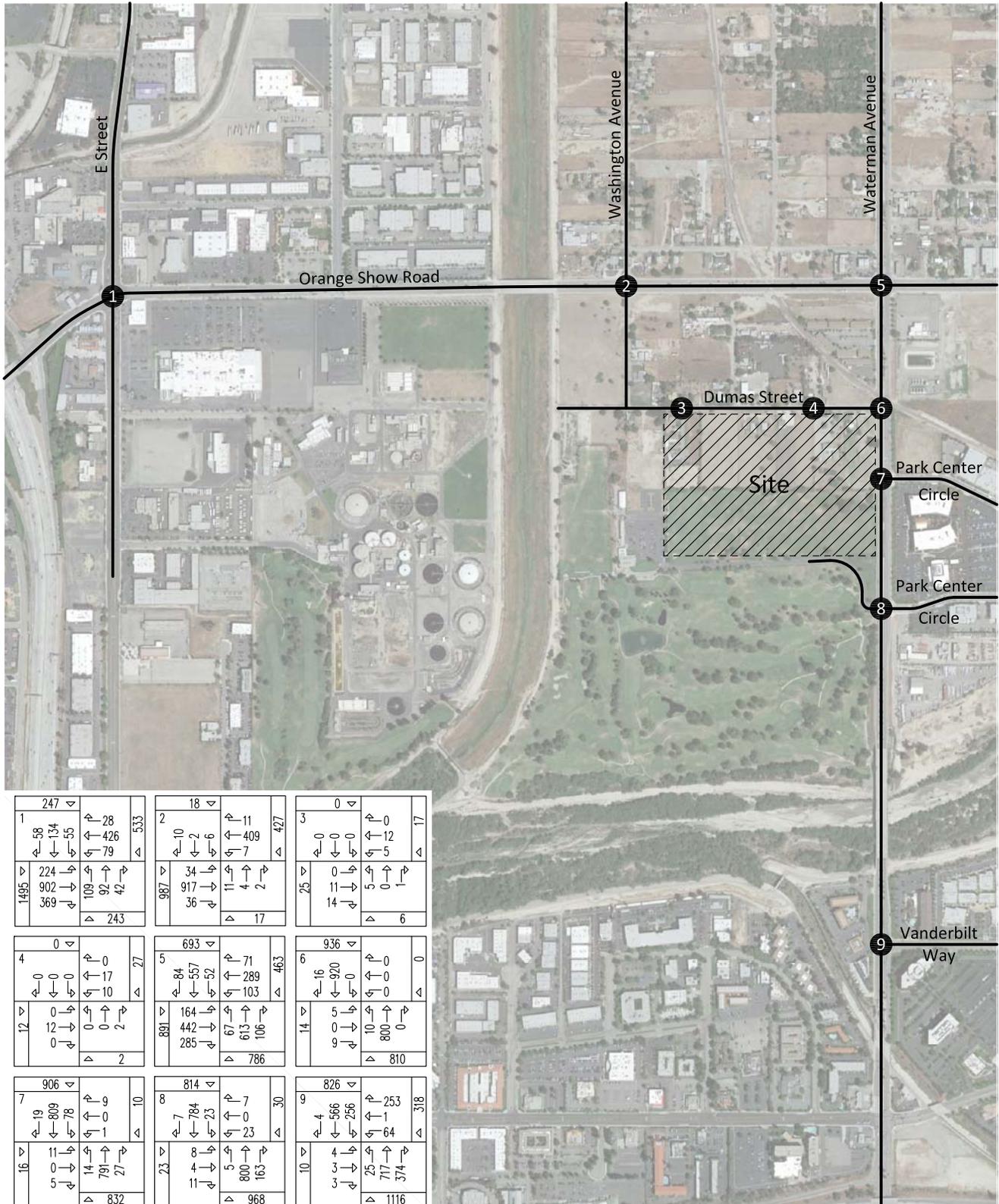
**Figure 33**  
**Opening Year (2017) Without Project**  
**Evening Peak Hour Intersection Turning Movement Volumes**



|    |   |    |  |    |   |
|----|---|----|--|----|---|
| 1  | 576<br>↙ 263<br>↔ 164<br>↘ 149<br>↑ 46<br>← 871<br>↓ 148<br>↖ 1065  | 2  | 19<br>↙ 15<br>↔ 0<br>↘ 4<br>↑ 15<br>← 1023<br>↓ 7<br>↖ 1045        | 3  | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 20<br>↓ 0<br>↖ 20              |
| 4  | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 20<br>↓ 0<br>↖ 20                | 5  | 919<br>↙ 92<br>↔ 724<br>↘ 103<br>↑ 90<br>← 760<br>↓ 206<br>↖ 1056  | 6  | 1182<br>↙ 7<br>↔ 1175<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0          |
| 7  | 1252<br>↙ 1243<br>↔ 9<br>↘ 0<br>↑ 66<br>← 9<br>↓ 2<br>↖ 75          | 8  | 1193<br>↙ 10<br>↔ 1174<br>↘ 9<br>↑ 31<br>← 178<br>↓ 21<br>↖ 209    | 9  | 1341<br>↙ 14<br>↔ 1136<br>↘ 191<br>↑ 251<br>← 2<br>↓ 324<br>↖ 577 |
| 10 | 1384<br>↙ 124<br>↔ 939<br>↘ 321<br>↑ 478<br>← 297<br>↓ 129<br>↖ 904 | 11 | 1200<br>↙ 29<br>↔ 1158<br>↘ 13<br>↑ 8<br>← 8<br>↓ 4<br>↖ 20        | 12 | 0<br>↙ 0<br>↔ 10<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0               |
| 13 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                  | 14 | 121<br>↙ 128<br>↔ 782<br>↘ 211<br>↑ 194<br>← 584<br>↓ 138<br>↖ 916 | 15 | 0<br>↙ 0<br>↔ 3<br>↘ 930<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0              |
| 16 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                  | 17 | 1193<br>↙ 10<br>↔ 1174<br>↘ 9<br>↑ 31<br>← 178<br>↓ 21<br>↖ 209    | 18 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                |
| 19 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                  | 20 | 1341<br>↙ 14<br>↔ 1136<br>↘ 191<br>↑ 251<br>← 2<br>↓ 324<br>↖ 577  | 21 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                |
| 22 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                  | 23 | 29<br>↙ 10<br>↔ 15<br>↘ 4<br>↑ 44<br>← 543<br>↓ 160<br>↖ 747       | 24 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                |
| 25 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                  | 26 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                 | 27 | 0<br>↙ 0<br>↔ 0<br>↘ 0<br>↑ 0<br>← 0<br>↓ 0<br>↖ 0                |



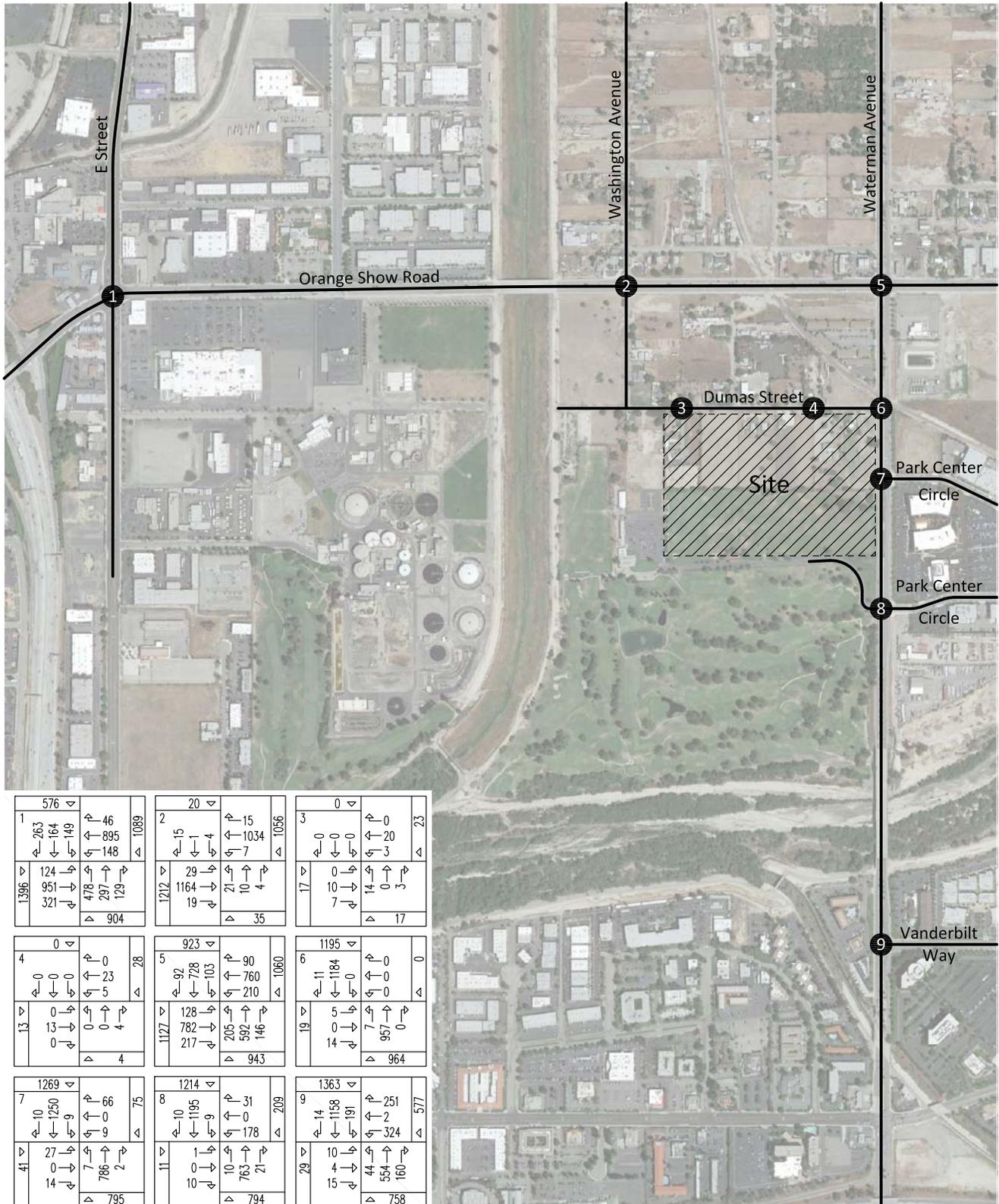
Figure 34  
 Opening Year (2017) With Project  
 Morning Peak Hour Intersection Turning Movement Volumes



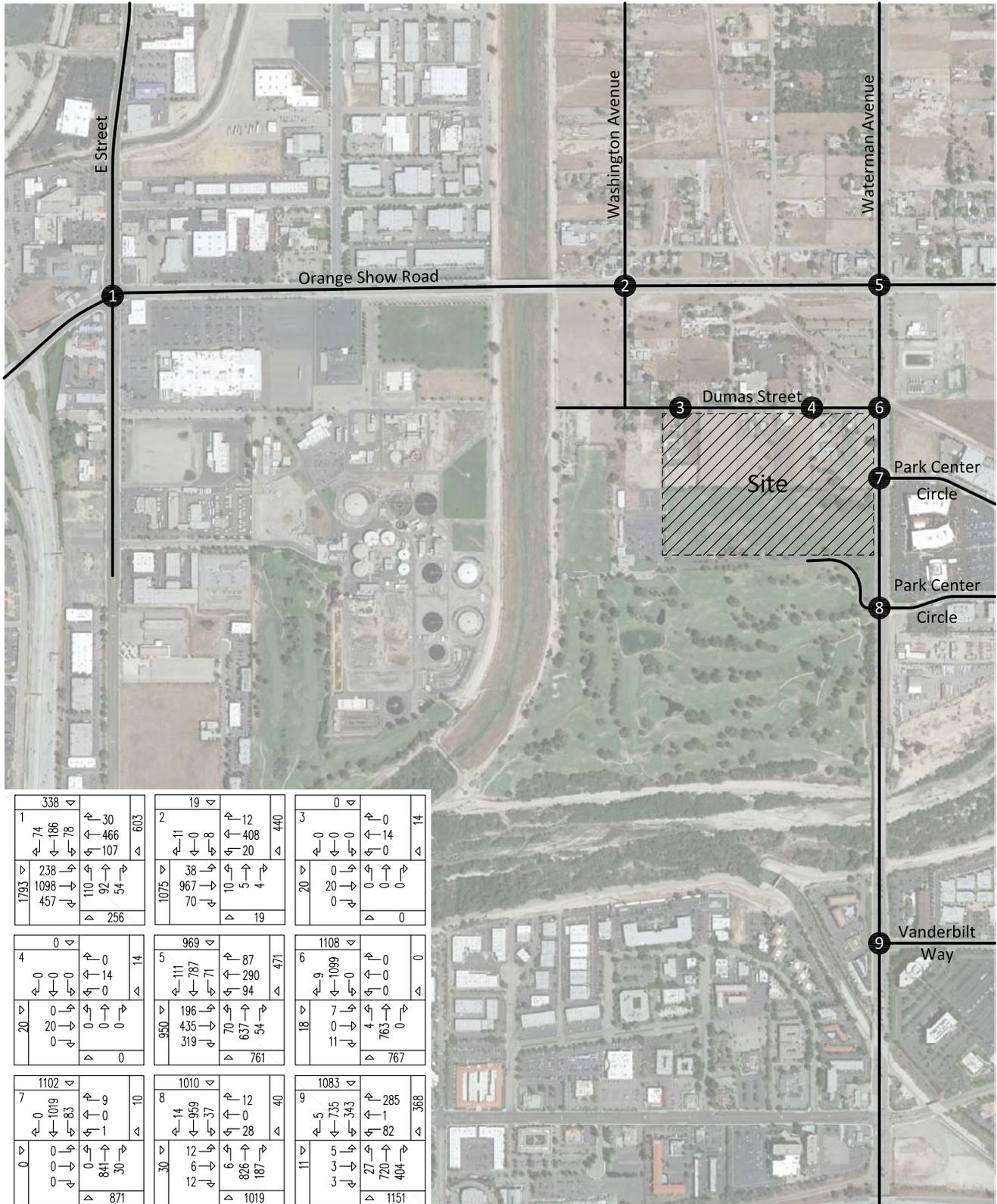
|   |   |  |
|---|---|--|
| 1<br>247<br>← 58<br>← 134<br>← 55<br>↑ 28<br>↑ 426<br>↑ 79<br>↓ 109<br>↓ 92<br>↓ 42<br>△ 533<br>▽ 224<br>▽ 902<br>▽ 369<br>▷ 109<br>▷ 92<br>▷ 42<br>▷ 243 | 2<br>18<br>← 10<br>← 2<br>← 6<br>↑ 11<br>↑ 409<br>↑ 7<br>↓ 11<br>↓ 4<br>↓ 2<br>△ 427<br>▽ 987<br>▽ 34<br>▽ 917<br>▽ 36<br>▷ 11<br>▷ 4<br>▷ 2<br>▷ 17                  | 3<br>0<br>← 0<br>← 0<br>← 0<br>↑ 0<br>↑ 12<br>↑ 0<br>↓ 5<br>↓ 0<br>↓ 5<br>↓ 1<br>△ 17<br>▽ 25<br>▽ 11<br>▽ 14<br>▷ 5<br>▷ 0<br>▷ 1<br>▷ 6      |
| 4<br>0<br>← 0<br>← 0<br>← 0<br>↑ 0<br>↑ 17<br>↑ 10<br>↓ 0<br>↓ 0<br>↓ 2<br>△ 27<br>▽ 12<br>▽ 0<br>▽ 0<br>▷ 0<br>▷ 0<br>▷ 2<br>▷ 2                         | 5<br>693<br>← 84<br>← 557<br>← 52<br>↑ 71<br>↑ 289<br>↑ 103<br>↓ 67<br>↓ 613<br>↓ 106<br>△ 463<br>▽ 891<br>▽ 164<br>▽ 442<br>▽ 285<br>▷ 67<br>▷ 613<br>▷ 106<br>▷ 786 | 6<br>936<br>← 16<br>← 920<br>← 0<br>↑ 0<br>↑ 0<br>↓ 10<br>↓ 800<br>↓ 0<br>△ 0<br>▽ 14<br>▽ 0<br>▽ 5<br>▷ 10<br>▷ 800<br>▷ 0<br>▷ 810           |
| 7<br>906<br>← 19<br>← 809<br>← 78<br>↑ 9<br>↑ 0<br>↑ 1<br>↓ 14<br>↓ 791<br>↓ 27<br>△ 10<br>▽ 16<br>▽ 11<br>▽ 0<br>▷ 5<br>▷ 14<br>▷ 791<br>▷ 27<br>▷ 832   | 8<br>814<br>← 7<br>← 784<br>← 23<br>↑ 7<br>↑ 0<br>↑ 23<br>↓ 5<br>↓ 800<br>↓ 163<br>△ 30<br>▽ 23<br>▽ 8<br>▽ 4<br>▷ 5<br>▷ 800<br>▷ 163<br>▷ 968                       | 9<br>826<br>← 4<br>← 566<br>← 256<br>↑ 1<br>↑ 253<br>↓ 25<br>↓ 717<br>↓ 374<br>△ 318<br>▽ 10<br>▽ 3<br>▽ 4<br>▷ 25<br>▷ 717<br>▷ 374<br>▷ 1116 |



Figure 35  
 Opening Year (2017) With Project  
 Evening Peak Hour Intersection Turning Movement Volumes



**Figure 36**  
**Year 2035 Without Project**  
**Morning Peak Hour Intersection Turning Movement Volumes**



**Figure 37**  
**Year 2035 Without Project**  
**Evening Peak Hour Intersection Turning Movement Volumes**

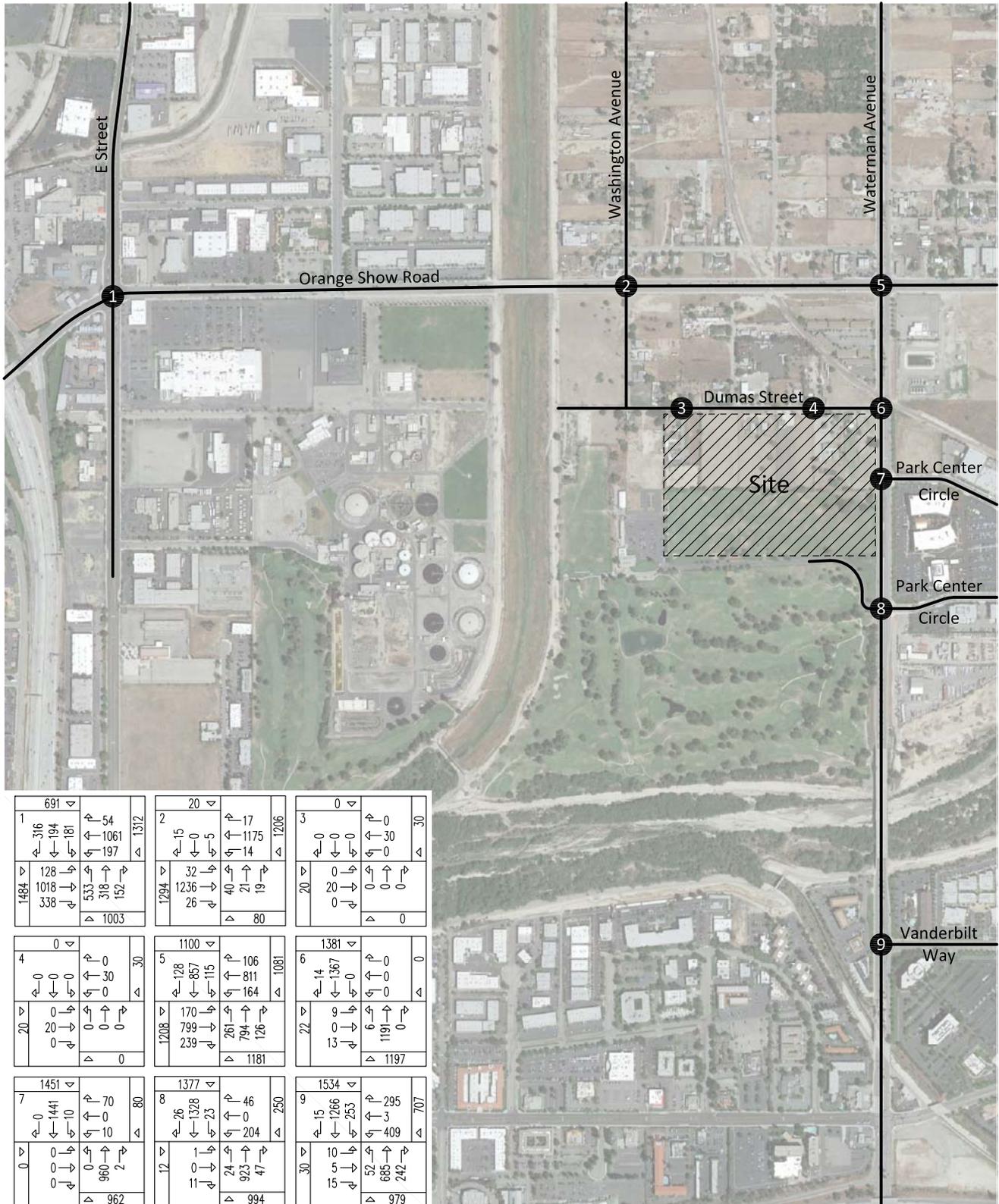
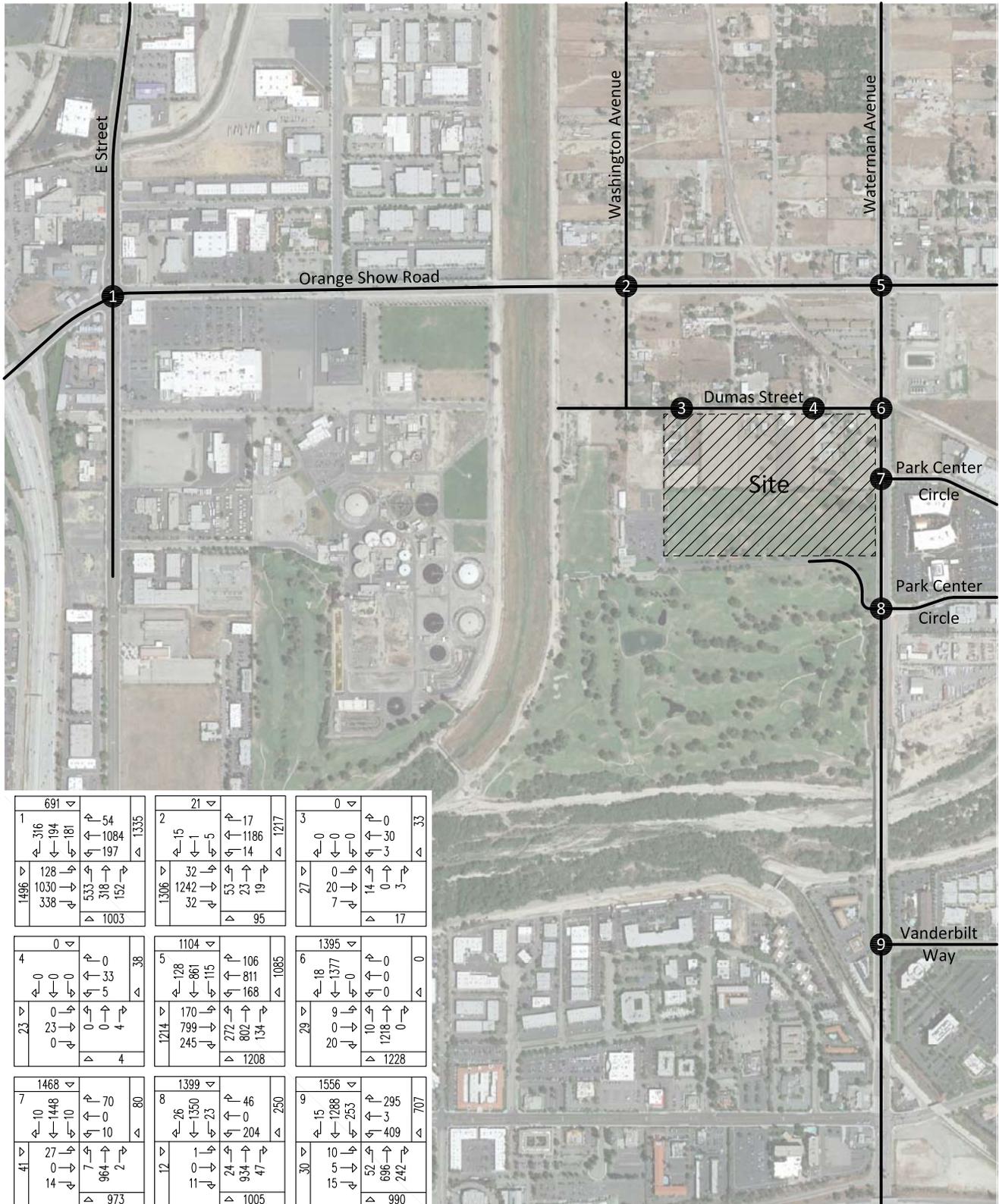




Figure 39  
 Year 2035 With Project  
 Evening Peak Hour Intersection Turning Movement Volumes



## V. Conclusions and Recommendations

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The recommendations in this section address on-site improvements, off-site improvements and the phasing (as needed) of all necessary study area transportation improvements.

### A. On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 40).

Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including northbound left turn lane and southbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including eastbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

### B. Off-Site Improvements

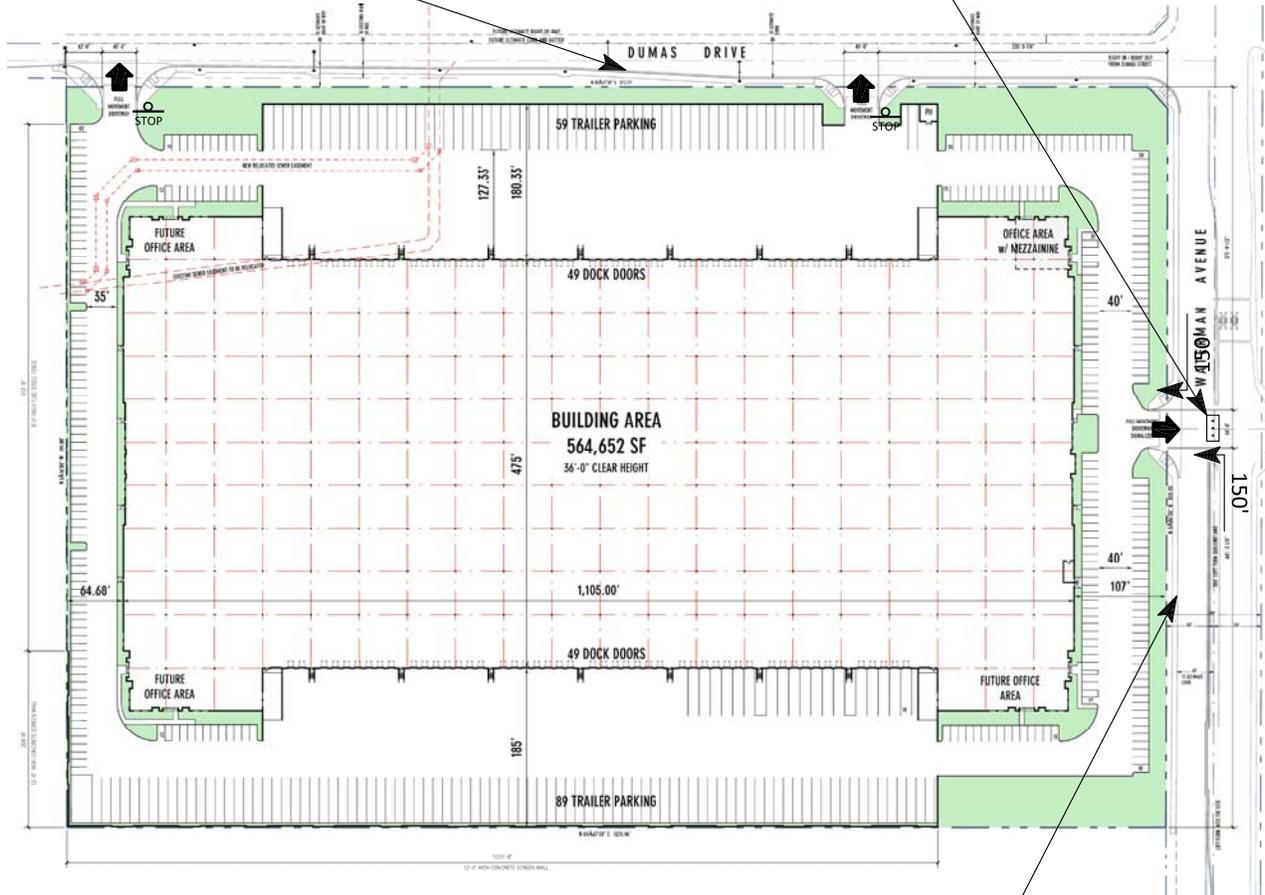
As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

**Figure 40**  
**Circulation Recommendations**

Construct Dumas Street from the west project boundary to Waterman Avenue at its ultimate half-section width including eastbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

Install traffic signal at Waterman Avenue and Park Center Circle North. The traffic signals within the study area should include an interconnect of the traffic signals to function in a coordinated system.



Construct Waterman Avenue from Dumas Street to the south project boundary at its ultimate half-section width including northbound left turn lane and southbound right turn lane, landscaping and parkway improvements in conjunction with development, as necessary.

The project site should provide sufficient parking spaces to meet City of San Bernardino parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

As mitigation for the potential traffic impacts, the proposed project shall contribute through local and regional adopted traffic impact fee programs in addition to any fair share contributions shown within the traffic study which is not covered within these fee programs.

As is the case for any roadway design, the City of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to see if traffic operations are satisfactory.

**Legend**

- = Traffic Signal
- = Stop Sign
- = Full Access Driveway
- = 150' = Left Turn Pocket Length
- = 150' = Right Turn Pocket Length

## **Appendices**

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**Appendix A – Glossary of Transportation Terms**

**Appendix B – Scoping Agreement**

**Appendix C – Traffic Count Worksheets**

**Appendix D – Future Growth Increment Calculation Worksheets**

**Appendix E – Traffic Model Plots**

**Appendix F – Explanation and Calculation of Intersection Delay**

**Appendix G - Traffic Signal Warrant Worksheets**

**Appendix H - Preliminary Construction Cost Estimates for Congestion Management Program**

**APPENDIX A**

**Glossary of Transportation Terms**

## GLOSSARY OF TRANSPORTATION TERMS

### COMMON ABBREVIATIONS

|           |   |
|-----------|---|
| AC:       | Acres                                   |
| ADT:      | Average Daily Traffic                   |
| Caltrans: | California Department of Transportation |
| DU:       | Dwelling Unit                           |
| ICU:      | Intersection Capacity Utilization       |
| LOS:      | Level of Service                        |
| TSF:      | Thousand Square Feet                    |
| V/C:      | Volume/Capacity                         |
| VMT:      | Vehicle Miles Traveled                  |

### TERMS

**AVERAGE DAILY TRAFFIC:** The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

**BANDWIDTH:** The number of seconds of green time available for through traffic in a signal progression.

**BOTTLENECK:** A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

**CAPACITY:** The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

**CHANNELIZATION:** The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

**CLEARANCE INTERVAL:** Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

**CORDON:** An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

**CYCLE LENGTH:** The time period in seconds required for one complete signal cycle.

**CUL-DE-SAC STREET:** A local street open at one end only, and with special provisions for turning around.

**DAILY CAPACITY:** The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

**DELAY:** The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

**DEMAND RESPONSIVE SIGNAL:** Same as traffic-actuated signal.

**DENSITY:** The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

**DETECTOR:** A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

**DESIGN SPEED:** A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

**DIRECTIONAL SPLIT:** The percent of traffic in the peak direction at any point in time.

**DIVERSION:** The rerouting of peak hour traffic to avoid congestion.

**FORCED FLOW:** Opposite of free flow.

**FREE FLOW:** Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

**GAP:** Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

**HEADWAY:** Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

**INTERCONNECTED SIGNAL SYSTEM:** A number of intersections that are connected to achieve signal progression.

**LEVEL OF SERVICE:** A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

**LOOP DETECTOR:** A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

**MINIMUM ACCEPTABLE GAP:** Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

**MULTI-MODAL:** More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

**OFFSET:** The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

**PLATOON:** A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

**ORIGIN-DESTINATION SURVEY:** A survey to determine the point of origin and the point of destination for a given vehicle trip.

**PASSENGER CAR EQUIVALENTS (PCE):** One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

**PEAK HOUR:** The 60 consecutive minutes with the highest number of vehicles.

**PRETIMED SIGNAL:** A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

**PROGRESSION:** A term used to describe the progressive movement of traffic through several signalized intersections.

**SCREEN-LINE:** An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

**SIGNAL CYCLE:** The time period in seconds required for one complete sequence of signal indications.

**SIGNAL PHASE:** The part of the signal cycle allocated to one or more traffic movements.

**STARTING DELAY:** The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

**TRAFFIC-ACTUATED SIGNAL:** A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

**TRIP:** The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

**TRIP-END:** One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

**TRIP GENERATION RATE:** The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

**TRUCK:** A vehicle having dual tires on one or more axles, or having more than two axles.

**UNBALANCED FLOW:** Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

**VEHICLE MILES OF TRAVEL:** A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

**APPENDIX B**

**Scoping Agreement**

# Scope of Study Form

**To be completed by applicant and approved by Development Services prior to start of study**

Project Name: Waterman Industrial Center  
 Project Address: Southwest corner of Waterman Avenue and Dumas Drive  
 Project Description: 564,652 square feet of high-cube warehouse distribution center land use  
 Developer's Name: NEWCASTLE PARTNERS, INC.  
 Address: 4740 Green River Road, Suite 118 Corona, CA 92880  
 Telephone No. 951-582-9800 x23 Fax Number: 951-278-4740  
 Email Address: jackson@newcastlepartners.com

Trip Generation Rates From: ITE 9th Ed. Other: City of Fontana, Truck Trip Generation Study, August 2003

**Trip Generation For:**

|   |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
|---|------------------------------|------------------------------|-------------------|------------|-------------|--------------|--------------------|--|---------|-----------|----------|-----------|-------|-----------|--------------------|--|---------|-----------|----------|-----------|-------|-----------|--|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|
| <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (1)</td> <td style="width: 30%;"><u>High-Cube Warehousing</u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u>152</u></td> </tr> <tr> <td>Daily Trips</td> <td><u>1,282</u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u>63</u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u>24</u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u>87</u></td> </tr> <tr> <td>PM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u>32</u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u>63</u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u>95</u></td> </tr> </table> | Land Use (1)                 | <u>High-Cube Warehousing</u> | ITE Land Use Code | <u>152</u> | Daily Trips | <u>1,282</u> | AM Peak Hour Trips |  | Inbound | <u>63</u> | Outbound | <u>24</u> | Total | <u>87</u> | PM Peak Hour Trips |  | Inbound | <u>32</u> | Outbound | <u>63</u> | Total | <u>95</u> | <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Land Use (2)</td> <td style="width: 30%;"><u></u></td> </tr> <tr> <td>ITE Land Use Code</td> <td><u></u></td> </tr> <tr> <td>Daily Trips</td> <td><u></u></td> </tr> <tr> <td>AM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> <tr> <td>PM Peak Hour Trips</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Outbound</td> <td><u></u></td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td><u></u></td> </tr> </table> | Land Use (2) | <u></u> | ITE Land Use Code | <u></u> | Daily Trips | <u></u> | AM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> | PM Peak Hour Trips |  | Inbound | <u></u> | Outbound | <u></u> | Total | <u></u> |
| Land Use (1)  | <u>High-Cube Warehousing</u> |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u>152</u>                   |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Daily Trips   | <u>1,282</u>                 |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u>63</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u>24</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u>87</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| PM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u>32</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u>63</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u>95</u>                    |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Land Use (2)  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| PM Peak Hour Trips  |                              |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Inbound   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Outbound  | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |
| Total   | <u></u>                      |                              |                   |            |             |              |                    |  |         |           |          |           |       |           |                    |  |         |           |          |           |       |           |  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                    |  |         |         |          |         |       |         |

*(Use Additional Sheet(s), if necessary)*

**Pass-by Trips (%)**, if applicable:          %

|   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
|---|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|---------------------|--|---------|---------|----------|---------|-------|---------|---|--------------|---------|-------------------|---------|-------------|---------|--------------------|--|---------|---------|----------|---------|-------|---------|---------------------|--|---------|---------|----------|---------|-------|---------|
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| Land Use (1)  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| PM Peak Hour Trips:   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Land Use (2)  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| ITE Land Use Code   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Daily Trips   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| AM Peak Hour Trips  |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| PM Peak Hour Trips:   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Inbound   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Outbound  | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |
| Total   | <u></u>      |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |   |              |         |                   |         |             |         |                    |  |         |         |          |         |       |         |                     |  |         |         |          |         |       |         |

**Project Opening Year:** 2017

**Build-out Year:** 2035

- Study Intersections:**
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1 <u>E Street (NS)/ Orange Show Rd (EW)</u></li> <li>2 <u>Washington Ave (NS)/ Orange Show Rd (EW)</u></li> <li>3 <u>Project West Dwy (NS)/ Dumas St (EW)</u></li> <li>4 <u>Project East Dwy (NS)/ Dumas St (EW)</u></li> <li>5 <u>Waterman Ave (NS)/ Orange Show Rd (EW)</u></li> </ol> | <ol style="list-style-type: none"> <li>6 <u>Waterman Ave (NS)/ Dumas St (EW)</u></li> <li>7 <u>Waterman Ave (NS)/ Project-Park Center Cir N(EW)</u></li> <li>8 <u>Waterman Ave (NS)/ Park Center Cir S (EW)</u></li> <li>9 <u>Waterman Ave (NS)/ Vanderbilt Way (EW)</u></li> <li>10 <u></u></li> </ol> |
|---|---|

*(Use Additional Sheet(s) and Map, if necessary)*

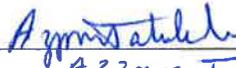
**Ambient Growth Rate:** SBTAM % See Figures 3-4

**Trip Distribution:** East 15/10 % West 35/40 % North 20/10 % South 30/40 %

**Preparer's Name:** Kunzman Associates, Inc.  
 Address: 1111 Town & Country Road, Suite 34, Orange, CA 92868  
 Telephone No. 714-973-8383 (207) Fax Number: 714-973-8821  
 Email Address: perrie@traffic-engineer.com

Signature:  Date: 08/25/2015 09/1/2015

**Approved By (Development Services Department):**

Signature:  Date: 9-2-2015  
 Name: Azza m Jabshch Title: Traffic engineer

**Table 1**

**Project Trip Generation<sup>1</sup>**

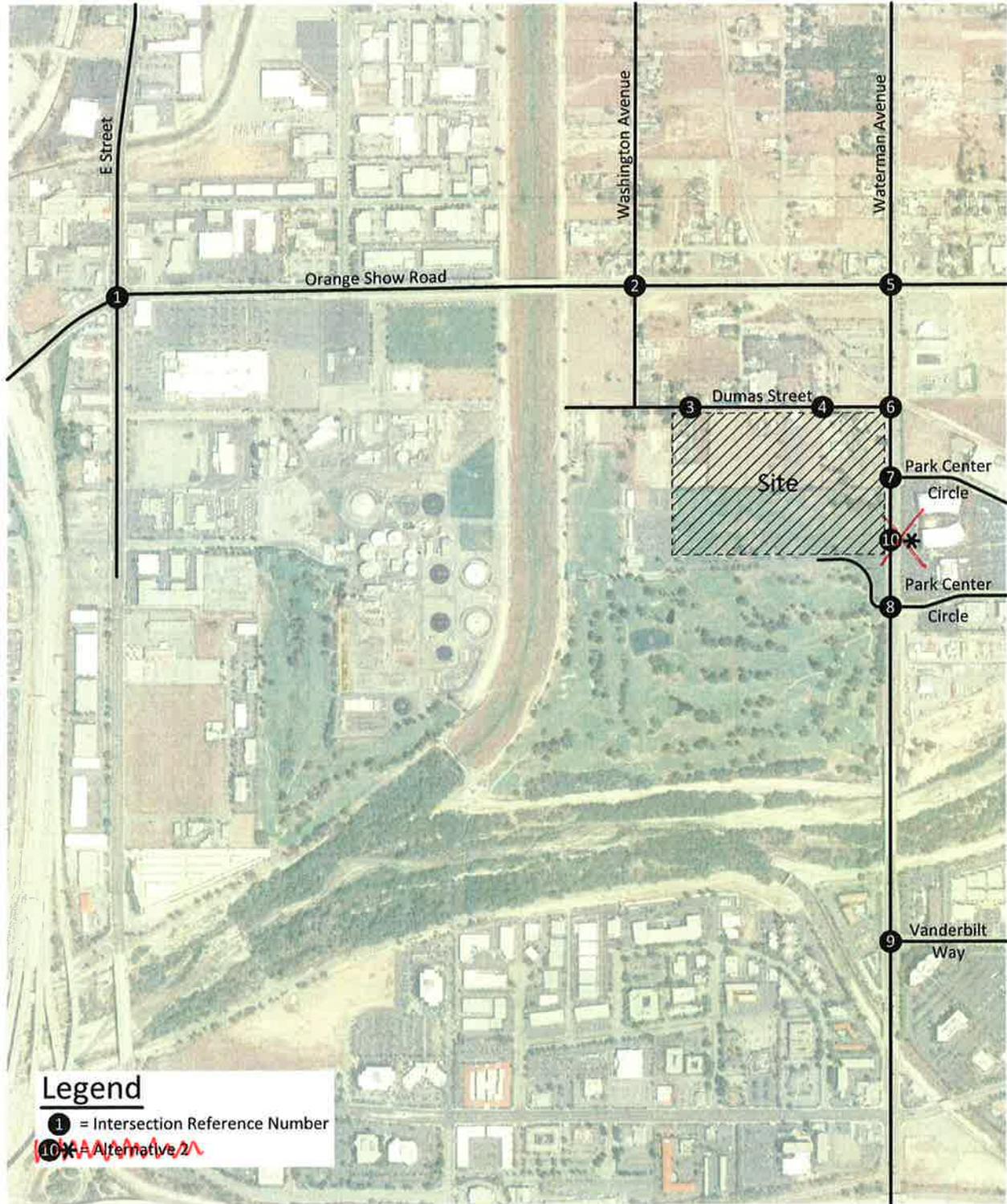
| Descriptor   | Quantity | Units <sup>2</sup> | Type of Vehicle |              |              |               |              | Total |
|--|----------|--------------------|-----------------|--------------|--------------|---------------|--------------|-------|
|  |          |                    | Passenger Car   | 2 Axle Truck | 3 Axle Truck | 4+ Axle Truck | Total Trucks |       |
| Land Use: High-cube Warehouse                          | 564.652  | TSF                | 79.57%          | 3.46%        | 4.64%        | 12.33%        | 20.43%       | 100%  |
| Traffic Generation Rates in trips per TSF              |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 1.337           | 0.058        | 0.078        | 0.207         | 0.343        | 1.68  |
| Morning Peak Hour                                      |          |                    | 0.088           | 0.004        | 0.005        | 0.014         | 0.023        | 0.11  |
| Evening Peak Hour                                      |          |                    | 0.096           | 0.004        | 0.006        | 0.015         | 0.025        | 0.12  |
| Traffic Generation in Vehicles                         |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 33           | 44           | 117           | 194          | 949   |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Outbound   |          |                    | 13              | 1            | 1            | 2             | 4            | 17    |
| Total  |          |                    | 49              | 3            | 3            | 8             | 14           | 63    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 1            | 1            | 3             | 5            | 23    |
| Outbound   |          |                    | 36              | 2            | 2            | 6             | 10           | 46    |
| Total  |          |                    | 54              | 3            | 3            | 9             | 15           | 69    |
| Passenger Car Equivalent's (PCE'S) Factor <sup>3</sup> |          |                    |                 |              |              |               |              |       |
|  |          |                    | 1.00            | 2.00         | 2.50         | 3.00          |              |       |
| Traffic Generation in PCE's                            |          |                    |                 |              |              |               |              |       |
| Daily  |          |                    | 755             | 66           | 110          | 351           | 527          | 1,282 |
| Morning Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Outbound   |          |                    | 13              | 2            | 3            | 6             | 11           | 24    |
| Total  |          |                    | 49              | 6            | 8            | 24            | 38           | 87    |
| Evening Peak Hour                                      |          |                    |                 |              |              |               |              |       |
| Inbound  |          |                    | 18              | 2            | 3            | 9             | 14           | 32    |
| Outbound   |          |                    | 36              | 4            | 5            | 18            | 27           | 63    |
| Total  |          |                    | 54              | 6            | 8            | 27            | 41           | 95    |

<sup>1</sup> Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Category 152 and City of Fontana, Truck Trip Generation Study, August 2003.

<sup>2</sup> TSF = Thousand Square Feet

<sup>3</sup> Source: City of San Bernardino Development Services Department, Traffic Impact Study Guidelines, September 2004.

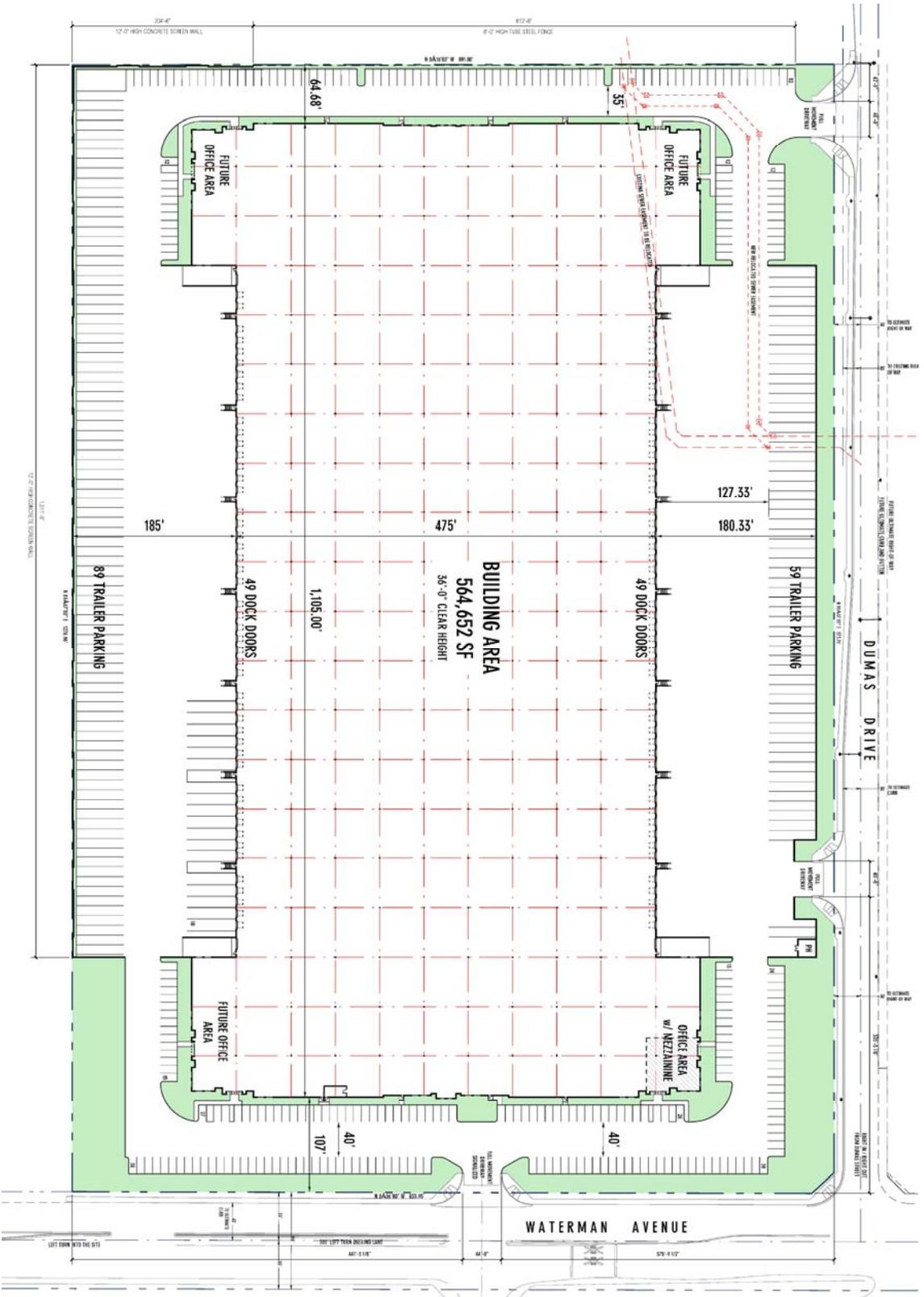
Figure 1  
Project Location Map



**Legend**

- ① = Intersection Reference Number
- ~~⑩~~ = Alternative 2

Figure 2  
Site Plan (Alternative 1)



5629/2

**Figure 3**  
**Project Trip Distribution - Cars (Alternative 1)**

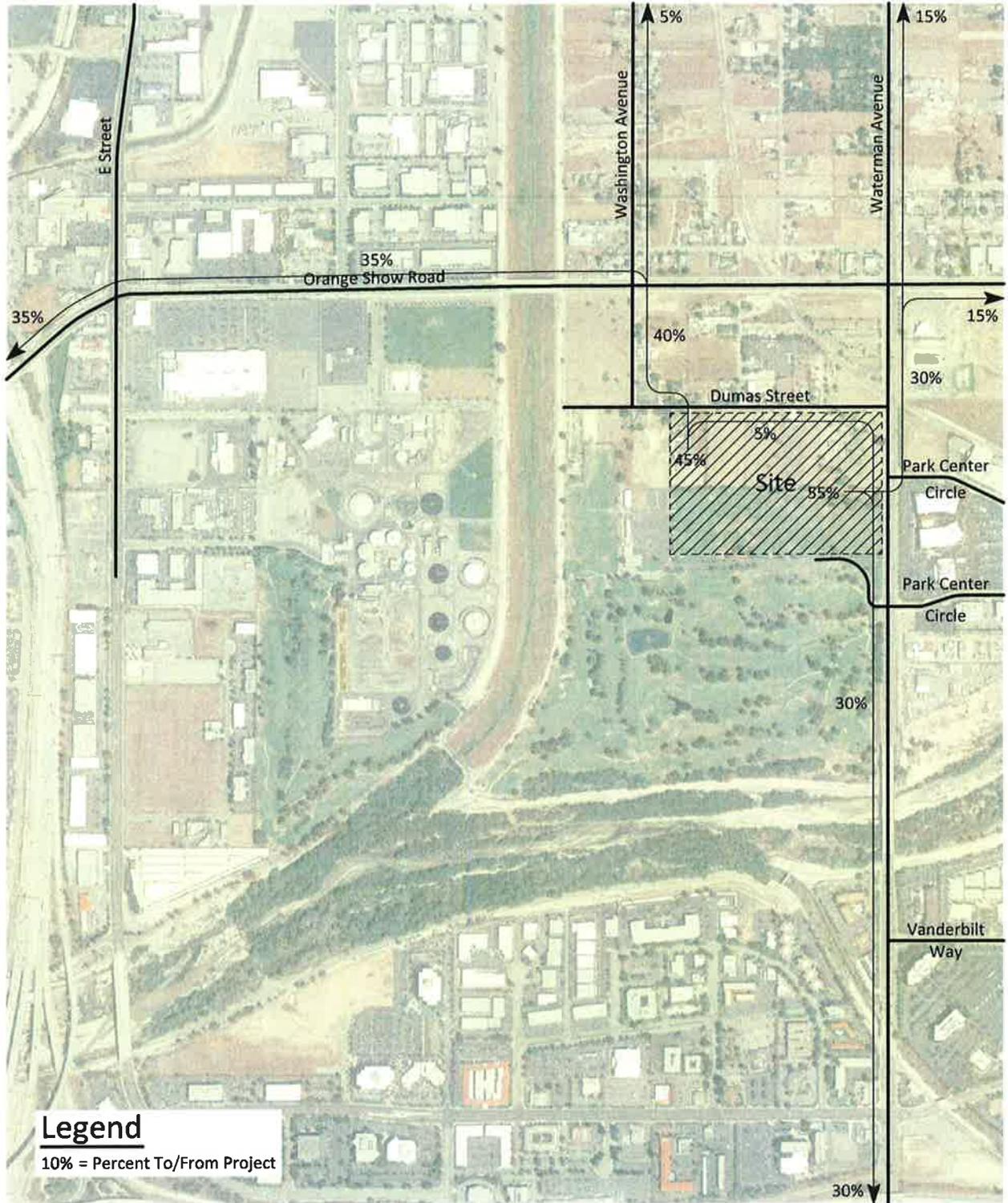
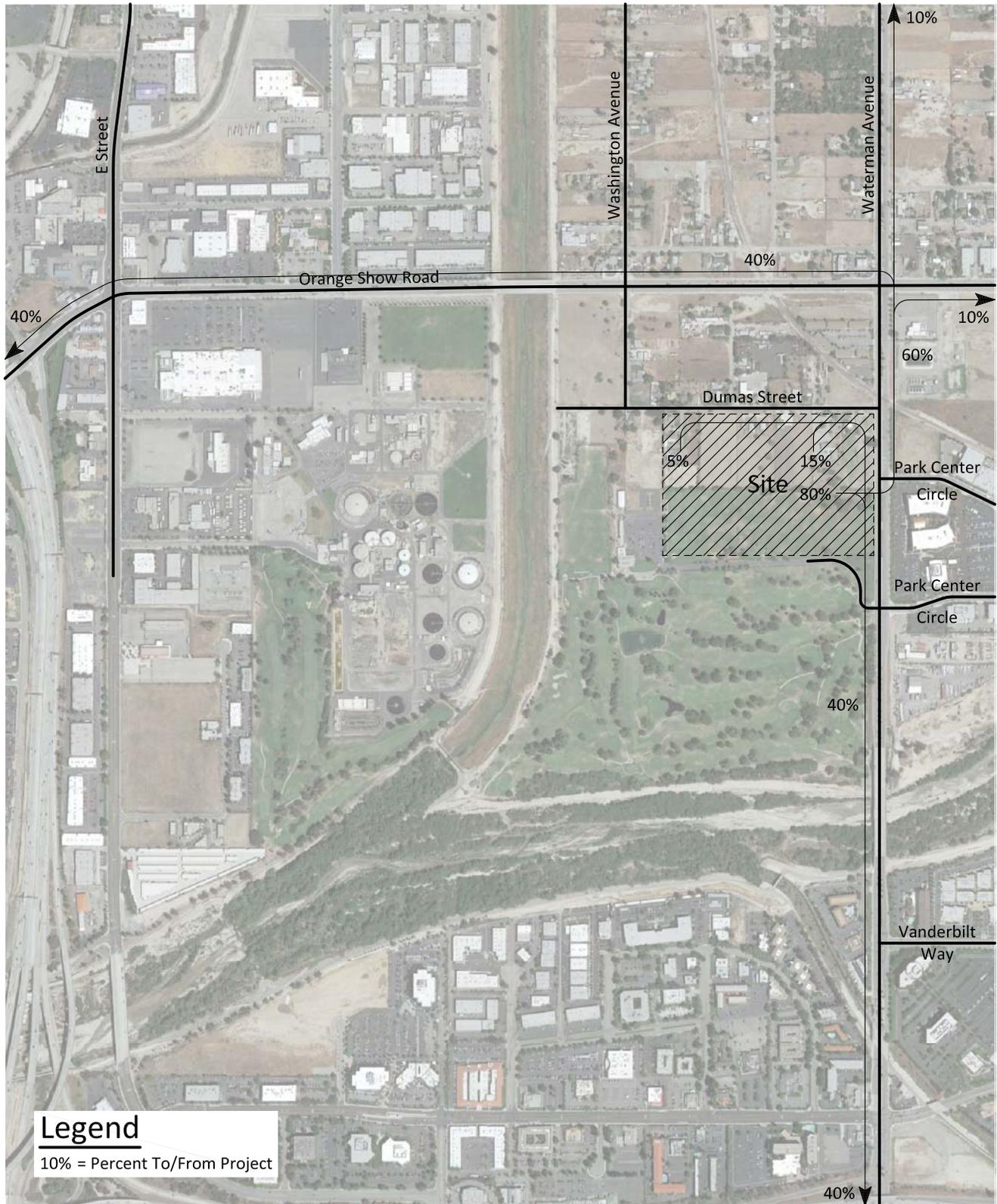


Figure 4  
Project Trip Distribution - Trucks (Alternative 1)



**APPENDIX C**

**Traffic Count Worksheets**

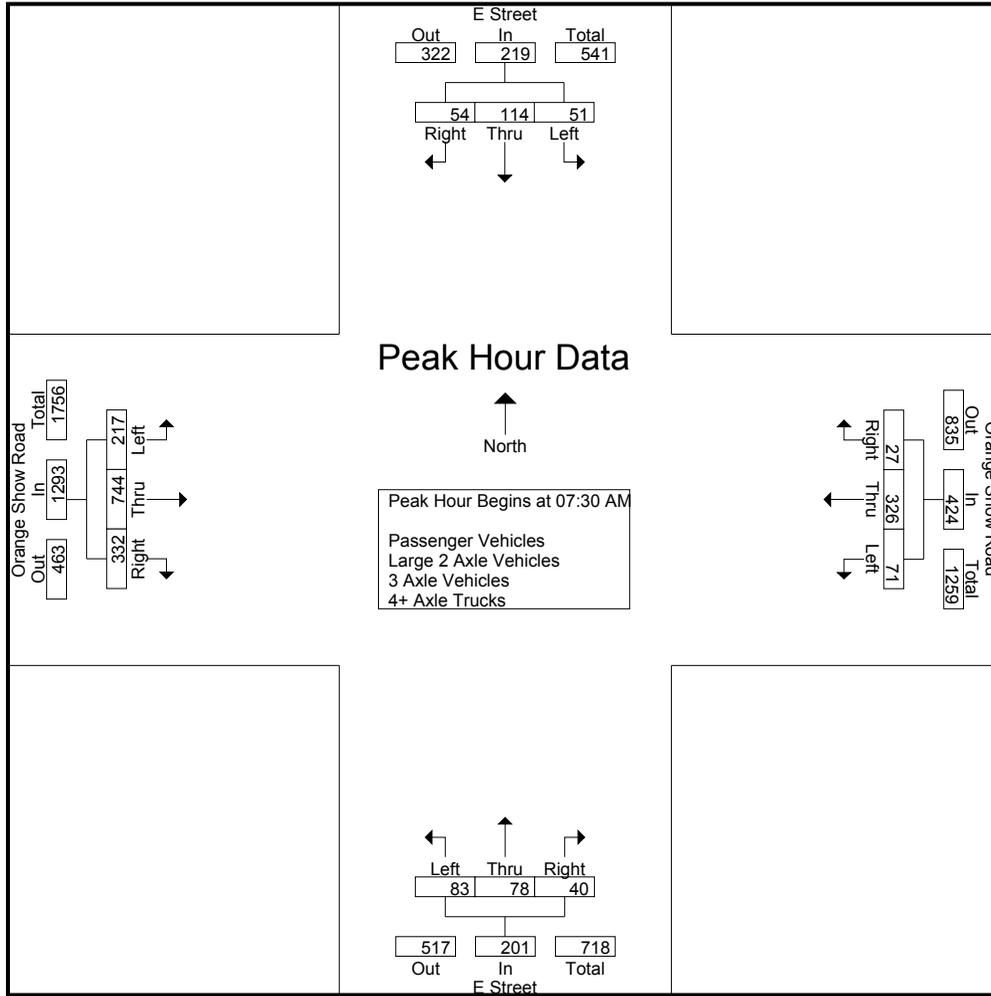
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM                | 7                   | 5    | 5     | 17         | 9                          | 54   | 6     | 69         | 16                  | 18   | 9     | 43         | 36                         | 184  | 44    | 264        | 393        |
| 07:15 AM                | 5                   | 15   | 7     | 27         | 6                          | 65   | 5     | 76         | 15                  | 13   | 16    | 44         | 28                         | 195  | 66    | 289        | 436        |
| 07:30 AM                | 8                   | 19   | 11    | 38         | 17                         | 69   | 7     | 93         | 19                  | 16   | 9     | 44         | 64                         | 198  | 74    | 336        | 511        |
| 07:45 AM                | 17                  | 34   | 12    | 63         | 17                         | 67   | 8     | 92         | 28                  | 21   | 12    | 61         | 52                         | 216  | 96    | 364        | 580        |
| Total                   | 37                  | 73   | 35    | 145        | 49                         | 255  | 26    | 330        | 78                  | 68   | 46    | 192        | 180                        | 793  | 280   | 1253       | 1920       |
| 08:00 AM                | 13                  | 31   | 12    | 56         | 16                         | 76   | 6     | 98         | 20                  | 21   | 13    | 54         | 62                         | 225  | 108   | 395        | 603        |
| 08:15 AM                | 13                  | 30   | 19    | 62         | 21                         | 114  | 6     | 141        | 16                  | 20   | 6     | 42         | 39                         | 105  | 54    | 198        | 443        |
| 08:30 AM                | 5                   | 18   | 24    | 47         | 14                         | 92   | 11    | 117        | 26                  | 27   | 12    | 65         | 47                         | 110  | 58    | 215        | 444        |
| 08:45 AM                | 20                  | 29   | 18    | 67         | 50                         | 64   | 19    | 133        | 25                  | 24   | 3     | 52         | 54                         | 120  | 108   | 282        | 534        |
| Total                   | 51                  | 108  | 73    | 232        | 101                        | 346  | 42    | 489        | 87                  | 92   | 34    | 213        | 202                        | 560  | 328   | 1090       | 2024       |
| Grand Total             | 88                  | 181  | 108   | 377        | 150                        | 601  | 68    | 819        | 165                 | 160  | 80    | 405        | 382                        | 1353 | 608   | 2343       | 3944       |
| Apprch %                | 23.3                | 48   | 28.6  |            | 18.3                       | 73.4 | 8.3   |            | 40.7                | 39.5 | 19.8  |            | 16.3                       | 57.7 | 25.9  |            |            |
| Total %                 | 2.2                 | 4.6  | 2.7   | 9.6        | 3.8                        | 15.2 | 1.7   | 20.8       | 4.2                 | 4.1  | 2     | 10.3       | 9.7                        | 34.3 | 15.4  | 59.4       |            |
| Passenger Vehicles      | 86                  | 145  | 103   | 334        | 112                        | 508  | 67    | 687        | 132                 | 134  | 74    | 340        | 372                        | 1263 | 536   | 2171       | 3532       |
| % Passenger Vehicles    | 97.7                | 80.1 | 95.4  | 88.6       | 74.7                       | 84.5 | 98.5  | 83.9       | 80                  | 83.8 | 92.5  | 84         | 97.4                       | 93.3 | 88.2  | 92.7       | 89.6       |
| Large 2 Axle Vehicles   | 0                   | 24   | 4     | 28         | 36                         | 45   | 1     | 82         | 26                  | 14   | 5     | 45         | 7                          | 28   | 69    | 104        | 259        |
| % Large 2 Axle Vehicles | 0                   | 13.3 | 3.7   | 7.4        | 24                         | 7.5  | 1.5   | 10         | 15.8                | 8.8  | 6.2   | 11.1       | 1.8                        | 2.1  | 11.3  | 4.4        | 6.6        |
| 3 Axle Vehicles         | 2                   | 12   | 0     | 14         | 2                          | 14   | 0     | 16         | 1                   | 12   | 1     | 14         | 1                          | 14   | 3     | 18         | 62         |
| % 3 Axle Vehicles       | 2.3                 | 6.6  | 0     | 3.7        | 1.3                        | 2.3  | 0     | 2          | 0.6                 | 7.5  | 1.2   | 3.5        | 0.3                        | 1    | 0.5   | 0.8        | 1.6        |
| 4+ Axle Trucks          | 0                   | 0    | 1     | 1          | 0                          | 34   | 0     | 34         | 6                   | 0    | 0     | 6          | 2                          | 48   | 0     | 50         | 91         |
| % 4+ Axle Trucks        | 0                   | 0    | 0.9   | 0.3        | 0                          | 5.7  | 0     | 4.2        | 3.6                 | 0    | 0     | 1.5        | 0.5                        | 3.5  | 0     | 2.1        | 2.3        |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 8                   | 19   | 11    | 38         | 17                         | 69   | 7     | 93         | 19                  | 16   | 9     | 44         | 64                         | 198  | 74    | 336        | 511        |
| 07:45 AM   | 17                  | 34   | 12    | 63         | 17                         | 67   | 8     | 92         | 28                  | 21   | 12    | 61         | 52                         | 216  | 96    | 364        | 580        |
| 08:00 AM   | 13                  | 31   | 12    | 56         | 16                         | 76   | 6     | 98         | 20                  | 21   | 13    | 54         | 62                         | 225  | 108   | 395        | 603        |
| 08:15 AM   | 13                  | 30   | 19    | 62         | 21                         | 114  | 6     | 141        | 16                  | 20   | 6     | 42         | 39                         | 105  | 54    | 198        | 443        |
| Total Volume   | 51                  | 114  | 54    | 219        | 71                         | 326  | 27    | 424        | 83                  | 78   | 40    | 201        | 217                        | 744  | 332   | 1293       | 2137       |
| % App. Total   | 23.3                | 52.1 | 24.7  |            | 16.7                       | 76.9 | 6.4   |            | 41.3                | 38.8 | 19.9  |            | 16.8                       | 57.5 | 25.7  |            |            |
| PHF  | .750                | .838 | .711  | .869       | .845                       | .715 | .844  | .752       | .741                | .929 | .769  | .824       | .848                       | .827 | .769  | .818       | .886       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 08:00 AM  |           |           |           | 08:00 AM  |            |           |            | 07:45 AM  |           |           |           | 07:15 AM  |            |            |            |
|--------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| +0 mins.     | 13        | <b>31</b> | 12        | 56        | 16        | 76         | 6         | 98         | <b>28</b> | 21        | 12        | 61        | 28        | 195        | 66         | 289        |
| +15 mins.    | 13        | 30        | 19        | 62        | 21        | <b>114</b> | 6         | <b>141</b> | 20        | 21        | <b>13</b> | 54        | <b>64</b> | 198        | 74         | 336        |
| +30 mins.    | 5         | 18        | <b>24</b> | 47        | 14        | 92         | 11        | 117        | 16        | 20        | 6         | 42        | 52        | 216        | 96         | 364        |
| +45 mins.    | <b>20</b> | 29        | 18        | <b>67</b> | <b>50</b> | 64         | <b>19</b> | 133        | 26        | <b>27</b> | 12        | <b>65</b> | 62        | <b>225</b> | <b>108</b> | <b>395</b> |
| Total Volume | 51        | 108       | 73        | 232       | 101       | 346        | 42        | 489        | 90        | 89        | 43        | 222       | 206       | 834        | 344        | 1384       |
| % App. Total | 22        | 46.6      | 31.5      |           | 20.7      | 70.8       | 8.6       |            | 40.5      | 40.1      | 19.4      |           | 14.9      | 60.3       | 24.9       |            |
| PHF          | .638      | .871      | .760      | .866      | .505      | .759       | .553      | .867       | .804      | .824      | .827      | .854      | .805      | .927       | .796       | .876       |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEORAM  
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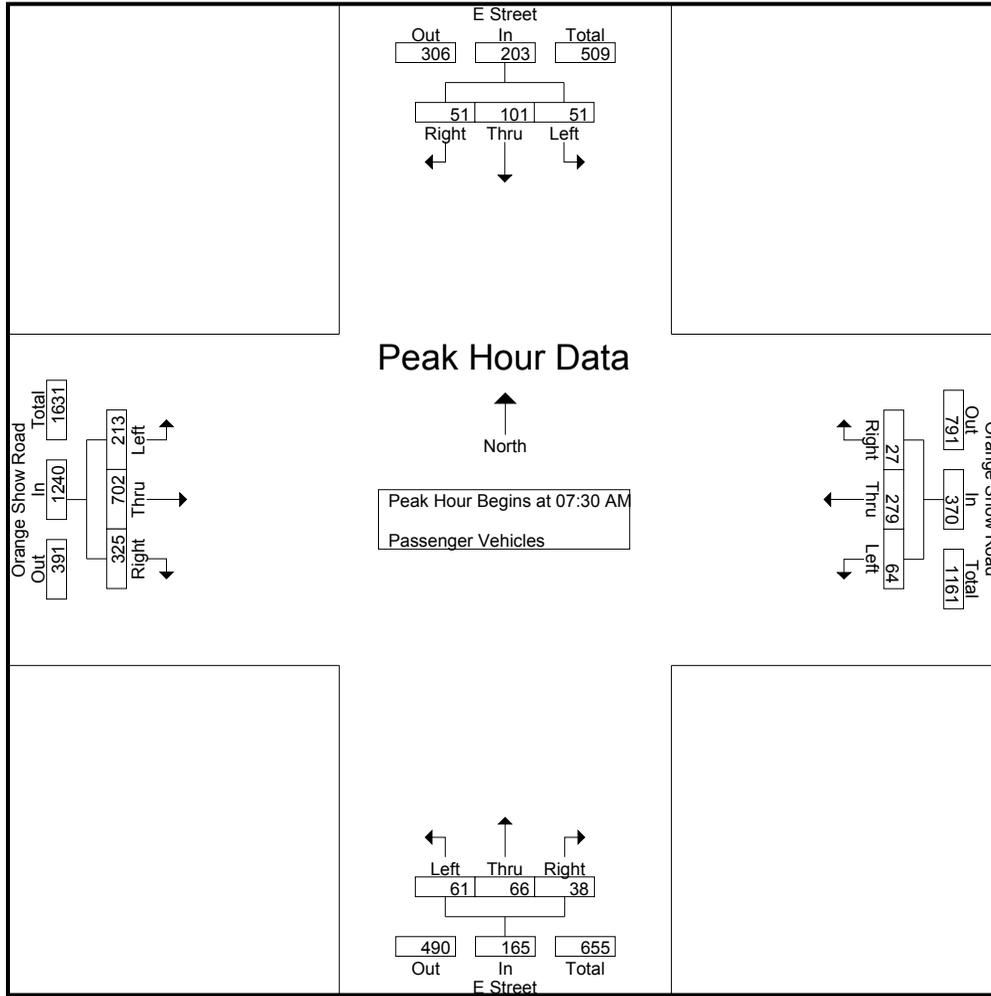
Groups Printed- Passenger Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 5                   | 4    | 5     | 14         | 8                          | 48   | 6     | 62         | 10                  | 12   | 7     | 29         | 35                         | 175  | 44    | 254        | 359        |
| 07:15 AM    | 5                   | 9    | 6     | 20         | 6                          | 48   | 5     | 59         | 12                  | 11   | 14    | 37         | 28                         | 189  | 66    | 283        | 399        |
| 07:30 AM    | 8                   | 17   | 9     | 34         | 16                         | 55   | 7     | 78         | 12                  | 14   | 8     | 34         | 63                         | 187  | 74    | 324        | 470        |
| 07:45 AM    | 17                  | 29   | 12    | 58         | 17                         | 59   | 8     | 84         | 17                  | 15   | 11    | 43         | 50                         | 205  | 95    | 350        | 535        |
| Total       | 35                  | 59   | 32    | 126        | 47                         | 210  | 26    | 283        | 51                  | 52   | 40    | 143        | 176                        | 756  | 279   | 1211       | 1763       |
| 08:00 AM    | 13                  | 29   | 12    | 54         | 13                         | 67   | 6     | 86         | 19                  | 20   | 13    | 52         | 62                         | 216  | 104   | 382        | 574        |
| 08:15 AM    | 13                  | 26   | 18    | 57         | 18                         | 98   | 6     | 122        | 13                  | 17   | 6     | 36         | 38                         | 94   | 52    | 184        | 399        |
| 08:30 AM    | 5                   | 15   | 23    | 43         | 7                          | 82   | 11    | 100        | 26                  | 24   | 12    | 62         | 45                         | 92   | 45    | 182        | 387        |
| 08:45 AM    | 20                  | 16   | 18    | 54         | 27                         | 51   | 18    | 96         | 23                  | 21   | 3     | 47         | 51                         | 105  | 56    | 212        | 409        |
| Total       | 51                  | 86   | 71    | 208        | 65                         | 298  | 41    | 404        | 81                  | 82   | 34    | 197        | 196                        | 507  | 257   | 960        | 1769       |
| Grand Total | 86                  | 145  | 103   | 334        | 112                        | 508  | 67    | 687        | 132                 | 134  | 74    | 340        | 372                        | 1263 | 536   | 2171       | 3532       |
| Apprch %    | 25.7                | 43.4 | 30.8  |            | 16.3                       | 73.9 | 9.8   |            | 38.8                | 39.4 | 21.8  |            | 17.1                       | 58.2 | 24.7  |            |            |
| Total %     | 2.4                 | 4.1  | 2.9   | 9.5        | 3.2                        | 14.4 | 1.9   | 19.5       | 3.7                 | 3.8  | 2.1   | 9.6        | 10.5                       | 35.8 | 15.2  | 61.5       |            |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |           |          |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |            |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|-----------|----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|------------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru      | Right    | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right      | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |           |           |            |                            |           |          |            |                     |           |           |            |                            |            |            |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |           |           |            |                            |           |          |            |                     |           |           |            |                            |            |            |            |            |
| 07:30 AM   | 8                   | 17        | 9         | 34         | 16                         | 55        | 7        | 78         | 12                  | 14        | 8         | 34         | <b>63</b>                  | 187        | 74         | 324        | 470        |
| 07:45 AM   | <b>17</b>           | <b>29</b> | 12        | <b>58</b>  | 17                         | 59        | <b>8</b> | 84         | 17                  | 15        | 11        | 43         | 50                         | 205        | 95         | 350        | 535        |
| 08:00 AM   | 13                  | 29        | 12        | 54         | 13                         | 67        | 6        | 86         | <b>19</b>           | <b>20</b> | <b>13</b> | <b>52</b>  | 62                         | <b>216</b> | <b>104</b> | <b>382</b> | <b>574</b> |
| 08:15 AM   | 13                  | 26        | <b>18</b> | 57         | <b>18</b>                  | <b>98</b> | 6        | <b>122</b> | 13                  | 17        | 6         | 36         | 38                         | 94         | 52         | 184        | 399        |
| Total Volume   | 51                  | 101       | 51        | 203        | 64                         | 279       | 27       | 370        | 61                  | 66        | 38        | 165        | 213                        | 702        | 325        | 1240       | 1978       |
| % App. Total   | 25.1                | 49.8      | 25.1      |            | 17.3                       | 75.4      | 7.3      |            | 37                  | 40        | 23        |            | 17.2                       | 56.6       | 26.2       |            |            |
| PHF  | .750                | .871      | .708      | .875       | .889                       | .712      | .844     | .758       | .803                | .825      | .731      | .793       | .845                       | .813       | .781       | .812       | .861       |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 8        | 17   | 9    | 34   | 16       | 55   | 7    | 78   | 12       | 14   | 8    | 34   | 63       | 187  | 74   | 324  |
| +15 mins.    | 17       | 29   | 12   | 58   | 17       | 59   | 8    | 84   | 17       | 15   | 11   | 43   | 50       | 205  | 95   | 350  |
| +30 mins.    | 13       | 29   | 12   | 54   | 13       | 67   | 6    | 86   | 19       | 20   | 13   | 52   | 62       | 216  | 104  | 382  |
| +45 mins.    | 13       | 26   | 18   | 57   | 18       | 98   | 6    | 122  | 13       | 17   | 6    | 36   | 38       | 94   | 52   | 184  |
| Total Volume | 51       | 101  | 51   | 203  | 64       | 279  | 27   | 370  | 61       | 66   | 38   | 165  | 213      | 702  | 325  | 1240 |
| % App. Total | 25.1     | 49.8 | 25.1 |      | 17.3     | 75.4 | 7.3  |      | 37       | 40   | 23   |      | 17.2     | 56.6 | 26.2 |      |
| PHF          | .750     | .871 | .708 | .875 | .889     | .712 | .844 | .758 | .803     | .825 | .731 | .793 | .845     | .813 | .781 | .812 |

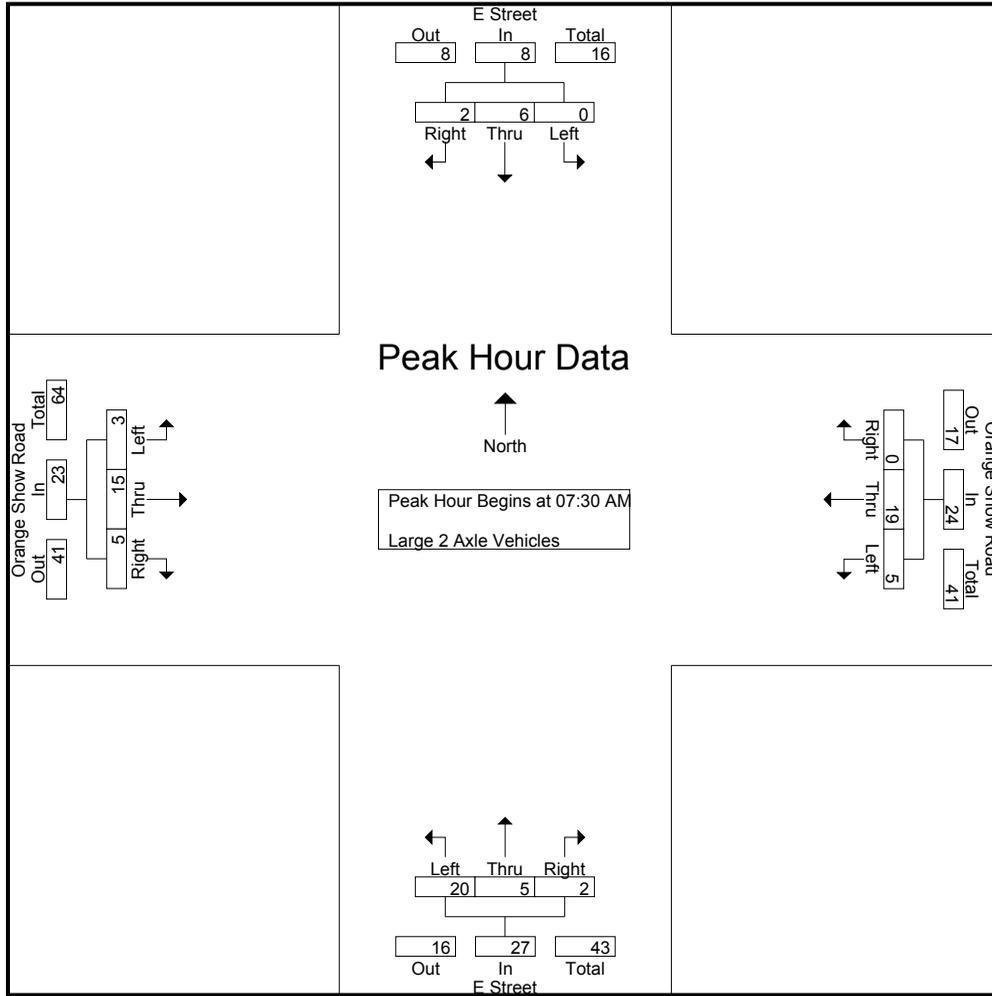
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                   | 0    | 0     | 0          | 1                          | 2    | 0     | 3          | 5                   | 6    | 2     | 13         | 1                          | 0    | 0     | 1          | 17         |
| 07:15 AM    | 0                   | 4    | 1     | 5          | 0                          | 9    | 0     | 9          | 1                   | 1    | 1     | 3          | 0                          | 1    | 0     | 1          | 18         |
| 07:30 AM    | 0                   | 1    | 1     | 2          | 0                          | 2    | 0     | 2          | 7                   | 0    | 1     | 8          | 1                          | 3    | 0     | 4          | 16         |
| 07:45 AM    | 0                   | 3    | 0     | 3          | 0                          | 4    | 0     | 4          | 10                  | 4    | 1     | 15         | 2                          | 5    | 1     | 8          | 30         |
| Total       | 0                   | 8    | 2     | 10         | 1                          | 17   | 0     | 18         | 23                  | 11   | 5     | 39         | 4                          | 9    | 1     | 14         | 81         |
| 08:00 AM    | 0                   | 1    | 0     | 1          | 3                          | 4    | 0     | 7          | 1                   | 0    | 0     | 1          | 0                          | 3    | 2     | 5          | 14         |
| 08:15 AM    | 0                   | 1    | 1     | 2          | 2                          | 9    | 0     | 11         | 2                   | 1    | 0     | 3          | 0                          | 4    | 2     | 6          | 22         |
| 08:30 AM    | 0                   | 2    | 1     | 3          | 7                          | 8    | 0     | 15         | 0                   | 0    | 0     | 0          | 1                          | 5    | 13    | 19         | 37         |
| 08:45 AM    | 0                   | 12   | 0     | 12         | 23                         | 7    | 1     | 31         | 0                   | 2    | 0     | 2          | 2                          | 7    | 51    | 60         | 105        |
| Total       | 0                   | 16   | 2     | 18         | 35                         | 28   | 1     | 64         | 3                   | 3    | 0     | 6          | 3                          | 19   | 68    | 90         | 178        |
| Grand Total | 0                   | 24   | 4     | 28         | 36                         | 45   | 1     | 82         | 26                  | 14   | 5     | 45         | 7                          | 28   | 69    | 104        | 259        |
| Apprch %    | 0                   | 85.7 | 14.3  |            | 43.9                       | 54.9 | 1.2   |            | 57.8                | 31.1 | 11.1  |            | 6.7                        | 26.9 | 66.3  |            |            |
| Total %     | 0                   | 9.3  | 1.5   | 10.8       | 13.9                       | 17.4 | 0.4   | 31.7       | 10                  | 5.4  | 1.9   | 17.4       | 2.7                        | 10.8 | 26.6  | 40.2       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 0                   | 1    | 1     | 2          | 0                          | 2    | 0     | 2          | 7                   | 0    | 1     | 8          | 1                          | 3    | 0     | 4          | 16         |
| 07:45 AM   | 0                   | 3    | 0     | 3          | 0                          | 4    | 0     | 4          | 10                  | 4    | 1     | 15         | 2                          | 5    | 1     | 8          | 30         |
| 08:00 AM   | 0                   | 1    | 0     | 1          | 3                          | 4    | 0     | 7          | 1                   | 0    | 0     | 1          | 0                          | 3    | 2     | 5          | 14         |
| 08:15 AM   | 0                   | 1    | 1     | 2          | 2                          | 9    | 0     | 11         | 2                   | 1    | 0     | 3          | 0                          | 4    | 2     | 6          | 22         |
| Total Volume   | 0                   | 6    | 2     | 8          | 5                          | 19   | 0     | 24         | 20                  | 5    | 2     | 27         | 3                          | 15   | 5     | 23         | 82         |
| % App. Total   | 0                   | 75   | 25    |            | 20.8                       | 79.2 | 0     |            | 74.1                | 18.5 | 7.4   |            | 13                         | 65.2 | 21.7  |            |            |
| PHF  | .000                | .500 | .500  | .667       | .417                       | .528 | .000  | .545       | .500                | .313 | .500  | .450       | .375                       | .750 | .625  | .719       | .683       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 1    | 2    | 0        | 2    | 0    | 2    | 7        | 0    | 1    | 8    | 1        | 3    | 0    | 4    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 4    | 0    | 4    | 10       | 4    | 1    | 15   | 2        | 5    | 1    | 8    |
| +30 mins.    | 0        | 1    | 0    | 1    | 3        | 4    | 0    | 7    | 1        | 0    | 0    | 1    | 0        | 3    | 2    | 5    |
| +45 mins.    | 0        | 1    | 1    | 2    | 2        | 9    | 0    | 11   | 2        | 1    | 0    | 3    | 0        | 4    | 2    | 6    |
| Total Volume | 0        | 6    | 2    | 8    | 5        | 19   | 0    | 24   | 20       | 5    | 2    | 27   | 3        | 15   | 5    | 23   |
| % App. Total | 0        | 75   | 25   |      | 20.8     | 79.2 | 0    |      | 74.1     | 18.5 | 7.4  |      | 13       | 65.2 | 21.7 |      |
| PHF          | .000     | .500 | .500 | .667 | .417     | .528 | .000 | .545 | .500     | .313 | .500 | .450 | .375     | .750 | .625 | .719 |

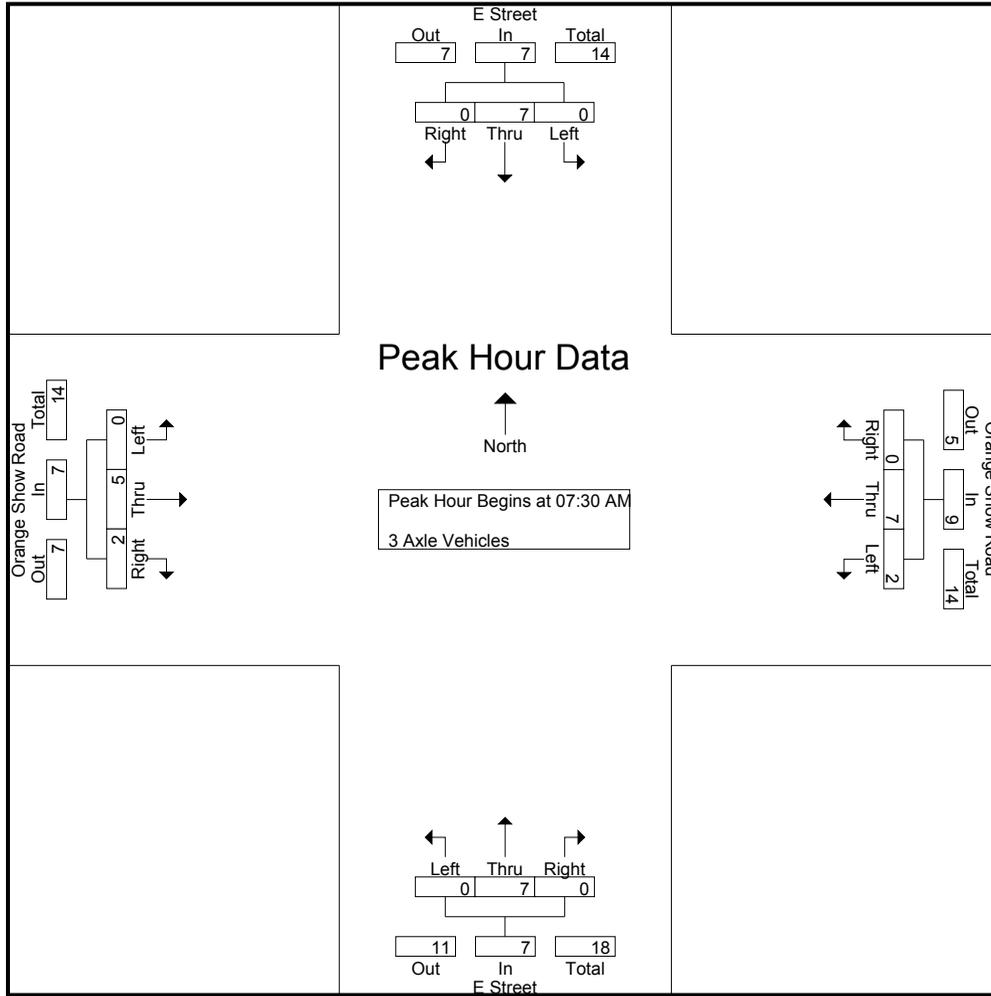
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |    |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|----|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |    |
| 07:00 AM    | 2                   | 1    | 0     | 3          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0          | 4  |
| 07:15 AM    | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 0                   | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 1          | 7  |
| 07:30 AM    | 0                   | 1    | 0     | 1          | 1                          | 4    | 0     | 5          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 9  |
| 07:45 AM    | 0                   | 2    | 0     | 2          | 0                          | 0    | 0     | 0          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 5  |
| Total       | 2                   | 6    | 0     | 8          | 1                          | 7    | 0     | 8          | 0                   | 5    | 1     | 6          | 0                          | 3    | 0     | 3          | 3          | 25 |
| 08:00 AM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 1    | 2     | 3          | 3          | 6  |
| 08:15 AM    | 0                   | 3    | 0     | 3          | 1                          | 2    | 0     | 3          | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 2          | 10 |
| 08:30 AM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 3    | 0     | 3          | 1                          | 5    | 0     | 6          | 6          | 11 |
| 08:45 AM    | 0                   | 1    | 0     | 1          | 0                          | 3    | 0     | 3          | 1                   | 1    | 0     | 2          | 0                          | 3    | 1     | 4          | 4          | 10 |
| Total       | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 7    | 0     | 8          | 1                          | 11   | 3     | 15         | 15         | 37 |
| Grand Total | 2                   | 12   | 0     | 14         | 2                          | 14   | 0     | 16         | 1                   | 12   | 1     | 14         | 1                          | 14   | 3     | 18         | 18         | 62 |
| Apprch %    | 14.3                | 85.7 | 0     |            | 12.5                       | 87.5 | 0     |            | 7.1                 | 85.7 | 7.1   |            | 5.6                        | 77.8 | 16.7  |            |            |    |
| Total %     | 3.2                 | 19.4 | 0     | 22.6       | 3.2                        | 22.6 | 0     | 25.8       | 1.6                 | 19.4 | 1.6   | 22.6       | 1.6                        | 22.6 | 4.8   | 29         |            |    |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |      |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |      |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |      |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |      |
| 07:30 AM   | 0                   | 1    | 0     | 1          | 1                          | 4    | 0     | 5          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 9    |
| 07:45 AM   | 0                   | 2    | 0     | 2          | 0                          | 0    | 0     | 0          | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1          | 5    |
| 08:00 AM   | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 1    | 2     | 3          | 3          | 6    |
| 08:15 AM   | 0                   | 3    | 0     | 3          | 1                          | 2    | 0     | 3          | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 2          | 10   |
| Total Volume   | 0                   | 7    | 0     | 7          | 2                          | 7    | 0     | 9          | 0                   | 7    | 0     | 7          | 0                          | 5    | 2     | 7          | 7          | 30   |
| % App. Total   | 0                   | 100  | 0     |            | 22.2                       | 77.8 | 0     |            | 0                   | 100  | 0     |            | 0                          | 71.4 | 28.6  |            |            |      |
| PHF  | .000                | .583 | .000  | .583       | .500                       | .438 | .000  | .450       | .000                | .875 | .000  | .875       | .000                       | .625 | .250  | .583       |            | .750 |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 0    | 1    | 1        | 4    | 0    | 5    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 2    | 3    |
| +45 mins.    | 0        | 3    | 0    | 3    | 1        | 2    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 2    | 0    | 2    |
| Total Volume | 0        | 7    | 0    | 7    | 2        | 7    | 0    | 9    | 0        | 7    | 0    | 7    | 0        | 5    | 2    | 7    |
| % App. Total | 0        | 100  | 0    |      | 22.2     | 77.8 | 0    |      | 0        | 100  | 0    |      | 0        | 71.4 | 28.6 |      |
| PHF          | .000     | .583 | .000 | .583 | .500     | .438 | .000 | .450 | .000     | .875 | .000 | .875 | .000     | .625 | .250 | .583 |

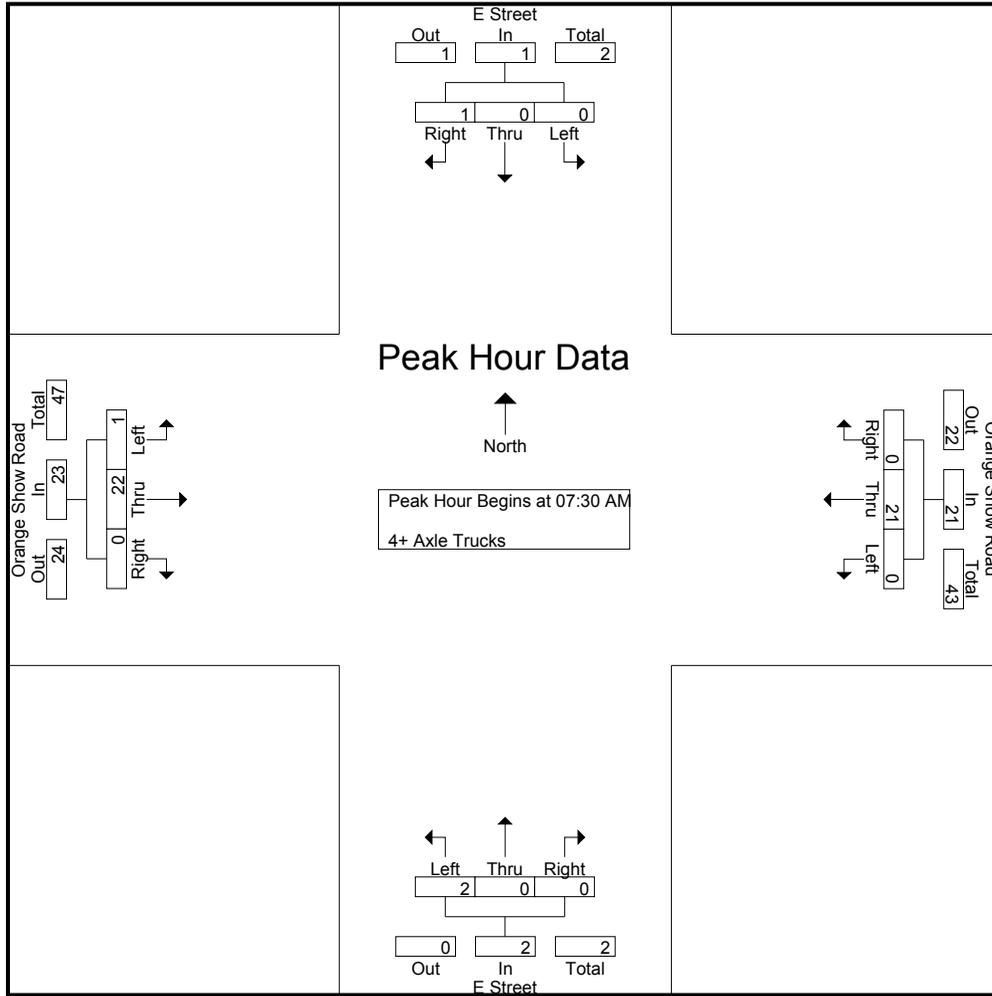
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEBORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 1                   | 0    | 0     | 1          | 0                          | 9    | 0     | 9          | 13         |
| 07:15 AM    | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 2                   | 0    | 0     | 2          | 0                          | 4    | 0     | 4          | 12         |
| 07:30 AM    | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 0                   | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 16         |
| 07:45 AM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                   | 0    | 0     | 1          | 0                          | 5    | 0     | 5          | 10         |
| Total       | 0                   | 0    | 1     | 1          | 0                          | 21   | 0     | 21         | 4                   | 0    | 0     | 4          | 0                          | 25   | 0     | 25         | 51         |
| 08:00 AM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 9          |
| 08:15 AM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 12         |
| 08:30 AM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 8    | 0     | 8          | 9          |
| 08:45 AM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 10         |
| Total       | 0                   | 0    | 0     | 0          | 0                          | 13   | 0     | 13         | 2                   | 0    | 0     | 2          | 2                          | 23   | 0     | 25         | 40         |
| Grand Total | 0                   | 0    | 1     | 1          | 0                          | 34   | 0     | 34         | 6                   | 0    | 0     | 6          | 2                          | 48   | 0     | 50         | 91         |
| Apprch %    | 0                   | 0    | 100   |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 4                          | 96   | 0     |            |            |
| Total %     | 0                   | 0    | 1.1   | 1.1        | 0                          | 37.4 | 0     | 37.4       | 6.6                 | 0    | 0     | 6.6        | 2.2                        | 52.7 | 0     | 54.9       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 07:30 AM   | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 0                   | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 16         |
| 07:45 AM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                   | 0    | 0     | 1          | 0                          | 5    | 0     | 5          | 10         |
| 08:00 AM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 9          |
| 08:15 AM   | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 5    | 0     | 6          | 12         |
| Total Volume   | 0                   | 0    | 1     | 1          | 0                          | 21   | 0     | 21         | 2                   | 0    | 0     | 2          | 1                          | 22   | 0     | 23         | 47         |
| % App. Total   | 0                   | 0    | 100   |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 4.3                        | 95.7 | 0     |            |            |
| PHF  | .000                | .000 | .250  | .250       | .000                       | .656 | .000  | .656       | .500                | .000 | .000  | .500       | .250                       | .786 | .000  | .821       | .734       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 1    | 1    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    | 0        | 7    | 0    | 7    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 1        | 0    | 0    | 1    | 0        | 5    | 0    | 5    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 1        | 0    | 0    | 1    | 1        | 5    | 0    | 6    |
| Total Volume | 0        | 0    | 1    | 1    | 0        | 21   | 0    | 21   | 2        | 0    | 0    | 2    | 1        | 22   | 0    | 23   |
| % App. Total | 0        | 0    | 100  |      | 0        | 100  | 0    |      | 100      | 0    | 0    |      | 4.3      | 95.7 | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .656 | .000 | .656 | .500     | .000 | .000 | .500 | .250     | .786 | .000 | .821 |

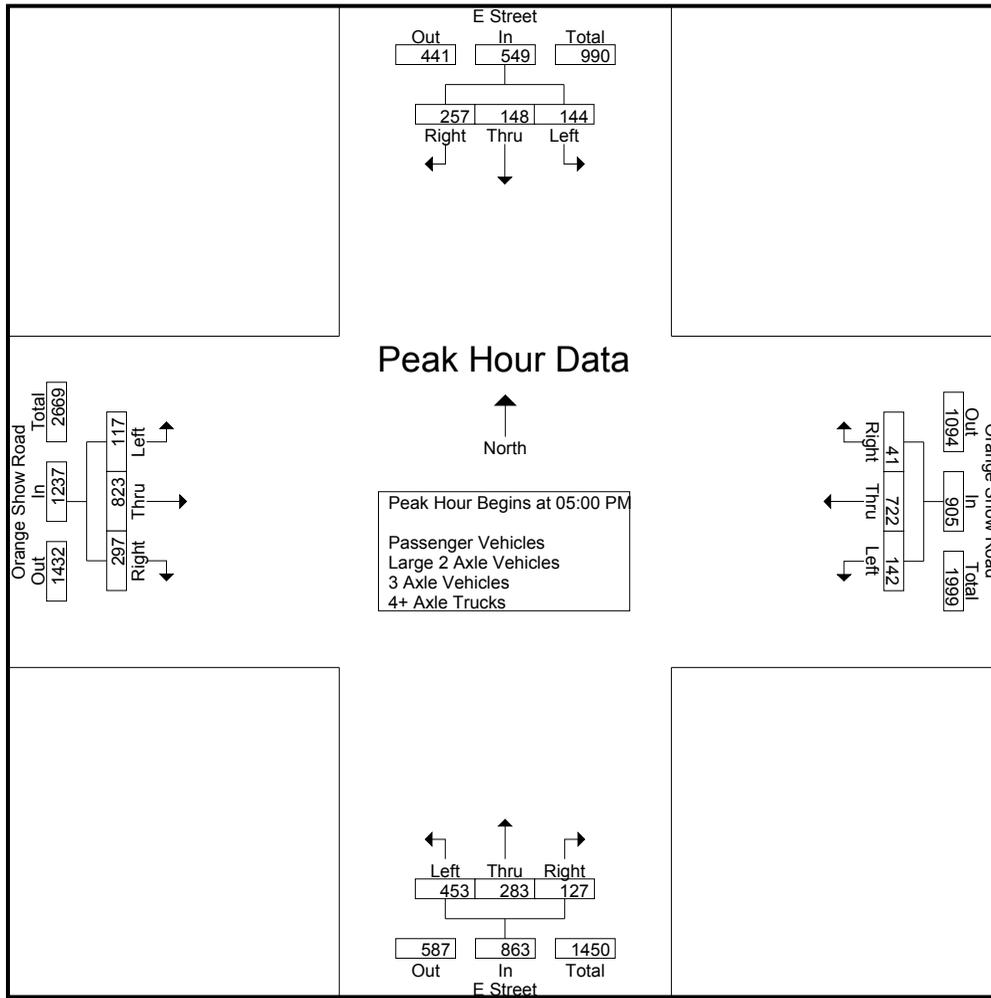
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 38                  | 50   | 66    | 154        | 40                         | 132  | 8     | 180        | 91                  | 39   | 12    | 142        | 34                         | 98   | 79    | 211        | 687        |
| 04:15 PM                | 27                  | 38   | 64    | 129        | 36                         | 129  | 9     | 174        | 86                  | 47   | 22    | 155        | 41                         | 109  | 63    | 213        | 671        |
| 04:30 PM                | 40                  | 38   | 46    | 124        | 25                         | 169  | 18    | 212        | 95                  | 34   | 16    | 145        | 53                         | 154  | 63    | 270        | 751        |
| 04:45 PM                | 37                  | 48   | 60    | 145        | 23                         | 141  | 17    | 181        | 91                  | 46   | 23    | 160        | 41                         | 119  | 64    | 224        | 710        |
| Total                   | 142                 | 174  | 236   | 552        | 124                        | 571  | 52    | 747        | 363                 | 166  | 73    | 602        | 169                        | 480  | 269   | 918        | 2819       |
| 05:00 PM                | 31                  | 37   | 80    | 148        | 31                         | 171  | 8     | 210        | 105                 | 68   | 26    | 199        | 39                         | 205  | 76    | 320        | 877        |
| 05:15 PM                | 31                  | 41   | 60    | 132        | 42                         | 172  | 7     | 221        | 119                 | 76   | 38    | 233        | 26                         | 194  | 73    | 293        | 879        |
| 05:30 PM                | 46                  | 38   | 66    | 150        | 42                         | 195  | 18    | 255        | 124                 | 74   | 30    | 228        | 25                         | 217  | 83    | 325        | 958        |
| 05:45 PM                | 36                  | 32   | 51    | 119        | 27                         | 184  | 8     | 219        | 105                 | 65   | 33    | 203        | 27                         | 207  | 65    | 299        | 840        |
| Total                   | 144                 | 148  | 257   | 549        | 142                        | 722  | 41    | 905        | 453                 | 283  | 127   | 863        | 117                        | 823  | 297   | 1237       | 3554       |
| Grand Total             | 286                 | 322  | 493   | 1101       | 266                        | 1293 | 93    | 1652       | 816                 | 449  | 200   | 1465       | 286                        | 1303 | 566   | 2155       | 6373       |
| Apprch %                | 26                  | 29.2 | 44.8  |            | 16.1                       | 78.3 | 5.6   |            | 55.7                | 30.6 | 13.7  |            | 13.3                       | 60.5 | 26.3  |            |            |
| Total %                 | 4.5                 | 5.1  | 7.7   | 17.3       | 4.2                        | 20.3 | 1.5   | 25.9       | 12.8                | 7    | 3.1   | 23         | 4.5                        | 20.4 | 8.9   | 33.8       |            |
| Passenger Vehicles      | 283                 | 273  | 487   | 1043       | 230                        | 1221 | 91    | 1542       | 802                 | 433  | 195   | 1430       | 280                        | 1210 | 496   | 1986       | 6001       |
| % Passenger Vehicles    | 99                  | 84.8 | 98.8  | 94.7       | 86.5                       | 94.4 | 97.8  | 93.3       | 98.3                | 96.4 | 97.5  | 97.6       | 97.9                       | 92.9 | 87.6  | 92.2       | 94.2       |
| Large 2 Axle Vehicles   | 3                   | 36   | 5     | 44         | 35                         | 19   | 2     | 56         | 9                   | 6    | 4     | 19         | 3                          | 21   | 67    | 91         | 210        |
| % Large 2 Axle Vehicles | 1                   | 11.2 | 1     | 4          | 13.2                       | 1.5  | 2.2   | 3.4        | 1.1                 | 1.3  | 2     | 1.3        | 1                          | 1.6  | 11.8  | 4.2        | 3.3        |
| 3 Axle Vehicles         | 0                   | 12   | 0     | 12         | 1                          | 15   | 0     | 16         | 3                   | 10   | 0     | 13         | 1                          | 17   | 1     | 19         | 60         |
| % 3 Axle Vehicles       | 0                   | 3.7  | 0     | 1.1        | 0.4                        | 1.2  | 0     | 1          | 0.4                 | 2.2  | 0     | 0.9        | 0.3                        | 1.3  | 0.2   | 0.9        | 0.9        |
| 4+ Axle Trucks          | 0                   | 1    | 1     | 2          | 0                          | 38   | 0     | 38         | 2                   | 0    | 1     | 3          | 2                          | 55   | 2     | 59         | 102        |
| % 4+ Axle Trucks        | 0                   | 0.3  | 0.2   | 0.2        | 0                          | 2.9  | 0     | 2.3        | 0.2                 | 0    | 0.5   | 0.2        | 0.7                        | 4.2  | 0.4   | 2.7        | 1.6        |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |            |           |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| 05:00 PM   | 31                  | 37        | <b>80</b> | 148        | 31                         | 171        | 8         | 210        | 105                 | 68        | 26        | 199        | <b>39</b>                  | 205        | 76        | 320        | 877        |
| 05:15 PM   | 31                  | <b>41</b> | 60        | 132        | <b>42</b>                  | 172        | 7         | 221        | 119                 | <b>76</b> | <b>38</b> | <b>233</b> | 26                         | 194        | 73        | 293        | 879        |
| 05:30 PM   | <b>46</b>           | 38        | 66        | <b>150</b> | 42                         | <b>195</b> | <b>18</b> | <b>255</b> | <b>124</b>          | 74        | 30        | 228        | 25                         | <b>217</b> | <b>83</b> | <b>325</b> | <b>958</b> |
| 05:45 PM   | 36                  | 32        | 51        | 119        | 27                         | 184        | 8         | 219        | 105                 | 65        | 33        | 203        | 27                         | 207        | 65        | 299        | 840        |
| Total Volume   | 144                 | 148       | 257       | 549        | 142                        | 722        | 41        | 905        | 453                 | 283       | 127       | 863        | 117                        | 823        | 297       | 1237       | 3554       |
| % App. Total   | 26.2                | 27        | 46.8      |            | 15.7                       | 79.8       | 4.5       |            | 52.5                | 32.8      | 14.7      |            | 9.5                        | 66.5       | 24        |            |            |
| PHF  | .783                | .902      | .803      | .915       | .845                       | .926       | .569      | .887       | .913                | .931      | .836      | .926       | .750                       | .948       | .895      | .952       | .927       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM  |           |           |            | 05:00 PM  |            |           |            | 05:00 PM   |           |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|-----------|-----------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 37        | <b>48</b> | 60        | 145        | 31        | 171        | 8         | 210        | 105        | 68        | 26        | 199        | <b>39</b> | 205        | 76        | 320        |
| +15 mins.    | 31        | 37        | <b>80</b> | 148        | <b>42</b> | 172        | 7         | 221        | 119        | <b>76</b> | <b>38</b> | <b>233</b> | 26        | 194        | 73        | 293        |
| +30 mins.    | 31        | 41        | 60        | 132        | 42        | <b>195</b> | <b>18</b> | <b>255</b> | <b>124</b> | 74        | 30        | 228        | 25        | <b>217</b> | <b>83</b> | <b>325</b> |
| +45 mins.    | <b>46</b> | 38        | 66        | <b>150</b> | 27        | 184        | 8         | 219        | 105        | 65        | 33        | 203        | 27        | 207        | 65        | 299        |
| Total Volume | 145       | 164       | 266       | 575        | 142       | 722        | 41        | 905        | 453        | 283       | 127       | 863        | 117       | 823        | 297       | 1237       |
| % App. Total | 25.2      | 28.5      | 46.3      |            | 15.7      | 79.8       | 4.5       |            | 52.5       | 32.8      | 14.7      |            | 9.5       | 66.5       | 24        |            |
| PHF          | .788      | .854      | .831      | .958       | .845      | .926       | .569      | .887       | .913       | .931      | .836      | .926       | .750      | .948       | .895      | .952       |

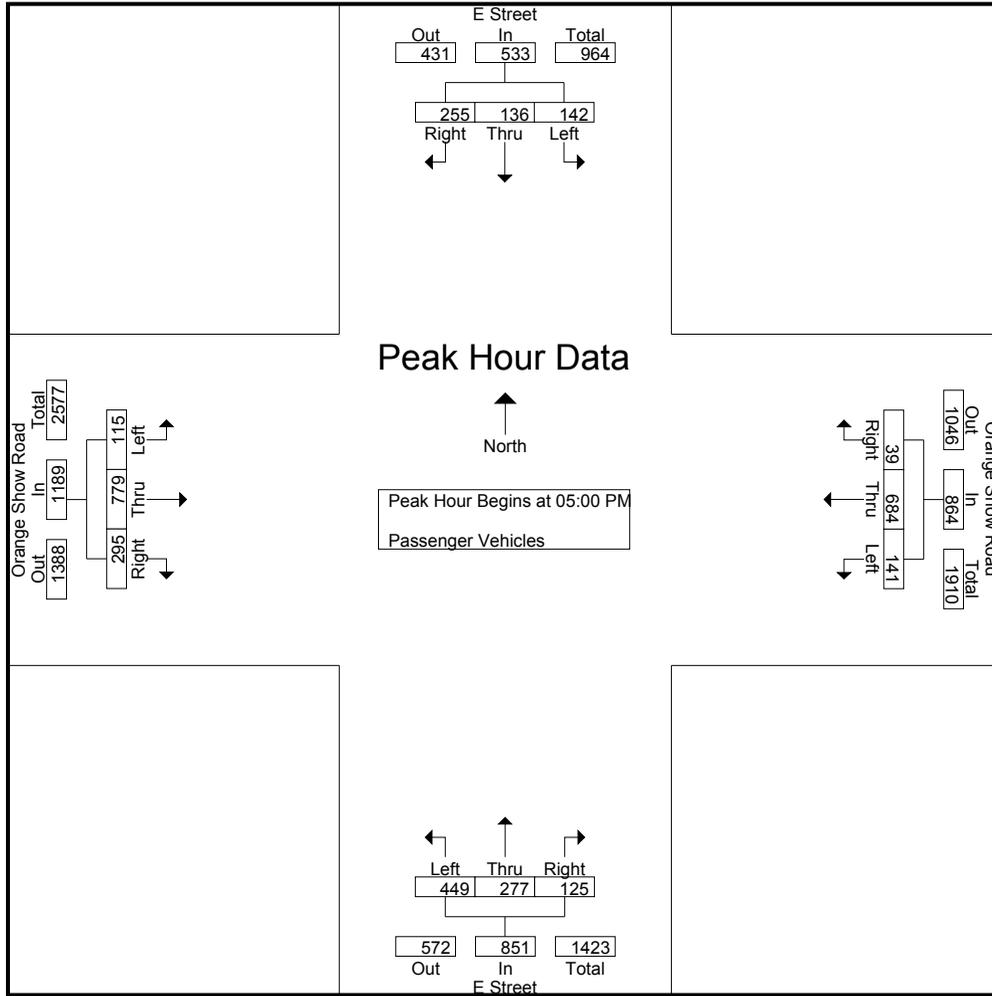
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 38                  | 41   | 64    | 143        | 27                         | 121  | 8     | 156        | 88                  | 37   | 12    | 137        | 33                         | 87   | 49    | 169        | 605        |
| 04:15 PM    | 27                  | 23   | 63    | 113        | 19                         | 120  | 9     | 148        | 84                  | 45   | 19    | 148        | 40                         | 97   | 38    | 175        | 584        |
| 04:30 PM    | 39                  | 30   | 46    | 115        | 22                         | 164  | 18    | 204        | 95                  | 31   | 16    | 142        | 52                         | 138  | 54    | 244        | 705        |
| 04:45 PM    | 37                  | 43   | 59    | 139        | 21                         | 132  | 17    | 170        | 86                  | 43   | 23    | 152        | 40                         | 109  | 60    | 209        | 670        |
| Total       | 141                 | 137  | 232   | 510        | 89                         | 537  | 52    | 678        | 353                 | 156  | 70    | 579        | 165                        | 431  | 201   | 797        | 2564       |
| 05:00 PM    | 30                  | 32   | 79    | 141        | 31                         | 164  | 7     | 202        | 104                 | 67   | 26    | 197        | 38                         | 194  | 75    | 307        | 847        |
| 05:15 PM    | 31                  | 37   | 59    | 127        | 41                         | 165  | 7     | 213        | 119                 | 73   | 38    | 230        | 26                         | 184  | 72    | 282        | 852        |
| 05:30 PM    | 46                  | 36   | 66    | 148        | 42                         | 185  | 17    | 244        | 123                 | 73   | 30    | 226        | 24                         | 207  | 83    | 314        | 932        |
| 05:45 PM    | 35                  | 31   | 51    | 117        | 27                         | 170  | 8     | 205        | 103                 | 64   | 31    | 198        | 27                         | 194  | 65    | 286        | 806        |
| Total       | 142                 | 136  | 255   | 533        | 141                        | 684  | 39    | 864        | 449                 | 277  | 125   | 851        | 115                        | 779  | 295   | 1189       | 3437       |
| Grand Total | 283                 | 273  | 487   | 1043       | 230                        | 1221 | 91    | 1542       | 802                 | 433  | 195   | 1430       | 280                        | 1210 | 496   | 1986       | 6001       |
| Apprch %    | 27.1                | 26.2 | 46.7  |            | 14.9                       | 79.2 | 5.9   |            | 56.1                | 30.3 | 13.6  |            | 14.1                       | 60.9 | 25    |            |            |
| Total %     | 4.7                 | 4.5  | 8.1   | 17.4       | 3.8                        | 20.3 | 1.5   | 25.7       | 13.4                | 7.2  | 3.2   | 23.8       | 4.7                        | 20.2 | 8.3   | 33.1       |            |

| Start Time   | E Street Southbound |           |           |            | Orange Show Road Westbound |            |           |            | E Street Northbound |           |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|---------------------|-----------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                | Thru      | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |           |           |            |                            |            |           |            |                     |           |           |            |                            |            |           |            |            |
| 05:00 PM   | 30                  | 32        | <b>79</b> | 141        | 31                         | 164        | 7         | 202        | 104                 | 67        | 26        | 197        | <b>38</b>                  | 194        | 75        | 307        | 847        |
| 05:15 PM   | 31                  | <b>37</b> | 59        | 127        | 41                         | 165        | 7         | 213        | 119                 | <b>73</b> | <b>38</b> | <b>230</b> | 26                         | 184        | 72        | 282        | 852        |
| 05:30 PM   | <b>46</b>           | 36        | 66        | <b>148</b> | <b>42</b>                  | <b>185</b> | <b>17</b> | <b>244</b> | <b>123</b>          | 73        | 30        | 226        | 24                         | <b>207</b> | <b>83</b> | <b>314</b> | <b>932</b> |
| 05:45 PM   | 35                  | 31        | 51        | 117        | 27                         | 170        | 8         | 205        | 103                 | 64        | 31        | 198        | 27                         | 194        | 65        | 286        | 806        |
| Total Volume   | 142                 | 136       | 255       | 533        | 141                        | 684        | 39        | 864        | 449                 | 277       | 125       | 851        | 115                        | 779        | 295       | 1189       | 3437       |
| % App. Total   | 26.6                | 25.5      | 47.8      |            | 16.3                       | 79.2       | 4.5       |            | 52.8                | 32.5      | 14.7      |            | 9.7                        | 65.5       | 24.8      |            |            |
| PHF  | .772                | .919      | .807      | .900       | .839                       | .924       | .574      | .885       | .913                | .949      | .822      | .925       | .757                       | .941       | .889      | .947       | .922       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM  |           |           |            | 05:00 PM  |            |           |            | 05:00 PM   |           |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|-----------|-----------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 30        | 32        | <b>79</b> | 141        | 31        | 164        | 7         | 202        | 104        | 67        | 26        | 197        | <b>38</b> | 194        | 75        | 307        |
| +15 mins.    | 31        | <b>37</b> | 59        | 127        | 41        | 165        | 7         | 213        | 119        | <b>73</b> | <b>38</b> | <b>230</b> | 26        | 184        | 72        | 282        |
| +30 mins.    | <b>46</b> | 36        | 66        | <b>148</b> | <b>42</b> | <b>185</b> | <b>17</b> | <b>244</b> | <b>123</b> | 73        | 30        | 226        | 24        | <b>207</b> | <b>83</b> | <b>314</b> |
| +45 mins.    | 35        | 31        | 51        | 117        | 27        | 170        | 8         | 205        | 103        | 64        | 31        | 198        | 27        | 194        | 65        | 286        |
| Total Volume | 142       | 136       | 255       | 533        | 141       | 684        | 39        | 864        | 449        | 277       | 125       | 851        | 115       | 779        | 295       | 1189       |
| % App. Total | 26.6      | 25.5      | 47.8      |            | 16.3      | 79.2       | 4.5       |            | 52.8       | 32.5      | 14.7      |            | 9.7       | 65.5       | 24.8      |            |
| PHF          | .772      | .919      | .807      | .900       | .839      | .924       | .574      | .885       | .913       | .949      | .822      | .925       | .757      | .941       | .889      | .947       |

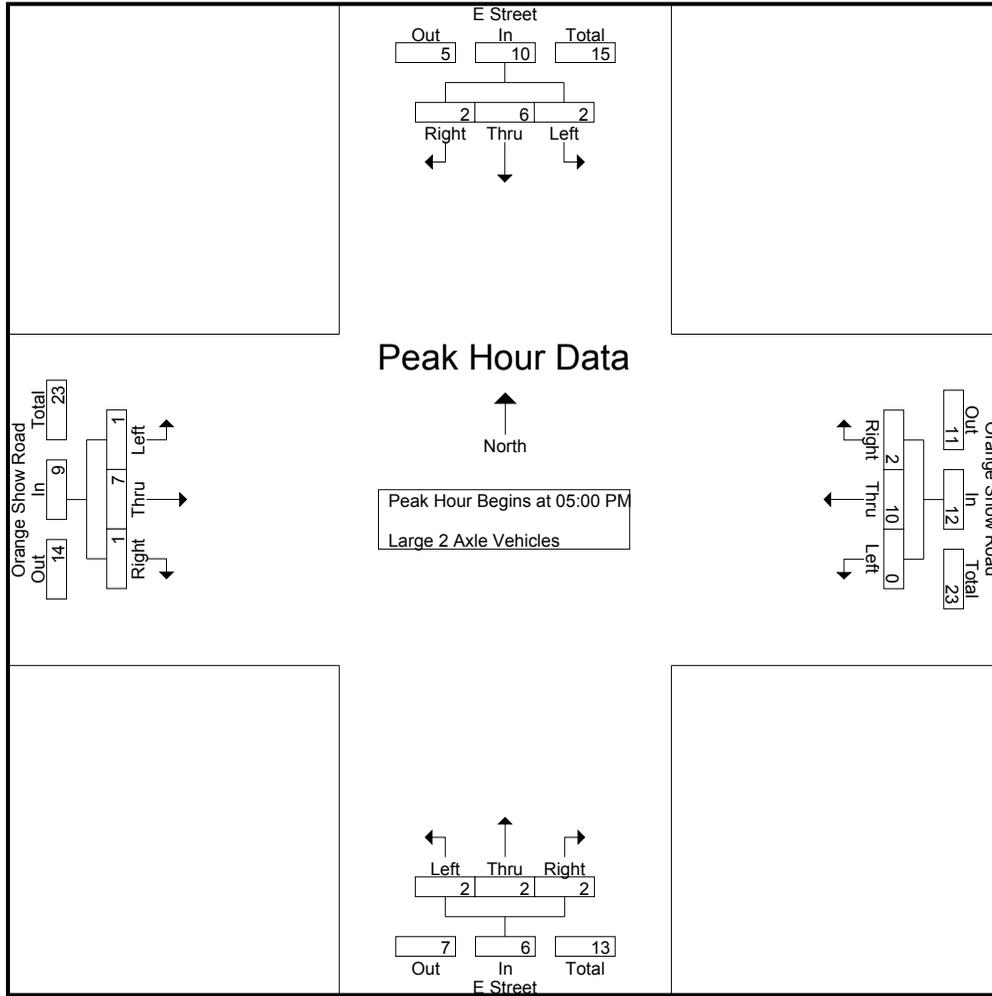
City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 7    | 2     | 9          | 13                         | 2    | 0     | 15         | 1                   | 0    | 0     | 1          | 0                          | 6    | 30    | 36         | 61         |
| 04:15 PM    | 0                   | 12   | 0     | 12         | 17                         | 1    | 0     | 18         | 2                   | 2    | 2     | 6          | 1                          | 2    | 25    | 28         | 64         |
| 04:30 PM    | 1                   | 8    | 0     | 9          | 3                          | 3    | 0     | 6          | 0                   | 0    | 0     | 0          | 1                          | 4    | 8     | 13         | 28         |
| 04:45 PM    | 0                   | 3    | 1     | 4          | 2                          | 3    | 0     | 5          | 4                   | 2    | 0     | 6          | 0                          | 2    | 3     | 5          | 20         |
| Total       | 1                   | 30   | 3     | 34         | 35                         | 9    | 0     | 44         | 7                   | 4    | 2     | 13         | 2                          | 14   | 66    | 82         | 173        |
| 05:00 PM    | 1                   | 3    | 1     | 5          | 0                          | 3    | 1     | 4          | 1                   | 0    | 0     | 1          | 1                          | 3    | 1     | 5          | 15         |
| 05:15 PM    | 0                   | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:30 PM    | 0                   | 1    | 0     | 1          | 0                          | 2    | 1     | 3          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM    | 1                   | 0    | 0     | 1          | 0                          | 3    | 0     | 3          | 0                   | 1    | 2     | 3          | 0                          | 1    | 0     | 1          | 8          |
| Total       | 2                   | 6    | 2     | 10         | 0                          | 10   | 2     | 12         | 2                   | 2    | 2     | 6          | 1                          | 7    | 1     | 9          | 37         |
| Grand Total | 3                   | 36   | 5     | 44         | 35                         | 19   | 2     | 56         | 9                   | 6    | 4     | 19         | 3                          | 21   | 67    | 91         | 210        |
| Apprch %    | 6.8                 | 81.8 | 11.4  |            | 62.5                       | 33.9 | 3.6   |            | 47.4                | 31.6 | 21.1  |            | 3.3                        | 23.1 | 73.6  |            |            |
| Total %     | 1.4                 | 17.1 | 2.4   | 21         | 16.7                       | 9    | 1     | 26.7       | 4.3                 | 2.9  | 1.9   | 9          | 1.4                        | 10   | 31.9  | 43.3       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 1                   | 3    | 1     | 5          | 0                          | 3    | 1     | 4          | 1                   | 0    | 0     | 1          | 1                          | 3    | 1     | 5          | 15         |
| 05:15 PM   | 0                   | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:30 PM   | 0                   | 1    | 0     | 1          | 0                          | 2    | 1     | 3          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM   | 1                   | 0    | 0     | 1          | 0                          | 3    | 0     | 3          | 0                   | 1    | 2     | 3          | 0                          | 1    | 0     | 1          | 8          |
| Total Volume   | 2                   | 6    | 2     | 10         | 0                          | 10   | 2     | 12         | 2                   | 2    | 2     | 6          | 1                          | 7    | 1     | 9          | 37         |
| % App. Total   | 20                  | 60   | 20    |            | 0                          | 83.3 | 16.7  |            | 33.3                | 33.3 | 33.3  |            | 11.1                       | 77.8 | 11.1  |            |            |
| PHF  | .500                | .500 | .500  | .500       | .000                       | .833 | .500  | .750       | .500                | .500 | .250  | .500       | .250                       | .583 | .250  | .450       | .617       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 3    | 1    | 5    | 0        | 3    | 1    | 4    | 1        | 0    | 0    | 1    | 1        | 3    | 1    | 5    |
| +15 mins.    | 0        | 2    | 1    | 3    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 2    | 1    | 3    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    |
| +45 mins.    | 1        | 0    | 0    | 1    | 0        | 3    | 0    | 3    | 0        | 1    | 2    | 3    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 6    | 2    | 10   | 0        | 10   | 2    | 12   | 2        | 2    | 2    | 6    | 1        | 7    | 1    | 9    |
| % App. Total | 20       | 60   | 20   |      | 0        | 83.3 | 16.7 |      | 33.3     | 33.3 | 33.3 |      | 11.1     | 77.8 | 11.1 |      |
| PHF          | .500     | .500 | .500 | .500 | .000     | .833 | .500 | .750 | .500     | .500 | .250 | .500 | .250     | .583 | .250 | .450 |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCESORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

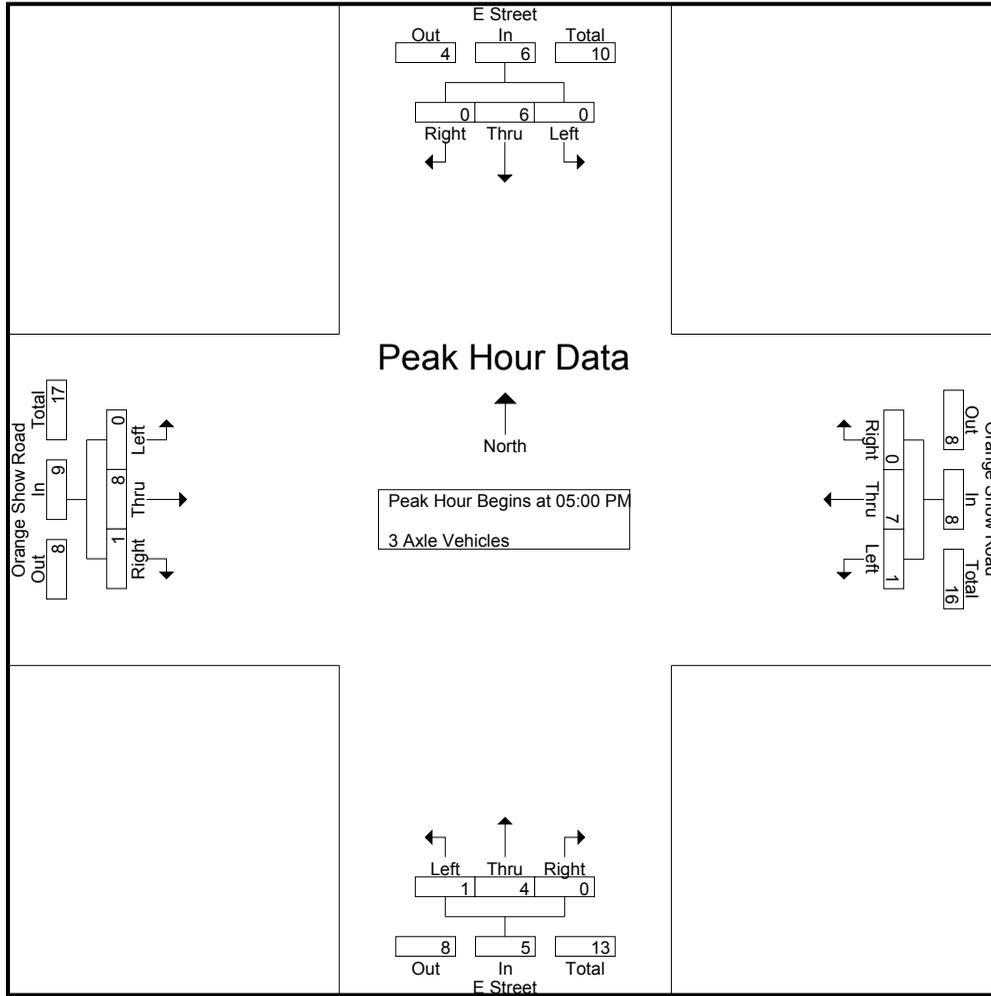
Groups Printed- 3 Axle Vehicles

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 2    | 0     | 2          | 0                          | 4    | 0     | 4          | 1                   | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 11         |
| 04:15 PM    | 0                   | 2    | 0     | 2          | 0                          | 2    | 0     | 2          | 0                   | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 6          |
| 04:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 3    | 0     | 3          | 0                          | 1    | 0     | 1          | 5          |
| 04:45 PM    | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 1                   | 1    | 0     | 2          | 1                          | 4    | 0     | 5          | 10         |
| Total       | 0                   | 6    | 0     | 6          | 0                          | 8    | 0     | 8          | 2                   | 6    | 0     | 8          | 1                          | 9    | 0     | 10         | 32         |
| 05:00 PM    | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| 05:15 PM    | 0                   | 2    | 0     | 2          | 1                          | 1    | 0     | 2          | 0                   | 2    | 0     | 2          | 0                          | 3    | 1     | 4          | 10         |
| 05:30 PM    | 0                   | 1    | 0     | 1          | 0                          | 4    | 0     | 4          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:45 PM    | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 5          |
| Total       | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 4    | 0     | 5          | 0                          | 8    | 1     | 9          | 28         |
| Grand Total | 0                   | 12   | 0     | 12         | 1                          | 15   | 0     | 16         | 3                   | 10   | 0     | 13         | 1                          | 17   | 1     | 19         | 60         |
| Apprch %    | 0                   | 100  | 0     |            | 6.2                        | 93.8 | 0     |            | 23.1                | 76.9 | 0     |            | 5.3                        | 89.5 | 5.3   |            |            |
| Total %     | 0                   | 20   | 0     | 20         | 1.7                        | 25   | 0     | 26.7       | 5                   | 16.7 | 0     | 21.7       | 1.7                        | 28.3 | 1.7   | 31.7       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                   | 2    | 0     | 2          | 0                          | 1    | 0     | 1          | 0                   | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| 05:15 PM   | 0                   | 2    | 0     | 2          | 1                          | 1    | 0     | 2          | 0                   | 2    | 0     | 2          | 0                          | 3    | 1     | 4          | 10         |
| 05:30 PM   | 0                   | 1    | 0     | 1          | 0                          | 4    | 0     | 4          | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 7          |
| 05:45 PM   | 0                   | 1    | 0     | 1          | 0                          | 1    | 0     | 1          | 1                   | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 5          |
| Total Volume   | 0                   | 6    | 0     | 6          | 1                          | 7    | 0     | 8          | 1                   | 4    | 0     | 5          | 0                          | 8    | 1     | 9          | 28         |
| % App. Total   | 0                   | 100  | 0     |            | 12.5                       | 87.5 | 0     |            | 20                  | 80   | 0     |            | 0                          | 88.9 | 11.1  |            |            |
| PHF  | .000                | .750 | .000  | .750       | .250                       | .438 | .000  | .500       | .250                | .500 | .000  | .625       | .000                       | .667 | .250  | .563       | .700       |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    |
| +15 mins.    | 0        | 2    | 0    | 2    | 1        | 1    | 0    | 2    | 0        | 2    | 0    | 2    | 0        | 3    | 1    | 4    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 4    | 0    | 4    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| +45 mins.    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    | 1        | 0    | 0    | 1    | 0        | 2    | 0    | 2    |
| Total Volume | 0        | 6    | 0    | 6    | 1        | 7    | 0    | 8    | 1        | 4    | 0    | 5    | 0        | 8    | 1    | 9    |
| % App. Total | 0        | 100  | 0    |      | 12.5     | 87.5 | 0    |      | 20       | 80   | 0    |      | 0        | 88.9 | 11.1 |      |
| PHF          | .000     | .750 | .000 | .750 | .250     | .438 | .000 | .500 | .250     | .500 | .000 | .625 | .000     | .667 | .250 | .563 |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCEsorPM  
 Site Code : 07515438  
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 Page No : 1

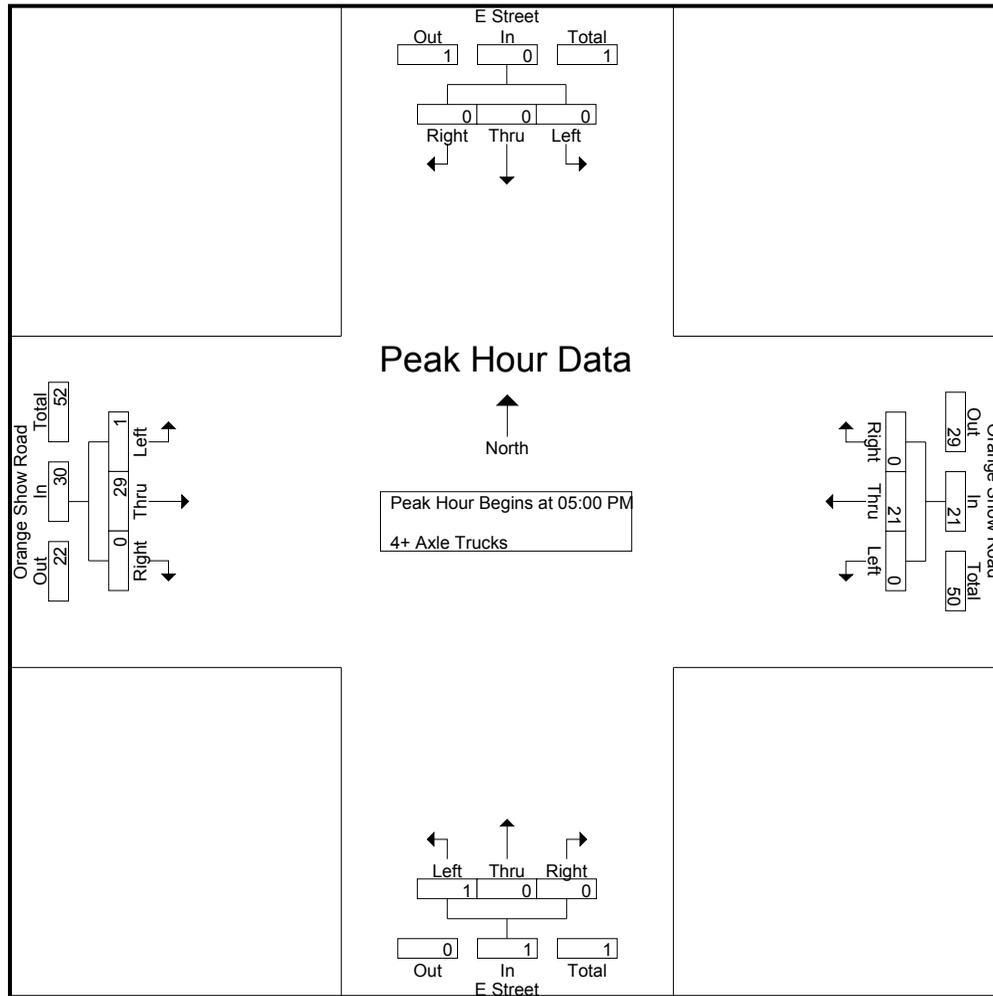
Groups Printed- 4+ Axle Trucks

| Start Time  | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 1                   | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 10         |
| 04:15 PM    | 0                   | 1    | 1     | 2          | 0                          | 6    | 0     | 6          | 0                   | 0    | 1     | 1          | 0                          | 8    | 0     | 8          | 17         |
| 04:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                   | 0    | 0     | 0          | 0                          | 11   | 1     | 12         | 13         |
| 04:45 PM    | 0                   | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                   | 0    | 0     | 0          | 0                          | 4    | 1     | 5          | 10         |
| Total       | 0                   | 1    | 1     | 2          | 0                          | 17   | 0     | 17         | 1                   | 0    | 1     | 2          | 1                          | 26   | 2     | 29         | 50         |
| 05:00 PM    | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 05:15 PM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:30 PM    | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 1                          | 7    | 0     | 8          | 12         |
| 05:45 PM    | 0                   | 0    | 0     | 0          | 0                          | 10   | 0     | 10         | 1                   | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 21         |
| Total       | 0                   | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 1                   | 0    | 0     | 1          | 1                          | 29   | 0     | 30         | 52         |
| Grand Total | 0                   | 1    | 1     | 2          | 0                          | 38   | 0     | 38         | 2                   | 0    | 1     | 3          | 2                          | 55   | 2     | 59         | 102        |
| Apprch %    | 0                   | 50   | 50    |            | 0                          | 100  | 0     |            | 66.7                | 0    | 33.3  |            | 3.4                        | 93.2 | 3.4   |            |            |
| Total %     | 0                   | 1    | 1     | 2          | 0                          | 37.3 | 0     | 37.3       | 2                   | 0    | 1     | 2.9        | 2                          | 53.9 | 2     | 57.8       |            |

| Start Time   | E Street Southbound |      |       |            | Orange Show Road Westbound |      |       |            | E Street Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                     |      |       |            |                            |      |       |            |                     |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                   | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 05:15 PM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:30 PM   | 0                   | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                   | 0    | 0     | 0          | 1                          | 7    | 0     | 8          | 12         |
| 05:45 PM   | 0                   | 0    | 0     | 0          | 0                          | 10   | 0     | 10         | 1                   | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 21         |
| Total Volume   | 0                   | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 1                   | 0    | 0     | 1          | 1                          | 29   | 0     | 30         | 52         |
| % App. Total   | 0                   | 0    | 0     |            | 0                          | 100  | 0     |            | 100                 | 0    | 0     |            | 3.3                        | 96.7 | 0     |            |            |
| PHF  | .000                | .000 | .000  | .000       | .000                       | .525 | .000  | .525       | .250                | .000 | .000  | .250       | .250                       | .725 | .000  | .750       | .619       |

City of San Bernardino  
 N/S: E Street  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCESORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |           |      |           | 05:00 PM |      |      |          | 05:00 PM |           |      |           |
|--------------|----------|------|------|------|----------|-----------|------|-----------|----------|------|------|----------|----------|-----------|------|-----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 3         | 0    | 3         | 0        | 0    | 0    | 0        | 0        | 6         | 0    | 6         |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4         | 0    | 4         | 0        | 0    | 0    | 0        | 0        | 6         | 0    | 6         |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 4         | 0    | 4         | 0        | 0    | 0    | 0        | 1        | 7         | 0    | 8         |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | <b>10</b> | 0    | <b>10</b> | <b>1</b> | 0    | 0    | <b>1</b> | 0        | <b>10</b> | 0    | <b>10</b> |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 21        | 0    | 21        | 1        | 0    | 0    | 1        | 1        | 29        | 0    | 30        |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 100       | 0    | 100       | 100      | 0    | 0    | 100      | 3.3      | 96.7      | 0    | 100       |
| PHF          | .000     | .000 | .000 | .000 | .000     | .525      | .000 | .525      | .250     | .000 | .000 | .250     | .250     | .725      | .000 | .750      |

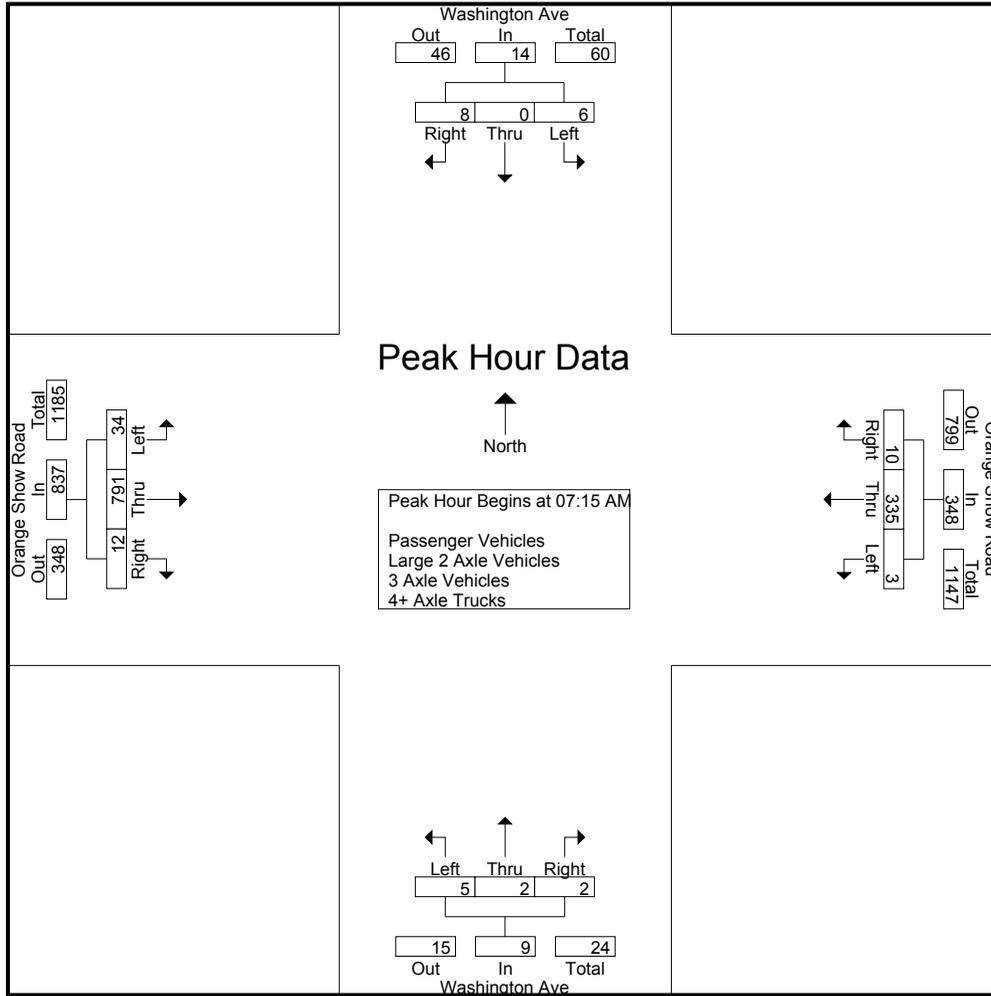
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM                | 1                         | 0    | 2     | 3          | 1                          | 65   | 2     | 68         | 2                         | 1    | 1     | 4          | 3                          | 165  | 4     | 172        | 247        |
| 07:15 AM                | 3                         | 0    | 0     | 3          | 0                          | 65   | 2     | 67         | 1                         | 0    | 1     | 2          | 13                         | 172  | 2     | 187        | 259        |
| 07:30 AM                | 1                         | 0    | 1     | 2          | 1                          | 85   | 3     | 89         | 4                         | 2    | 1     | 7          | 7                          | 182  | 2     | 191        | 289        |
| 07:45 AM                | 1                         | 0    | 2     | 3          | 0                          | 91   | 0     | 91         | 0                         | 0    | 0     | 0          | 7                          | 216  | 3     | 226        | 320        |
| Total                   | 6                         | 0    | 5     | 11         | 2                          | 306  | 7     | 315        | 7                         | 3    | 3     | 13         | 30                         | 735  | 11    | 776        | 1115       |
| 08:00 AM                | 1                         | 0    | 5     | 6          | 2                          | 94   | 5     | 101        | 0                         | 0    | 0     | 0          | 7                          | 221  | 5     | 233        | 340        |
| 08:15 AM                | 3                         | 0    | 7     | 10         | 1                          | 95   | 2     | 98         | 0                         | 1    | 0     | 1          | 4                          | 106  | 2     | 112        | 221        |
| 08:30 AM                | 2                         | 1    | 2     | 5          | 1                          | 83   | 1     | 85         | 2                         | 2    | 0     | 4          | 8                          | 84   | 2     | 94         | 188        |
| 08:45 AM                | 1                         | 0    | 2     | 3          | 0                          | 109  | 1     | 110        | 2                         | 0    | 0     | 2          | 12                         | 105  | 3     | 120        | 235        |
| Total                   | 7                         | 1    | 16    | 24         | 4                          | 381  | 9     | 394        | 4                         | 3    | 0     | 7          | 31                         | 516  | 12    | 559        | 984        |
| Grand Total             | 13                        | 1    | 21    | 35         | 6                          | 687  | 16    | 709        | 11                        | 6    | 3     | 20         | 61                         | 1251 | 23    | 1335       | 2099       |
| Apprch %                | 37.1                      | 2.9  | 60    |            | 0.8                        | 96.9 | 2.3   |            | 55                        | 30   | 15    |            | 4.6                        | 93.7 | 1.7   |            |            |
| Total %                 | 0.6                       | 0    | 1     | 1.7        | 0.3                        | 32.7 | 0.8   | 33.8       | 0.5                       | 0.3  | 0.1   | 1          | 2.9                        | 59.6 | 1.1   | 63.6       |            |
| Passenger Vehicles      | 12                        | 1    | 16    | 29         | 6                          | 589  | 13    | 608        | 10                        | 2    | 2     | 14         | 60                         | 1178 | 23    | 1261       | 1912       |
| % Passenger Vehicles    | 92.3                      | 100  | 76.2  | 82.9       | 100                        | 85.7 | 81.2  | 85.8       | 90.9                      | 33.3 | 66.7  | 70         | 98.4                       | 94.2 | 100   | 94.5       | 91.1       |
| Large 2 Axle Vehicles   | 0                         | 0    | 4     | 4          | 0                          | 62   | 3     | 65         | 1                         | 4    | 1     | 6          | 1                          | 23   | 0     | 24         | 99         |
| % Large 2 Axle Vehicles | 0                         | 0    | 19    | 11.4       | 0                          | 9    | 18.8  | 9.2        | 9.1                       | 66.7 | 33.3  | 30         | 1.6                        | 1.8  | 0     | 1.8        | 4.7        |
| 3 Axle Vehicles         | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 22         |
| % 3 Axle Vehicles       | 0                         | 0    | 4.8   | 2.9        | 0                          | 1.7  | 0     | 1.7        | 0                         | 0    | 0     | 0          | 0                          | 0.7  | 0     | 0.7        | 1          |
| 4+ Axle Trucks          | 1                         | 0    | 0     | 1          | 0                          | 24   | 0     | 24         | 0                         | 0    | 0     | 0          | 0                          | 41   | 0     | 41         | 66         |
| % 4+ Axle Trucks        | 7.7                       | 0    | 0     | 2.9        | 0                          | 3.5  | 0     | 3.4        | 0                         | 0    | 0     | 0          | 0                          | 3.3  | 0     | 3.1        | 3.1        |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 3                         | 0    | 0     | 3          | 0                          | 65   | 2     | 67         | 1                         | 0    | 1     | 2          | 13                         | 172  | 2     | 187        | 259        |
| 07:30 AM   | 1                         | 0    | 1     | 2          | 1                          | 85   | 3     | 89         | 4                         | 2    | 1     | 7          | 7                          | 182  | 2     | 191        | 289        |
| 07:45 AM   | 1                         | 0    | 2     | 3          | 0                          | 91   | 0     | 91         | 0                         | 0    | 0     | 0          | 7                          | 216  | 3     | 226        | 320        |
| 08:00 AM   | 1                         | 0    | 5     | 6          | 2                          | 94   | 5     | 101        | 0                         | 0    | 0     | 0          | 7                          | 221  | 5     | 233        | 340        |
| Total Volume   | 6                         | 0    | 8     | 14         | 3                          | 335  | 10    | 348        | 5                         | 2    | 2     | 9          | 34                         | 791  | 12    | 837        | 1208       |
| % App. Total   | 42.9                      | 0    | 57.1  |            | 0.9                        | 96.3 | 2.9   |            | 55.6                      | 22.2 | 22.2  |            | 4.1                        | 94.5 | 1.4   |            |            |
| PHF  | .500                      | .000 | .400  | .583       | .375                       | .891 | .500  | .861       | .313                      | .250 | .500  | .321       | .654                       | .895 | .600  | .898       | .888       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 08:00 AM |      |      |      | 07:00 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 0    | 2    | 3    | 2        | 94   | 5    | 101  | 2        | 1    | 1    | 4    | 13       | 172  | 2    | 187  |
| +15 mins.    | 1        | 0    | 5    | 6    | 1        | 95   | 2    | 98   | 1        | 0    | 1    | 2    | 7        | 182  | 2    | 191  |
| +30 mins.    | 3        | 0    | 7    | 10   | 1        | 83   | 1    | 85   | 4        | 2    | 1    | 7    | 7        | 216  | 3    | 226  |
| +45 mins.    | 2        | 1    | 2    | 5    | 0        | 109  | 1    | 110  | 0        | 0    | 0    | 0    | 7        | 221  | 5    | 233  |
| Total Volume | 7        | 1    | 16   | 24   | 4        | 381  | 9    | 394  | 7        | 3    | 3    | 13   | 34       | 791  | 12   | 837  |
| % App. Total | 29.2     | 4.2  | 66.7 |      | 1        | 96.7 | 2.3  |      | 53.8     | 23.1 | 23.1 |      | 4.1      | 94.5 | 1.4  |      |
| PHF          | .583     | .250 | .571 | .600 | .500     | .874 | .450 | .895 | .438     | .375 | .750 | .464 | .654     | .895 | .600 | .898 |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

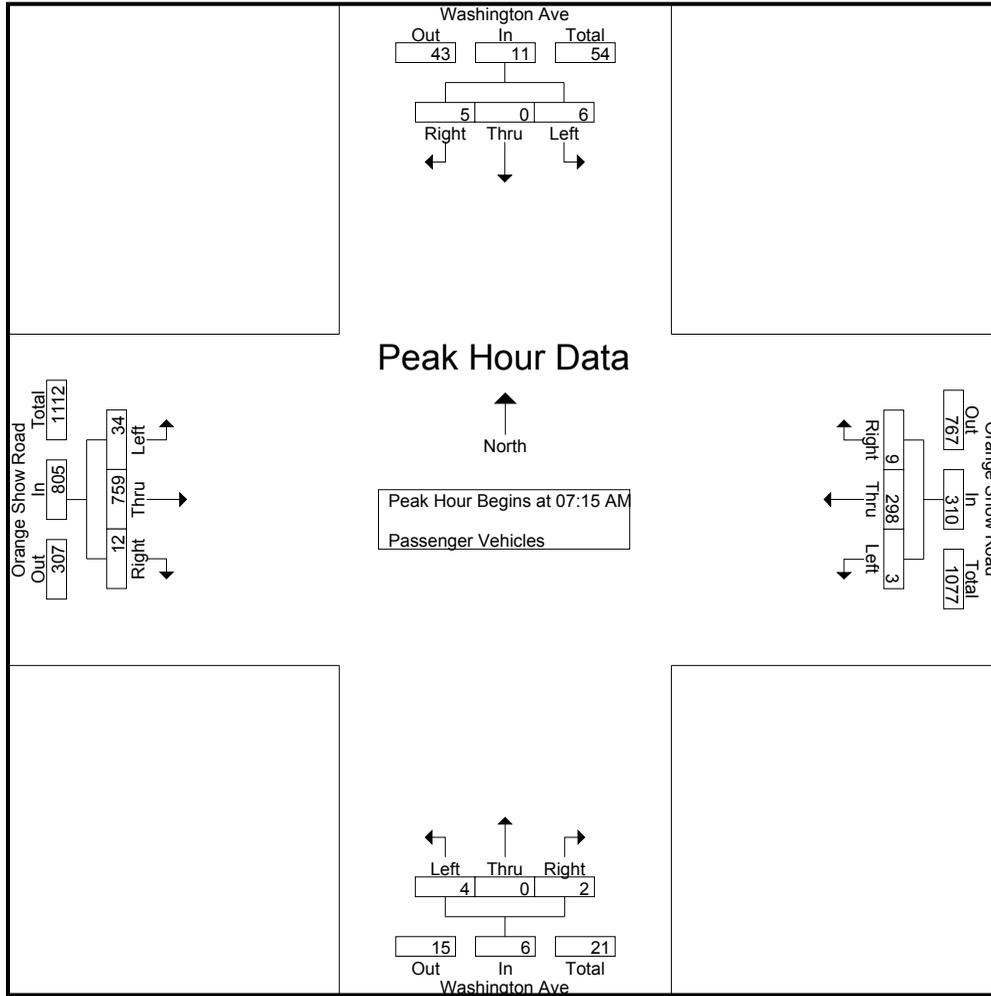
Groups Printed- Passenger Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 1                         | 0    | 2     | 3          | 1                          | 58   | 1     | 60         | 2                         | 0    | 0     | 2          | 3                          | 155  | 4     | 162        | 227        |
| 07:15 AM    | 3                         | 0    | 0     | 3          | 0                          | 52   | 2     | 54         | 1                         | 0    | 1     | 2          | 13                         | 168  | 2     | 183        | 242        |
| 07:30 AM    | 1                         | 0    | 0     | 1          | 1                          | 74   | 3     | 78         | 3                         | 0    | 1     | 4          | 7                          | 175  | 2     | 184        | 267        |
| 07:45 AM    | 1                         | 0    | 2     | 3          | 0                          | 88   | 0     | 88         | 0                         | 0    | 0     | 0          | 7                          | 205  | 3     | 215        | 306        |
| Total       | 6                         | 0    | 4     | 10         | 2                          | 272  | 6     | 280        | 6                         | 0    | 2     | 8          | 30                         | 703  | 11    | 744        | 1042       |
| 08:00 AM    | 1                         | 0    | 3     | 4          | 2                          | 84   | 4     | 90         | 0                         | 0    | 0     | 0          | 7                          | 211  | 5     | 223        | 317        |
| 08:15 AM    | 2                         | 0    | 5     | 7          | 1                          | 83   | 2     | 86         | 0                         | 0    | 0     | 0          | 3                          | 97   | 2     | 102        | 195        |
| 08:30 AM    | 2                         | 1    | 2     | 5          | 1                          | 71   | 0     | 72         | 2                         | 2    | 0     | 4          | 8                          | 74   | 2     | 84         | 165        |
| 08:45 AM    | 1                         | 0    | 2     | 3          | 0                          | 79   | 1     | 80         | 2                         | 0    | 0     | 2          | 12                         | 93   | 3     | 108        | 193        |
| Total       | 6                         | 1    | 12    | 19         | 4                          | 317  | 7     | 328        | 4                         | 2    | 0     | 6          | 30                         | 475  | 12    | 517        | 870        |
| Grand Total | 12                        | 1    | 16    | 29         | 6                          | 589  | 13    | 608        | 10                        | 2    | 2     | 14         | 60                         | 1178 | 23    | 1261       | 1912       |
| Apprch %    | 41.4                      | 3.4  | 55.2  |            | 1                          | 96.9 | 2.1   |            | 71.4                      | 14.3 | 14.3  |            | 4.8                        | 93.4 | 1.8   |            |            |
| Total %     | 0.6                       | 0.1  | 0.8   | 1.5        | 0.3                        | 30.8 | 0.7   | 31.8       | 0.5                       | 0.1  | 0.1   | 0.7        | 3.1                        | 61.6 | 1.2   | 66         |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 3                         | 0    | 0     | 3          | 0                          | 52   | 2     | 54         | 1                         | 0    | 1     | 2          | 13                         | 168  | 2     | 183        | 242        |
| 07:30 AM   | 1                         | 0    | 0     | 1          | 1                          | 74   | 3     | 78         | 3                         | 0    | 1     | 4          | 7                          | 175  | 2     | 184        | 267        |
| 07:45 AM   | 1                         | 0    | 2     | 3          | 0                          | 88   | 0     | 88         | 0                         | 0    | 0     | 0          | 7                          | 205  | 3     | 215        | 306        |
| 08:00 AM   | 1                         | 0    | 3     | 4          | 2                          | 84   | 4     | 90         | 0                         | 0    | 0     | 0          | 7                          | 211  | 5     | 223        | 317        |
| Total Volume   | 6                         | 0    | 5     | 11         | 3                          | 298  | 9     | 310        | 4                         | 0    | 2     | 6          | 34                         | 759  | 12    | 805        | 1132       |
| % App. Total   | 54.5                      | 0    | 45.5  |            | 1                          | 96.1 | 2.9   |            | 66.7                      | 0    | 33.3  |            | 4.2                        | 94.3 | 1.5   |            |            |
| PHF  | .500                      | .000 | .417  | .688       | .375                       | .847 | .563  | .861       | .333                      | .000 | .500  | .375       | .654                       | .899 | .600  | .902       | .893       |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 3        | 0    | 0    | 3    | 0        | 52   | 2    | 54   | 1        | 0    | 1    | 2    | 13       | 168  | 2    | 183  |
| +15 mins.    | 1        | 0    | 0    | 1    | 1        | 74   | 3    | 78   | 3        | 0    | 1    | 4    | 7        | 175  | 2    | 184  |
| +30 mins.    | 1        | 0    | 2    | 3    | 0        | 88   | 0    | 88   | 0        | 0    | 0    | 0    | 7        | 205  | 3    | 215  |
| +45 mins.    | 1        | 0    | 3    | 4    | 2        | 84   | 4    | 90   | 0        | 0    | 0    | 0    | 7        | 211  | 5    | 223  |
| Total Volume | 6        | 0    | 5    | 11   | 3        | 298  | 9    | 310  | 4        | 0    | 2    | 6    | 34       | 759  | 12   | 805  |
| % App. Total | 54.5     | 0    | 45.5 |      | 1        | 96.1 | 2.9  |      | 66.7     | 0    | 33.3 |      | 4.2      | 94.3 | 1.5  |      |
| PHF          | .500     | .000 | .417 | .688 | .375     | .847 | .563 | .861 | .333     | .000 | .500 | .375 | .654     | .899 | .600 | .902 |

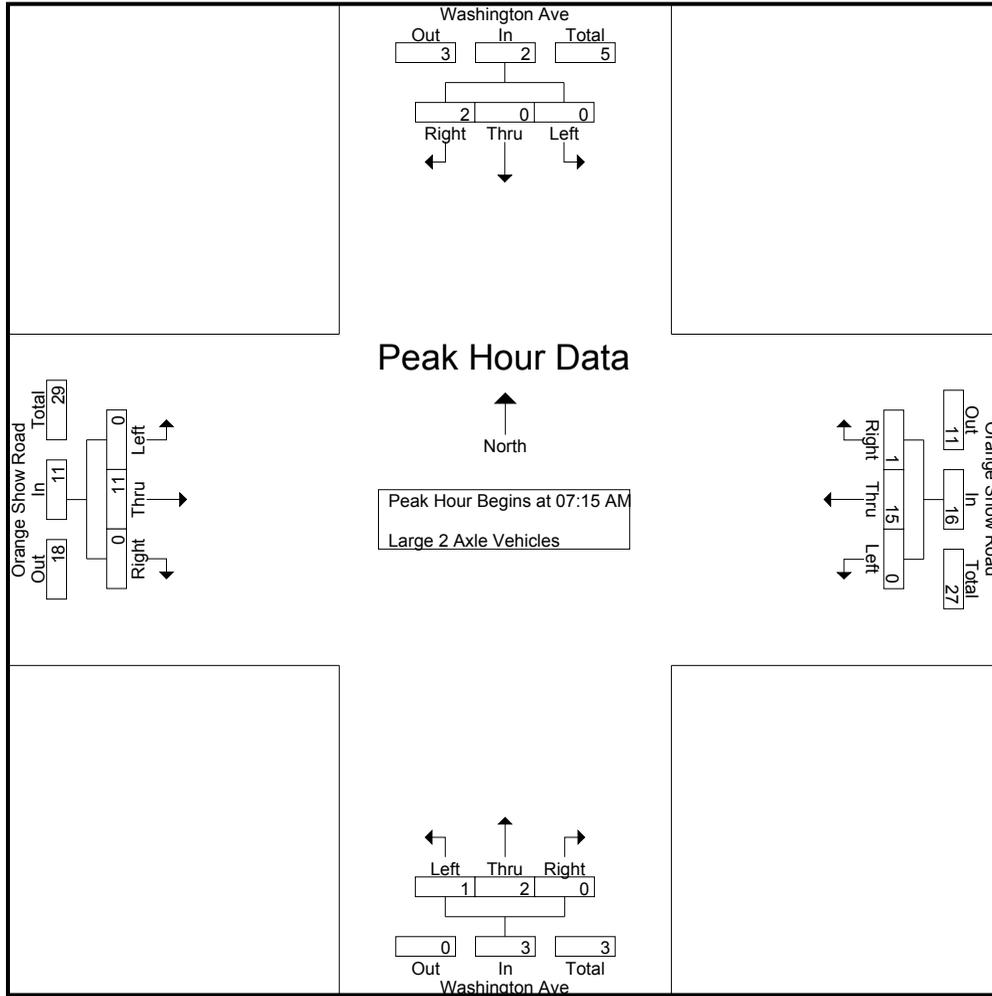
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 1     | 5          | 0                         | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 07:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                         | 2    | 0     | 3          | 0                          | 1    | 0     | 1          | 8          |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 13   | 1     | 14         | 1                         | 3    | 1     | 5          | 0                          | 10   | 0     | 10         | 29         |
| 08:00 AM    | 0                         | 0    | 2     | 2          | 0                          | 6    | 1     | 7          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 13         |
| 08:15 AM    | 0                         | 0    | 2     | 2          | 0                          | 6    | 0     | 6          | 0                         | 1    | 0     | 1          | 1                          | 3    | 0     | 4          | 13         |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 10   | 1     | 11         | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 12         |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 27   | 0     | 27         | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 32         |
| Total       | 0                         | 0    | 4     | 4          | 0                          | 49   | 2     | 51         | 0                         | 1    | 0     | 1          | 1                          | 13   | 0     | 14         | 70         |
| Grand Total | 0                         | 0    | 4     | 4          | 0                          | 62   | 3     | 65         | 1                         | 4    | 1     | 6          | 1                          | 23   | 0     | 24         | 99         |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 95.4 | 4.6   |            | 16.7                      | 66.7 | 16.7  |            | 4.2                        | 95.8 | 0     |            |            |
| Total %     | 0                         | 0    | 4     | 4          | 0                          | 62.6 | 3     | 65.7       | 1                         | 4    | 1     | 6.1        | 1                          | 23.2 | 0     | 24.2       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 07:30 AM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 1                         | 2    | 0     | 3          | 0                          | 1    | 0     | 1          | 8          |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| 08:00 AM   | 0                         | 0    | 2     | 2          | 0                          | 6    | 1     | 7          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 13         |
| Total Volume   | 0                         | 0    | 2     | 2          | 0                          | 15   | 1     | 16         | 1                         | 2    | 0     | 3          | 0                          | 11   | 0     | 11         | 32         |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 93.8 | 6.2   |            | 33.3                      | 66.7 | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .625 | .250  | .571       | .250                      | .250 | .000  | .250       | .000                       | .550 | .000  | .550       | .615       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 1        | 2    | 0    | 3    | 0        | 1    | 0    | 1    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    |
| +45 mins.    | 0        | 0    | 2    | 2    | 0        | 6    | 1    | 7    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    |
| Total Volume | 0        | 0    | 2    | 2    | 0        | 15   | 1    | 16   | 1        | 2    | 0    | 3    | 0        | 11   | 0    | 11   |
| % App. Total | 0        | 0    | 100  |      | 0        | 93.8 | 6.2  |      | 33.3     | 66.7 | 0    |      | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .625 | .250 | .571 | .250     | .250 | .000 | .250 | .000     | .550 | .000 | .550 |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

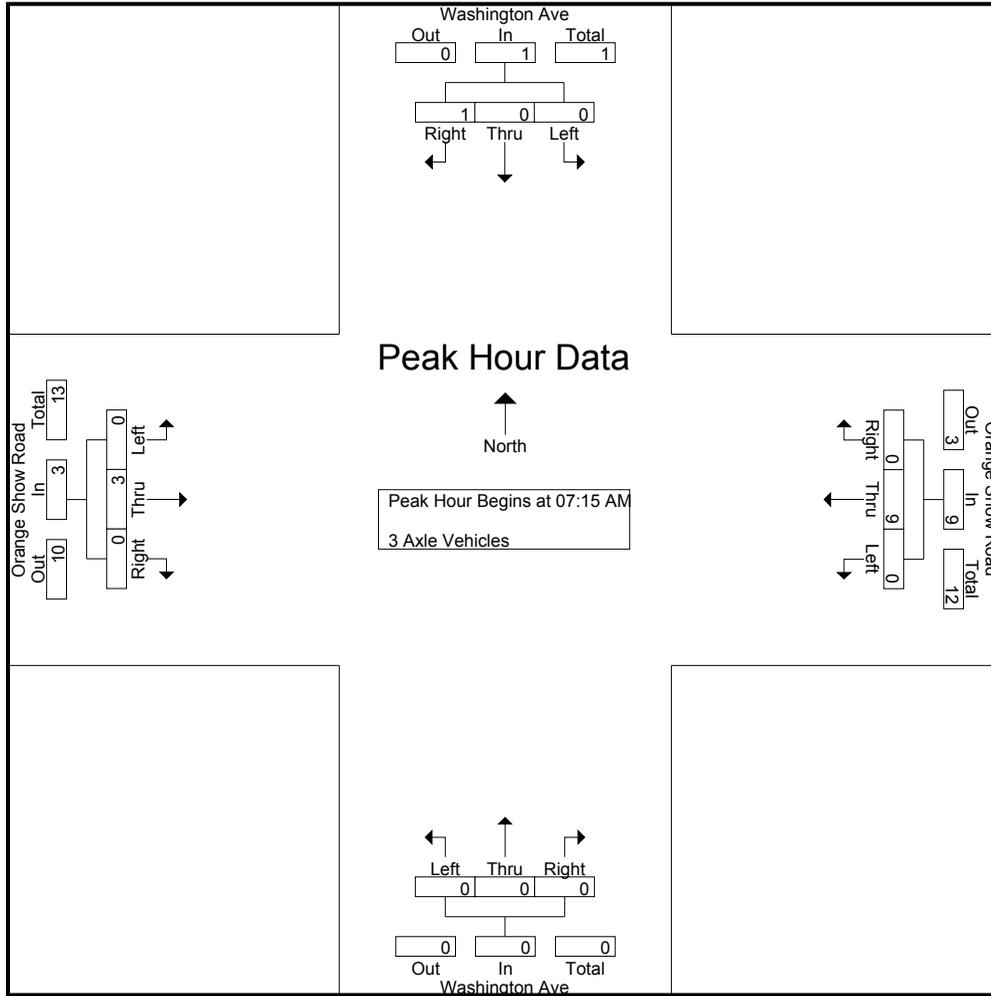
Groups Printed- 3 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 1          |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 3          |
| 07:30 AM    | 0                         | 0    | 1     | 1          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 1          |
| Total       | 0                         | 0    | 1     | 1          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 10         |
| 08:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 08:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 2          |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 3          |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 3          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 12         |
| Grand Total | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 22         |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| Total %     | 0                         | 0    | 4.5   | 4.5        | 0                          | 54.5 | 0     | 54.5       | 0                         | 0    | 0     | 0          | 0                          | 40.9 | 0     | 40.9       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 3          |
| 07:30 AM   | 0                         | 0    | 1     | 1          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 1          |
| 08:00 AM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| Total Volume   | 0                         | 0    | 1     | 1          | 0                          | 9    | 0     | 9          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 13         |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .563 | .000  | .563       | .000                      | .000 | .000  | .000       | .000                       | .750 | .000  | .750       | .650       |

City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 0        | 0    | 1    | 1    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| Total Volume | 0        | 0    | 1    | 1    | 0        | 9    | 0    | 9    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    |
| % App. Total | 0        | 0    | 100  |      | 0        | 100  | 0    |      | 0        | 0    | 0    |      | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .250 | .250 | .000     | .563 | .000 | .563 | .000     | .000 | .000 | .000 | .000     | .750 | .000 | .750 |

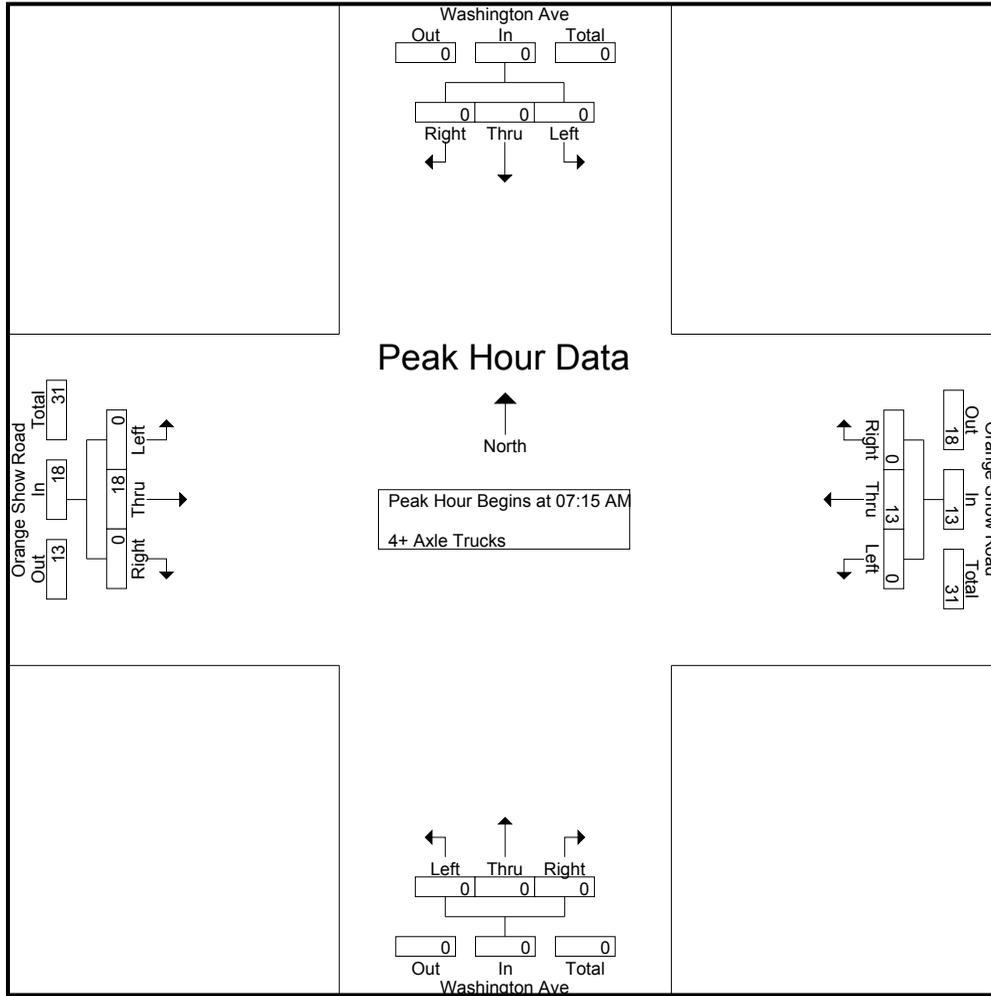
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 9          |
| 07:15 AM    | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 9          |
| 07:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 07:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 14   | 0     | 14         | 0                         | 0    | 0     | 0          | 0                          | 20   | 0     | 20         | 34         |
| 08:00 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| 08:15 AM    | 1                         | 0    | 0     | 1          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 11         |
| 08:30 AM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 8          |
| 08:45 AM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| Total       | 1                         | 0    | 0     | 1          | 0                          | 10   | 0     | 10         | 0                         | 0    | 0     | 0          | 0                          | 21   | 0     | 21         | 32         |
| Grand Total | 1                         | 0    | 0     | 1          | 0                          | 24   | 0     | 24         | 0                         | 0    | 0     | 0          | 0                          | 41   | 0     | 41         | 66         |
| Apprch %    | 100                       | 0    | 0     |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| Total %     | 1.5                       | 0    | 0     | 1.5        | 0                          | 36.4 | 0     | 36.4       | 0                         | 0    | 0     | 0          | 0                          | 62.1 | 0     | 62.1       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 9          |
| 07:30 AM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 9          |
| 07:45 AM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 7          |
| 08:00 AM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 6          |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 13   | 0     | 13         | 0                         | 0    | 0     | 0          | 0                          | 18   | 0     | 18         | 31         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .464 | .000  | .464       | .000                      | .000 | .000  | .000       | .000                       | .750 | .000  | .750       | .861       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |          |      |          | 07:15 AM |      |      |      | 07:15 AM |          |      |          |
|--------------|----------|------|------|------|----------|----------|------|----------|----------|------|------|------|----------|----------|------|----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | <b>7</b> | 0    | <b>7</b> | 0        | 0    | 0    | 0    | 0        | 2        | 0    | 2        |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0    | 3        | 0        | 0    | 0    | 0    | 0        | <b>6</b> | 0    | <b>6</b> |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 2        | 0    | 2        | 0        | 0    | 0    | 0    | 0        | 5        | 0    | 5        |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 1        | 0    | 1        | 0        | 0    | 0    | 0    | 0        | 5        | 0    | 5        |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 13       | 0    | 13       | 0        | 0    | 0    | 0    | 0        | 18       | 0    | 18       |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 100      | 0    | 0        | 0        | 0    | 0    | 0    | 0        | 100      | 0    | 0        |
| PHF          | .000     | .000 | .000 | .000 | .000     | .464     | .000 | .464     | .000     | .000 | .000 | .000 | .000     | .750     | .000 | .750     |

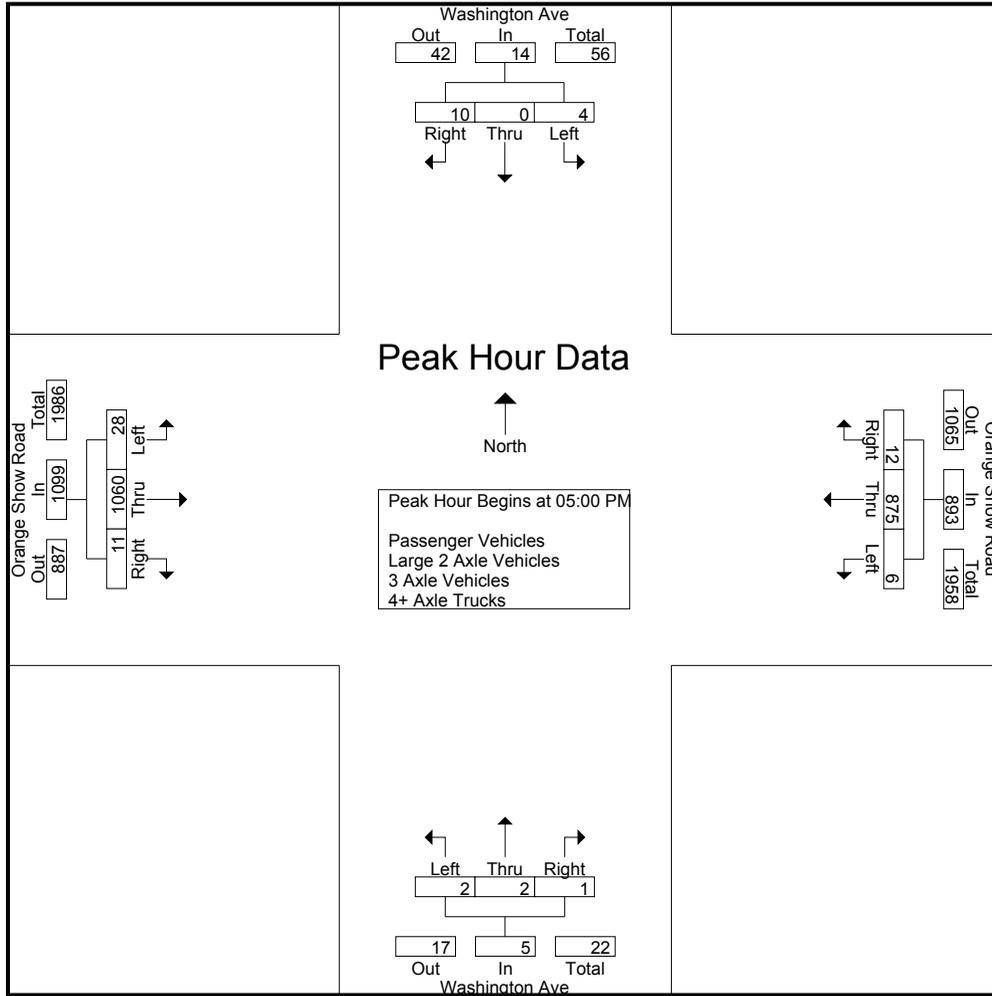
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 0                         | 0    | 9     | 9          | 1                          | 111  | 4     | 116        | 3                         | 0    | 0     | 3          | 3                          | 124  | 0     | 127        | 255        |
| 04:15 PM                | 0                         | 0    | 4     | 4          | 0                          | 117  | 3     | 120        | 3                         | 0    | 0     | 3          | 6                          | 121  | 0     | 127        | 254        |
| 04:30 PM                | 1                         | 1    | 4     | 6          | 1                          | 138  | 4     | 143        | 3                         | 0    | 0     | 3          | 7                          | 186  | 0     | 193        | 345        |
| 04:45 PM                | 2                         | 0    | 4     | 6          | 0                          | 100  | 2     | 102        | 2                         | 0    | 0     | 2          | 5                          | 161  | 0     | 166        | 276        |
| Total                   | 3                         | 1    | 21    | 25         | 2                          | 466  | 13    | 481        | 11                        | 0    | 0     | 11         | 21                         | 592  | 0     | 613        | 1130       |
| 05:00 PM                | 2                         | 0    | 3     | 5          | 0                          | 196  | 3     | 199        | 0                         | 1    | 0     | 1          | 8                          | 262  | 3     | 273        | 478        |
| 05:15 PM                | 1                         | 0    | 1     | 2          | 1                          | 237  | 3     | 241        | 1                         | 0    | 0     | 1          | 4                          | 264  | 4     | 272        | 516        |
| 05:30 PM                | 0                         | 0    | 4     | 4          | 1                          | 258  | 4     | 263        | 1                         | 1    | 0     | 2          | 5                          | 273  | 1     | 279        | 548        |
| 05:45 PM                | 1                         | 0    | 2     | 3          | 4                          | 184  | 2     | 190        | 0                         | 0    | 1     | 1          | 11                         | 261  | 3     | 275        | 469        |
| Total                   | 4                         | 0    | 10    | 14         | 6                          | 875  | 12    | 893        | 2                         | 2    | 1     | 5          | 28                         | 1060 | 11    | 1099       | 2011       |
| Grand Total             | 7                         | 1    | 31    | 39         | 8                          | 1341 | 25    | 1374       | 13                        | 2    | 1     | 16         | 49                         | 1652 | 11    | 1712       | 3141       |
| Apprch %                | 17.9                      | 2.6  | 79.5  |            | 0.6                        | 97.6 | 1.8   |            | 81.2                      | 12.5 | 6.2   |            | 2.9                        | 96.5 | 0.6   |            |            |
| Total %                 | 0.2                       | 0    | 1     | 1.2        | 0.3                        | 42.7 | 0.8   | 43.7       | 0.4                       | 0.1  | 0     | 0.5        | 1.6                        | 52.6 | 0.4   | 54.5       |            |
| Passenger Vehicles      | 7                         | 1    | 28    | 36         | 8                          | 1252 | 22    | 1282       | 13                        | 2    | 1     | 16         | 45                         | 1562 | 10    | 1617       | 2951       |
| % Passenger Vehicles    | 100                       | 100  | 90.3  | 92.3       | 100                        | 93.4 | 88    | 93.3       | 100                       | 100  | 100   | 100        | 91.8                       | 94.6 | 90.9  | 94.5       | 94         |
| Large 2 Axle Vehicles   | 0                         | 0    | 3     | 3          | 0                          | 39   | 1     | 40         | 0                         | 0    | 0     | 0          | 3                          | 27   | 1     | 31         | 74         |
| % Large 2 Axle Vehicles | 0                         | 0    | 9.7   | 7.7        | 0                          | 2.9  | 4     | 2.9        | 0                         | 0    | 0     | 0          | 6.1                        | 1.6  | 9.1   | 1.8        | 2.4        |
| 3 Axle Vehicles         | 0                         | 0    | 0     | 0          | 0                          | 16   | 1     | 17         | 0                         | 0    | 0     | 0          | 1                          | 17   | 0     | 18         | 35         |
| % 3 Axle Vehicles       | 0                         | 0    | 0     | 0          | 0                          | 1.2  | 4     | 1.2        | 0                         | 0    | 0     | 0          | 2                          | 1    | 0     | 1.1        | 1.1        |
| 4+ Axle Trucks          | 0                         | 0    | 0     | 0          | 0                          | 34   | 1     | 35         | 0                         | 0    | 0     | 0          | 0                          | 46   | 0     | 46         | 81         |
| % 4+ Axle Trucks        | 0                         | 0    | 0     | 0          | 0                          | 2.5  | 4     | 2.5        | 0                         | 0    | 0     | 0          | 0                          | 2.8  | 0     | 2.7        | 2.6        |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 2                         | 0    | 3     | 5          | 0                          | 196  | 3     | 199        | 0                         | 1    | 0     | 1          | 8                          | 262  | 3     | 273        | 478        |
| 05:15 PM   | 1                         | 0    | 1     | 2          | 1                          | 237  | 3     | 241        | 1                         | 0    | 0     | 1          | 4                          | 264  | 4     | 272        | 516        |
| 05:30 PM   | 0                         | 0    | 4     | 4          | 1                          | 258  | 4     | 263        | 1                         | 1    | 0     | 2          | 5                          | 273  | 1     | 279        | 548        |
| 05:45 PM   | 1                         | 0    | 2     | 3          | 4                          | 184  | 2     | 190        | 0                         | 0    | 1     | 1          | 11                         | 261  | 3     | 275        | 469        |
| Total Volume   | 4                         | 0    | 10    | 14         | 6                          | 875  | 12    | 893        | 2                         | 2    | 1     | 5          | 28                         | 1060 | 11    | 1099       | 2011       |
| % App. Total   | 28.6                      | 0    | 71.4  |            | 0.7                        | 98   | 1.3   |            | 40                        | 40   | 20    |            | 2.5                        | 96.5 | 1     |            |            |
| PHF  | .500                      | .000 | .625  | .700       | .375                       | .848 | .750  | .849       | .500                      | .500 | .250  | .625       | .636                       | .971 | .688  | .985       | .917       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:00 PM |      |      |      | 05:00 PM |      |      |      | 04:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 9    | 9    | 0        | 196  | 3    | 199  | 3        | 0    | 0    | 3    | 8        | 262  | 3    | 273  |
| +15 mins.    | 0        | 0    | 4    | 4    | 1        | 237  | 3    | 241  | 3        | 0    | 0    | 3    | 4        | 264  | 4    | 272  |
| +30 mins.    | 1        | 1    | 4    | 6    | 1        | 258  | 4    | 263  | 3        | 0    | 0    | 3    | 5        | 273  | 1    | 279  |
| +45 mins.    | 2        | 0    | 4    | 6    | 4        | 184  | 2    | 190  | 2        | 0    | 0    | 2    | 11       | 261  | 3    | 275  |
| Total Volume | 3        | 1    | 21   | 25   | 6        | 875  | 12   | 893  | 11       | 0    | 0    | 11   | 28       | 1060 | 11   | 1099 |
| % App. Total | 12       | 4    | 84   |      | 0.7      | 98   | 1.3  |      | 100      | 0    | 0    |      | 2.5      | 96.5 | 1    |      |
| PHF          | .375     | .250 | .583 | .694 | .375     | .848 | .750 | .849 | .917     | .000 | .000 | .917 | .636     | .971 | .688 | .985 |

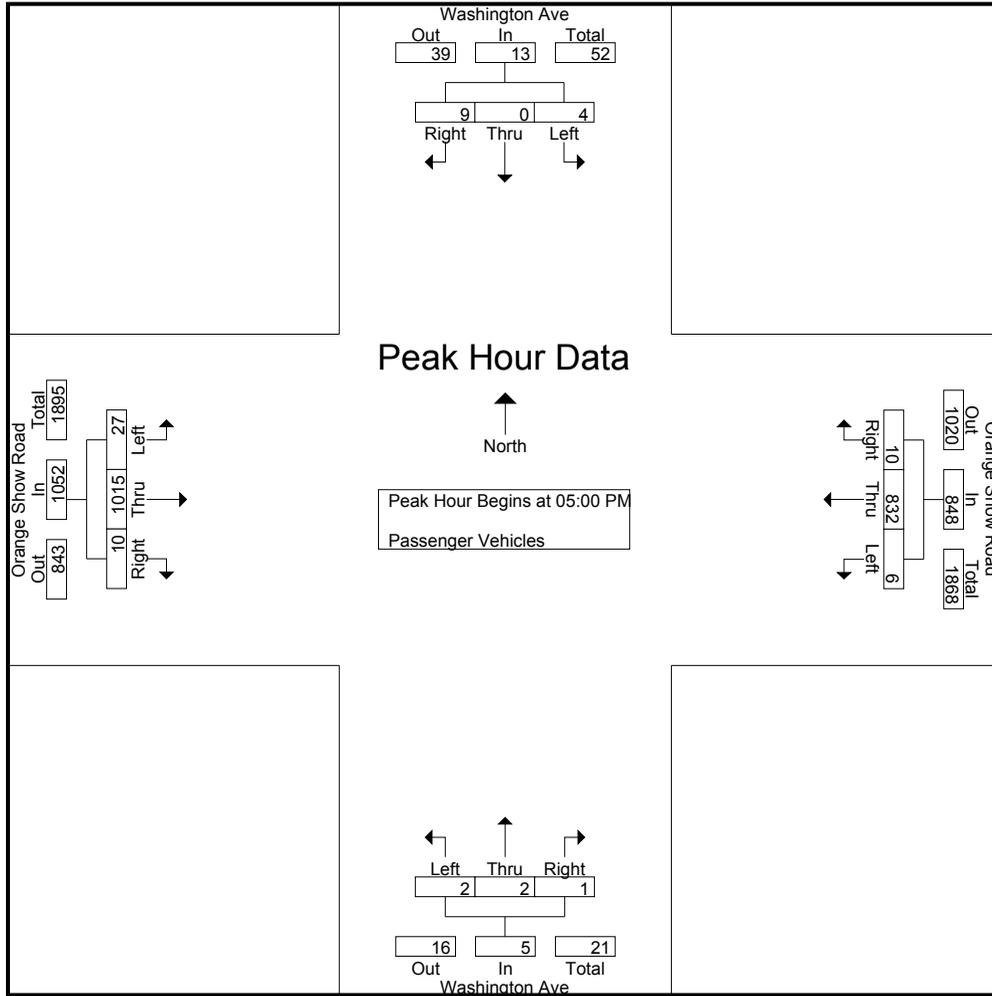
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 8     | 8          | 1                          | 95   | 3     | 99         | 3                         | 0    | 0     | 3          | 2                          | 114  | 0     | 116        | 226        |
| 04:15 PM    | 0                         | 0    | 3     | 3          | 0                          | 102  | 3     | 105        | 3                         | 0    | 0     | 3          | 6                          | 108  | 0     | 114        | 225        |
| 04:30 PM    | 1                         | 1    | 4     | 6          | 1                          | 128  | 4     | 133        | 3                         | 0    | 0     | 3          | 6                          | 174  | 0     | 180        | 322        |
| 04:45 PM    | 2                         | 0    | 4     | 6          | 0                          | 95   | 2     | 97         | 2                         | 0    | 0     | 2          | 4                          | 151  | 0     | 155        | 260        |
| Total       | 3                         | 1    | 19    | 23         | 2                          | 420  | 12    | 434        | 11                        | 0    | 0     | 11         | 18                         | 547  | 0     | 565        | 1033       |
| 05:00 PM    | 2                         | 0    | 3     | 5          | 0                          | 187  | 3     | 190        | 0                         | 1    | 0     | 1          | 8                          | 251  | 3     | 262        | 458        |
| 05:15 PM    | 1                         | 0    | 1     | 2          | 1                          | 226  | 3     | 230        | 1                         | 0    | 0     | 1          | 4                          | 253  | 4     | 261        | 494        |
| 05:30 PM    | 0                         | 0    | 4     | 4          | 1                          | 248  | 3     | 252        | 1                         | 1    | 0     | 2          | 5                          | 264  | 1     | 270        | 528        |
| 05:45 PM    | 1                         | 0    | 1     | 2          | 4                          | 171  | 1     | 176        | 0                         | 0    | 1     | 1          | 10                         | 247  | 2     | 259        | 438        |
| Total       | 4                         | 0    | 9     | 13         | 6                          | 832  | 10    | 848        | 2                         | 2    | 1     | 5          | 27                         | 1015 | 10    | 1052       | 1918       |
| Grand Total | 7                         | 1    | 28    | 36         | 8                          | 1252 | 22    | 1282       | 13                        | 2    | 1     | 16         | 45                         | 1562 | 10    | 1617       | 2951       |
| Apprch %    | 19.4                      | 2.8  | 77.8  |            | 0.6                        | 97.7 | 1.7   |            | 81.2                      | 12.5 | 6.2   |            | 2.8                        | 96.6 | 0.6   |            |            |
| Total %     | 0.2                       | 0    | 0.9   | 1.2        | 0.3                        | 42.4 | 0.7   | 43.4       | 0.4                       | 0.1  | 0     | 0.5        | 1.5                        | 52.9 | 0.3   | 54.8       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 2                         | 0    | 3     | 5          | 0                          | 187  | 3     | 190        | 0                         | 1    | 0     | 1          | 8                          | 251  | 3     | 262        | 458        |
| 05:15 PM   | 1                         | 0    | 1     | 2          | 1                          | 226  | 3     | 230        | 1                         | 0    | 0     | 1          | 4                          | 253  | 4     | 261        | 494        |
| 05:30 PM   | 0                         | 0    | 4     | 4          | 1                          | 248  | 3     | 252        | 1                         | 1    | 0     | 2          | 5                          | 264  | 1     | 270        | 528        |
| 05:45 PM   | 1                         | 0    | 1     | 2          | 4                          | 171  | 1     | 176        | 0                         | 0    | 1     | 1          | 10                         | 247  | 2     | 259        | 438        |
| Total Volume   | 4                         | 0    | 9     | 13         | 6                          | 832  | 10    | 848        | 2                         | 2    | 1     | 5          | 27                         | 1015 | 10    | 1052       | 1918       |
| % App. Total   | 30.8                      | 0    | 69.2  |            | 0.7                        | 98.1 | 1.2   |            | 40                        | 40   | 20    |            | 2.6                        | 96.5 | 1     |            |            |
| PHF  | .500                      | .000 | .563  | .650       | .375                       | .839 | .833  | .841       | .500                      | .500 | .250  | .625       | .675                       | .961 | .625  | .974       | .908       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 2        | 0    | 3    | 5    | 0        | 187  | 3    | 190  | 0        | 1    | 0    | 1    | 8        | 251  | 3    | 262  |
| +15 mins.    | 1        | 0    | 1    | 2    | 1        | 226  | 3    | 230  | 1        | 0    | 0    | 1    | 4        | 253  | 4    | 261  |
| +30 mins.    | 0        | 0    | 4    | 4    | 1        | 248  | 3    | 252  | 1        | 1    | 0    | 2    | 5        | 264  | 1    | 270  |
| +45 mins.    | 1        | 0    | 1    | 2    | 4        | 171  | 1    | 176  | 0        | 0    | 1    | 1    | 10       | 247  | 2    | 259  |
| Total Volume | 4        | 0    | 9    | 13   | 6        | 832  | 10   | 848  | 2        | 2    | 1    | 5    | 27       | 1015 | 10   | 1052 |
| % App. Total | 30.8     | 0    | 69.2 |      | 0.7      | 98.1 | 1.2  |      | 40       | 40   | 20   |      | 2.6      | 96.5 | 1    |      |
| PHF          | .500     | .000 | .563 | .650 | .375     | .839 | .833 | .841 | .500     | .500 | .250 | .625 | .675     | .961 | .625 | .974 |

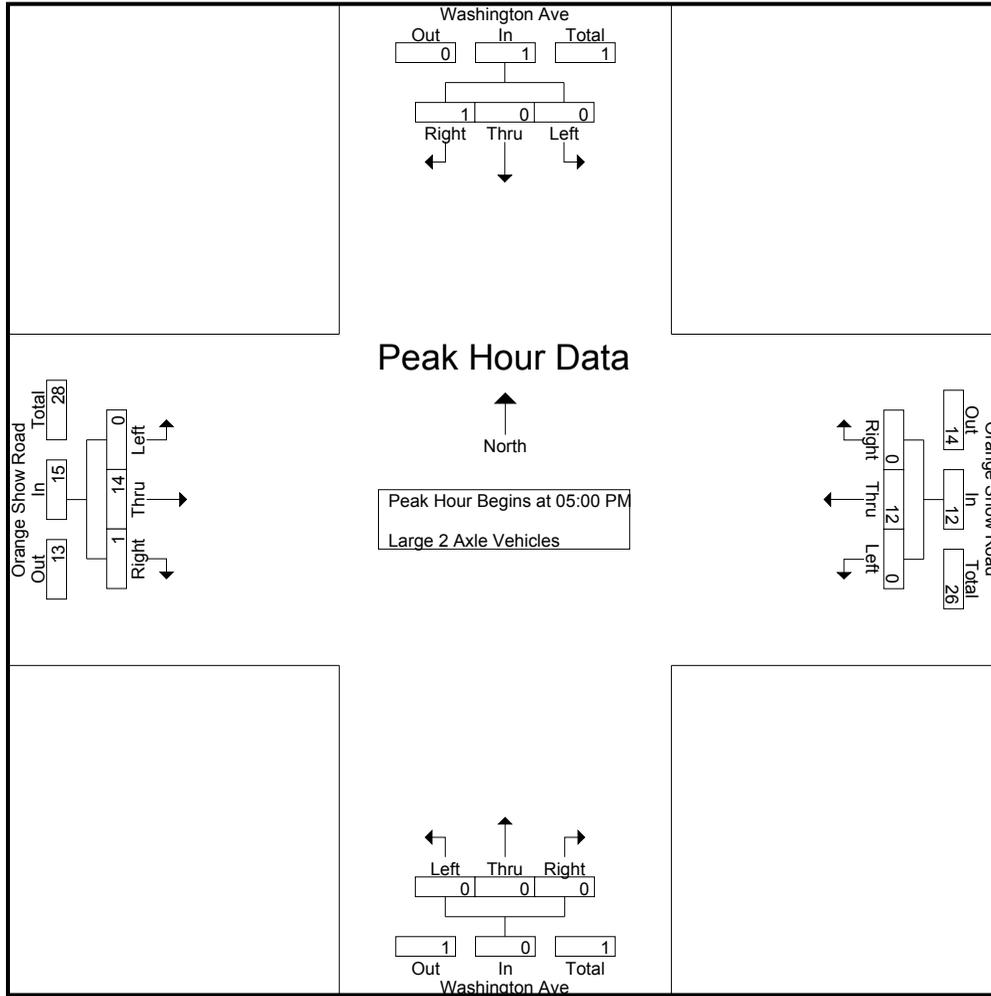
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 1     | 1          | 0                          | 10   | 1     | 11         | 0                         | 0    | 0     | 0          | 1                          | 5    | 0     | 6          | 18         |
| 04:15 PM    | 0                         | 0    | 1     | 1          | 0                          | 9    | 0     | 9          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 12         |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 9          |
| Total       | 0                         | 0    | 2     | 2          | 0                          | 27   | 1     | 28         | 0                         | 0    | 0     | 0          | 3                          | 13   | 0     | 16         | 46         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 6          |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 9          |
| 05:45 PM    | 0                         | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 1     | 6          | 9          |
| Total       | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 14   | 1     | 15         | 28         |
| Grand Total | 0                         | 0    | 3     | 3          | 0                          | 39   | 1     | 40         | 0                         | 0    | 0     | 0          | 3                          | 27   | 1     | 31         | 74         |
| Apprch %    | 0                         | 0    | 100   |            | 0                          | 97.5 | 2.5   |            | 0                         | 0    | 0     |            | 9.7                        | 87.1 | 3.2   |            |            |
| Total %     | 0                         | 0    | 4.1   | 4.1        | 0                          | 52.7 | 1.4   | 54.1       | 0                         | 0    | 0     | 0          | 4.1                        | 36.5 | 1.4   | 41.9       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 6          |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 9          |
| 05:45 PM   | 0                         | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 5    | 1     | 6          | 9          |
| Total Volume   | 0                         | 0    | 1     | 1          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 14   | 1     | 15         | 28         |
| % App. Total   | 0                         | 0    | 100   |            | 0                          | 100  | 0     |            | 0                         | 0    | 0     |            | 0                          | 93.3 | 6.7   |            |            |
| PHF  | .000                      | .000 | .250  | .250       | .000                       | .500 | .000  | .500       | .000                      | .000 | .000  | .000       | .000                       | .700 | .250  | .625       | .778       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |          |          | 05:00 PM |          |      |          | 05:00 PM |      |      |      | 05:00 PM |          |          |          |
|--------------|----------|------|----------|----------|----------|----------|------|----------|----------|------|------|------|----------|----------|----------|----------|
| +0 mins.     | 0        | 0    | 0        | 0        | 0        | 2        | 0    | 2        | 0        | 0    | 0    | 0    | 0        | 4        | 0        | 4        |
| +15 mins.    | 0        | 0    | 0        | 0        | 0        | 2        | 0    | 2        | 0        | 0    | 0    | 0    | 0        | 2        | 0        | 2        |
| +30 mins.    | 0        | 0    | 0        | 0        | 0        | <b>6</b> | 0    | <b>6</b> | 0        | 0    | 0    | 0    | 0        | 3        | 0        | 3        |
| +45 mins.    | 0        | 0    | <b>1</b> | <b>1</b> | 0        | 2        | 0    | 2        | 0        | 0    | 0    | 0    | 0        | <b>5</b> | <b>1</b> | <b>6</b> |
| Total Volume | 0        | 0    | 1        | 1        | 0        | 12       | 0    | 12       | 0        | 0    | 0    | 0    | 0        | 14       | 1        | 15       |
| % App. Total | 0        | 0    | 100      |          | 0        | 100      | 0    |          | 0        | 0    | 0    |      | 0        | 93.3     | 6.7      |          |
| PHF          | .000     | .000 | .250     | .250     | .000     | .500     | .000 | .500     | .000     | .000 | .000 | .000 | .000     | .700     | .250     | .625     |

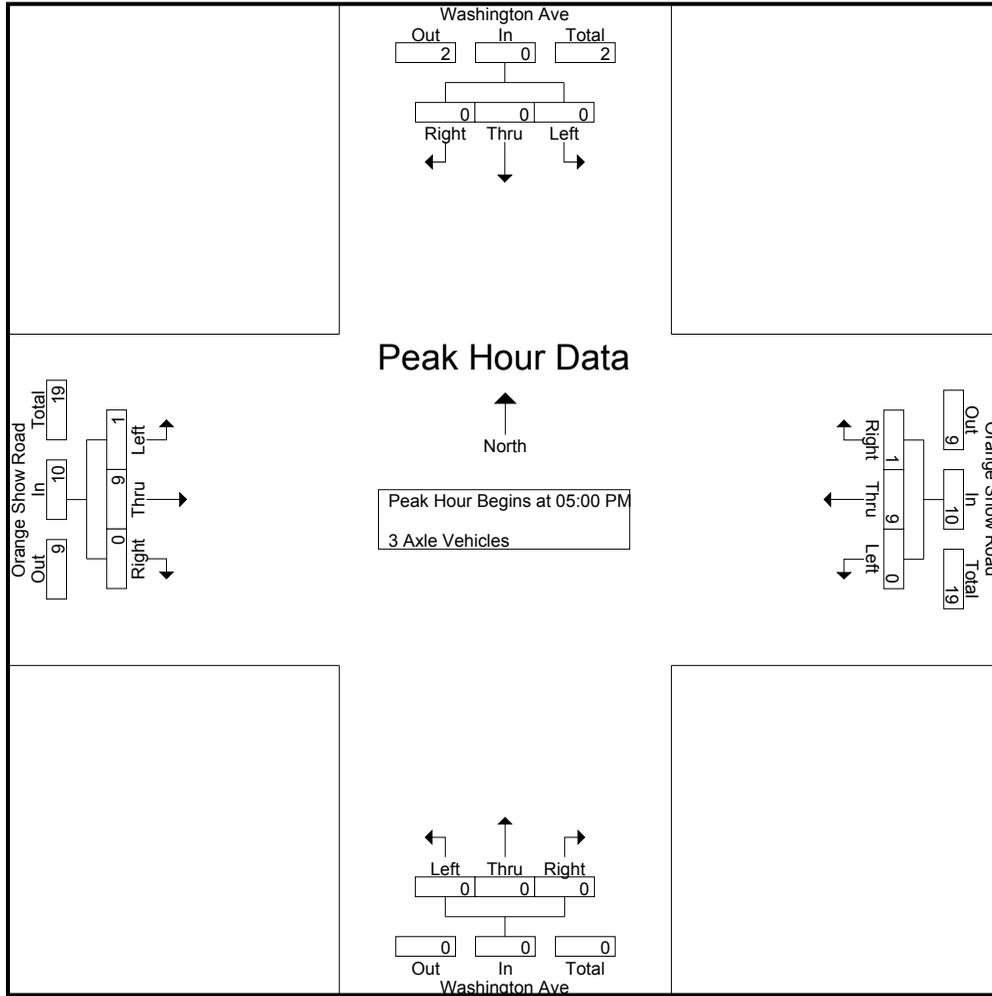
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 5          |
| 04:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 2          |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 4          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 8    | 0     | 8          | 15         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 5          |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 9    | 1     | 10         | 0                         | 0    | 0     | 0          | 1                          | 9    | 0     | 10         | 20         |
| Grand Total | 0                         | 0    | 0     | 0          | 0                          | 16   | 1     | 17         | 0                         | 0    | 0     | 0          | 1                          | 17   | 0     | 18         | 35         |
| Apprch %    | 0                         | 0    | 0     |            | 0                          | 94.1 | 5.9   |            | 0                         | 0    | 0     |            | 5.6                        | 94.4 | 0     |            |            |
| Total %     | 0                         | 0    | 0     | 0          | 0                          | 45.7 | 2.9   | 48.6       | 0                         | 0    | 0     | 0          | 2.9                        | 48.6 | 0     | 51.4       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 5          |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                         | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 05:45 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 1                          | 3    | 0     | 4          | 7          |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 9    | 1     | 10         | 0                         | 0    | 0     | 0          | 1                          | 9    | 0     | 10         | 20         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 90   | 10    |            | 0                         | 0    | 0     |            | 10                         | 90   | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .750 | .250  | .833       | .000                      | .000 | .000  | .000       | .250                       | .750 | .000  | .625       | .714       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |          |          |          | 05:00 PM |      |      |      | 05:00 PM |          |      |          |
|--------------|----------|------|------|------|----------|----------|----------|----------|----------|------|------|------|----------|----------|------|----------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | <b>3</b> | 0        | <b>3</b> | 0        | 0    | 0    | 0    | 0        | 1        | 0    | 1        |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 2        | 0        | 2        | 0        | 0    | 0    | 0    | 0        | <b>3</b> | 0    | 3        |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 1        | <b>1</b> | 2        | 0        | 0    | 0    | 0    | 0        | 2        | 0    | 2        |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0        | 3        | 0        | 0    | 0    | 0    | <b>1</b> | 3        | 0    | <b>4</b> |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 9        | 1        | 10       | 0        | 0    | 0    | 0    | 1        | 9        | 0    | 10       |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 90       | 10       |          | 0        | 0    | 0    | 0    | 10       | 90       | 0    |          |
| PHF          | .000     | .000 | .000 | .000 | .000     | .750     | .250     | .833     | .000     | .000 | .000 | .000 | .250     | .750     | .000 | .625     |

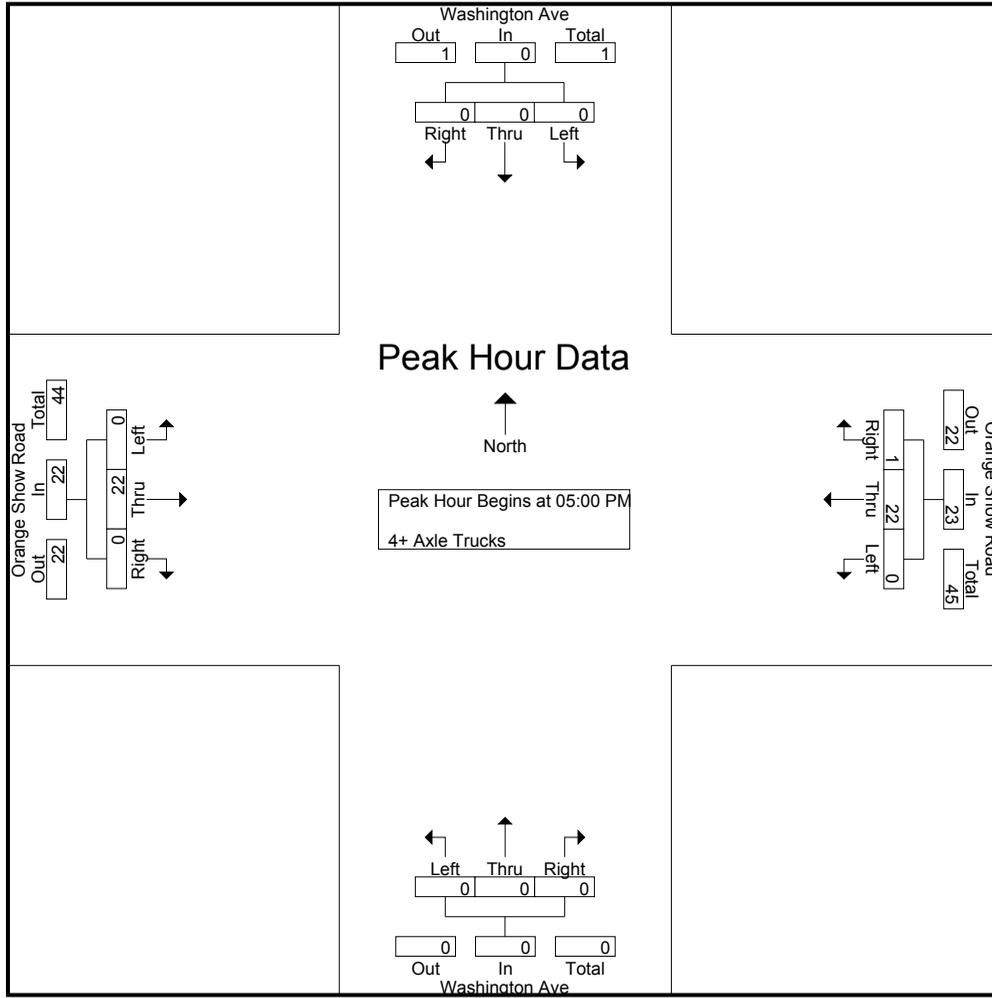
City of San Bernardino  
 N/S: Washington Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWSORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 6          |
| 04:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 13         |
| 04:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 5    | 0     | 5          | 0                         | 0    | 0     | 0          | 0                          | 9    | 0     | 9          | 14         |
| 04:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 3          |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 12   | 0     | 12         | 0                         | 0    | 0     | 0          | 0                          | 24   | 0     | 24         | 36         |
| 05:00 PM    | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:15 PM    | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 13         |
| 05:30 PM    | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 7          |
| 05:45 PM    | 0                         | 0    | 0     | 0          | 0                          | 8    | 1     | 9          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| Total       | 0                         | 0    | 0     | 0          | 0                          | 22   | 1     | 23         | 0                         | 0    | 0     | 0          | 0                          | 22   | 0     | 22         | 45         |
| Grand Total | 0                         | 0    | 0     | 0          | 0                          | 34   | 1     | 35         | 0                         | 0    | 0     | 0          | 0                          | 46   | 0     | 46         | 81         |
| Apprch %    | 0                         | 0    | 0     |            | 0                          | 97.1 | 2.9   |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| Total %     | 0                         | 0    | 0     |            | 0                          | 42   | 1.2   | 43.2       | 0                         | 0    | 0     |            | 0                          | 56.8 | 0     | 56.8       |            |

| Start Time   | Washington Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Washington Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                           |      |       |            |                            |      |       |            |                           |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 10         |
| 05:15 PM   | 0                         | 0    | 0     | 0          | 0                          | 7    | 0     | 7          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 13         |
| 05:30 PM   | 0                         | 0    | 0     | 0          | 0                          | 3    | 0     | 3          | 0                         | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 7          |
| 05:45 PM   | 0                         | 0    | 0     | 0          | 0                          | 8    | 1     | 9          | 0                         | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| Total Volume   | 0                         | 0    | 0     | 0          | 0                          | 22   | 1     | 23         | 0                         | 0    | 0     | 0          | 0                          | 22   | 0     | 22         | 45         |
| % App. Total   | 0                         | 0    | 0     |            | 0                          | 95.7 | 4.3   |            | 0                         | 0    | 0     |            | 0                          | 100  | 0     |            |            |
| PHF  | .000                      | .000 | .000  | .000       | .000                       | .688 | .250  | .639       | .000                      | .000 | .000  | .000       | .000                       | .917 | .000  | .917       | .750       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |          |          |          | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|----------|----------|----------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4        | 0        | 4        | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 7        | 0        | 7        | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +30 mins.    | 0        | 0    | 0    | 0    | 0        | 3        | 0        | 3        | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | <b>8</b> | <b>1</b> | <b>9</b> | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| Total Volume | 0        | 0    | 0    | 0    | 0        | 22       | 1        | 23       | 0        | 0    | 0    | 0    | 0        | 22   | 0    | 22   |
| % App. Total | 0        | 0    | 0    | 0    | 0        | 95.7     | 4.3      |          | 0        | 0    | 0    | 0    | 0        | 100  | 0    |      |
| PHF          | .000     | .000 | .000 | .000 | .000     | .688     | .250     | .639     | .000     | .000 | .000 | .000 | .000     | .917 | .000 | .917 |

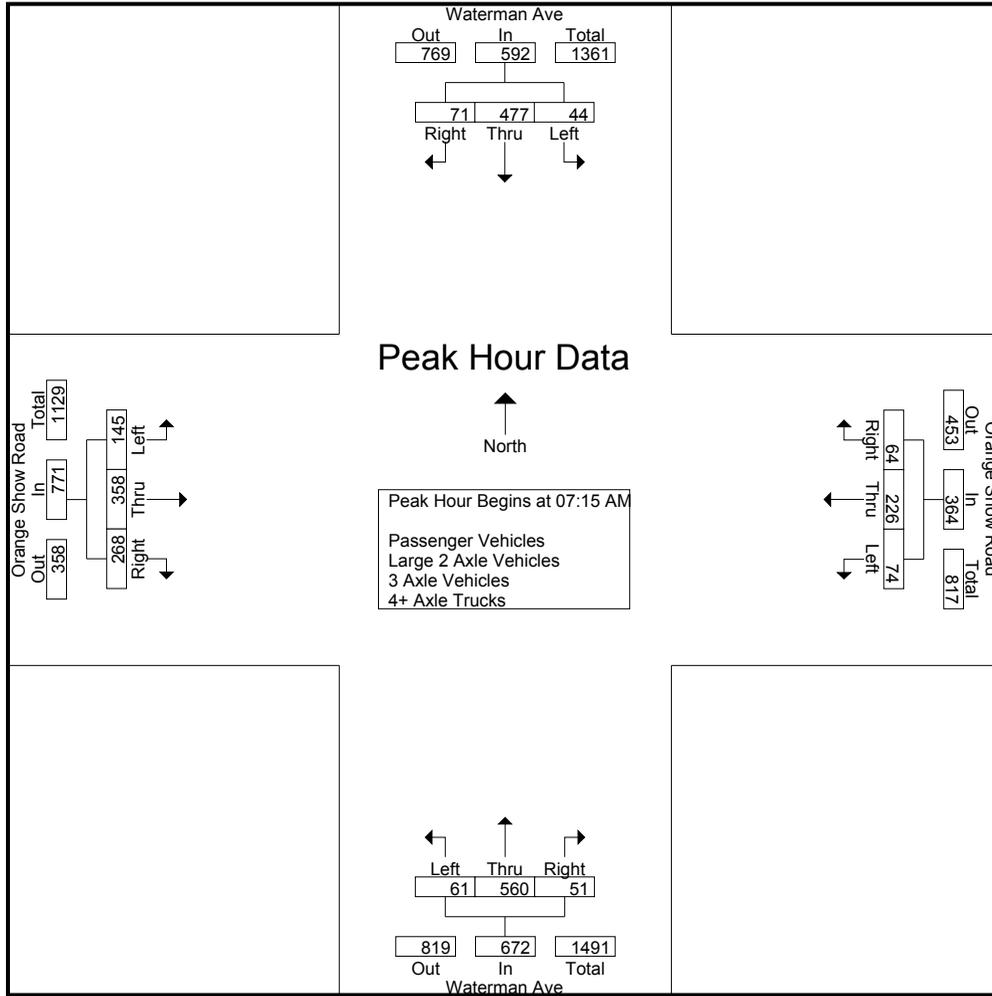
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM                | 12                      | 78   | 17    | 107        | 12                         | 39   | 9     | 60         | 15                      | 104  | 16    | 135        | 33                         | 101  | 31    | 165        | 467        |
| 07:15 AM                | 6                       | 110  | 13    | 129        | 13                         | 43   | 14    | 70         | 10                      | 130  | 9     | 149        | 33                         | 88   | 45    | 166        | 514        |
| 07:30 AM                | 12                      | 112  | 20    | 144        | 21                         | 50   | 14    | 85         | 21                      | 112  | 16    | 149        | 34                         | 81   | 69    | 184        | 562        |
| 07:45 AM                | 11                      | 142  | 20    | 173        | 23                         | 64   | 24    | 111        | 12                      | 168  | 16    | 196        | 27                         | 91   | 85    | 203        | 683        |
| Total                   | 41                      | 442  | 70    | 553        | 69                         | 196  | 61    | 326        | 58                      | 514  | 57    | 629        | 127                        | 361  | 230   | 718        | 2226       |
| 08:00 AM                | 15                      | 113  | 18    | 146        | 17                         | 69   | 12    | 98         | 18                      | 150  | 10    | 178        | 51                         | 98   | 69    | 218        | 640        |
| 08:15 AM                | 10                      | 122  | 21    | 153        | 19                         | 58   | 8     | 85         | 10                      | 130  | 12    | 152        | 25                         | 62   | 33    | 120        | 510        |
| 08:30 AM                | 10                      | 112  | 18    | 140        | 19                         | 46   | 11    | 76         | 21                      | 112  | 13    | 146        | 15                         | 41   | 26    | 82         | 444        |
| 08:45 AM                | 17                      | 123  | 24    | 164        | 9                          | 62   | 8     | 79         | 17                      | 118  | 8     | 143        | 25                         | 58   | 27    | 110        | 496        |
| Total                   | 52                      | 470  | 81    | 603        | 64                         | 235  | 39    | 338        | 66                      | 510  | 43    | 619        | 116                        | 259  | 155   | 530        | 2090       |
| Grand Total             | 93                      | 912  | 151   | 1156       | 133                        | 431  | 100   | 664        | 124                     | 1024 | 100   | 1248       | 243                        | 620  | 385   | 1248       | 4316       |
| Apprch %                | 8                       | 78.9 | 13.1  |            | 20                         | 64.9 | 15.1  |            | 9.9                     | 82.1 | 8     |            | 19.5                       | 49.7 | 30.8  |            |            |
| Total %                 | 2.2                     | 21.1 | 3.5   | 26.8       | 3.1                        | 10   | 2.3   | 15.4       | 2.9                     | 23.7 | 2.3   | 28.9       | 5.6                        | 14.4 | 8.9   | 28.9       |            |
| Passenger Vehicles      | 83                      | 852  | 119   | 1054       | 129                        | 371  | 92    | 592        | 118                     | 975  | 92    | 1185       | 221                        | 576  | 378   | 1175       | 4006       |
| % Passenger Vehicles    | 89.2                    | 93.4 | 78.8  | 91.2       | 97                         | 86.1 | 92    | 89.2       | 95.2                    | 95.2 | 92    | 95         | 90.9                       | 92.9 | 98.2  | 94.2       | 92.8       |
| Large 2 Axle Vehicles   | 6                       | 30   | 23    | 59         | 1                          | 36   | 5     | 42         | 6                       | 16   | 2     | 24         | 6                          | 10   | 6     | 22         | 147        |
| % Large 2 Axle Vehicles | 6.5                     | 3.3  | 15.2  | 5.1        | 0.8                        | 8.4  | 5     | 6.3        | 4.8                     | 1.6  | 2     | 1.9        | 2.5                        | 1.6  | 1.6   | 1.8        | 3.4        |
| 3 Axle Vehicles         | 3                       | 7    | 2     | 12         | 2                          | 8    | 2     | 12         | 0                       | 3    | 1     | 4          | 1                          | 8    | 0     | 9          | 37         |
| % 3 Axle Vehicles       | 3.2                     | 0.8  | 1.3   | 1          | 1.5                        | 1.9  | 2     | 1.8        | 0                       | 0.3  | 1     | 0.3        | 0.4                        | 1.3  | 0     | 0.7        | 0.9        |
| 4+ Axle Trucks          | 1                       | 23   | 7     | 31         | 1                          | 16   | 1     | 18         | 0                       | 30   | 5     | 35         | 15                         | 26   | 1     | 42         | 126        |
| % 4+ Axle Trucks        | 1.1                     | 2.5  | 4.6   | 2.7        | 0.8                        | 3.7  | 1     | 2.7        | 0                       | 2.9  | 5     | 2.8        | 6.2                        | 4.2  | 0.3   | 3.4        | 2.9        |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 6                       | 110  | 13    | 129        | 13                         | 43   | 14    | 70         | 10                      | 130  | 9     | 149        | 33                         | 88   | 45    | 166        | 514        |
| 07:30 AM   | 12                      | 112  | 20    | 144        | 21                         | 50   | 14    | 85         | 21                      | 112  | 16    | 149        | 34                         | 81   | 69    | 184        | 562        |
| 07:45 AM   | 11                      | 142  | 20    | 173        | 23                         | 64   | 24    | 111        | 12                      | 168  | 16    | 196        | 27                         | 91   | 85    | 203        | 683        |
| 08:00 AM   | 15                      | 113  | 18    | 146        | 17                         | 69   | 12    | 98         | 18                      | 150  | 10    | 178        | 51                         | 98   | 69    | 218        | 640        |
| Total Volume   | 44                      | 477  | 71    | 592        | 74                         | 226  | 64    | 364        | 61                      | 560  | 51    | 672        | 145                        | 358  | 268   | 771        | 2399       |
| % App. Total   | 7.4                     | 80.6 | 12    |            | 20.3                       | 62.1 | 17.6  |            | 9.1                     | 83.3 | 7.6   |            | 18.8                       | 46.4 | 34.8  |            |            |
| PHF  | .733                    | .840 | .888  | .855       | .804                       | .819 | .667  | .820       | .726                    | .833 | .797  | .857       | .711                       | .913 | .788  | .884       | .878       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 12       | 112  | 20   | 144  | 21       | 50   | 14   | 85   | 21       | 112  | 16   | 149  | 33       | 88   | 45   | 166  |
| +15 mins.    | 11       | 142  | 20   | 173  | 23       | 64   | 24   | 111  | 12       | 168  | 16   | 196  | 34       | 81   | 69   | 184  |
| +30 mins.    | 15       | 113  | 18   | 146  | 17       | 69   | 12   | 98   | 18       | 150  | 10   | 178  | 27       | 91   | 85   | 203  |
| +45 mins.    | 10       | 122  | 21   | 153  | 19       | 58   | 8    | 85   | 10       | 130  | 12   | 152  | 51       | 98   | 69   | 218  |
| Total Volume | 48       | 489  | 79   | 616  | 80       | 241  | 58   | 379  | 61       | 560  | 54   | 675  | 145      | 358  | 268  | 771  |
| % App. Total | 7.8      | 79.4 | 12.8 |      | 21.1     | 63.6 | 15.3 |      | 9        | 83   | 8    |      | 18.8     | 46.4 | 34.8 |      |
| PHF          | .800     | .861 | .940 | .890 | .870     | .873 | .604 | .854 | .726     | .833 | .844 | .861 | .711     | .913 | .788 | .884 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

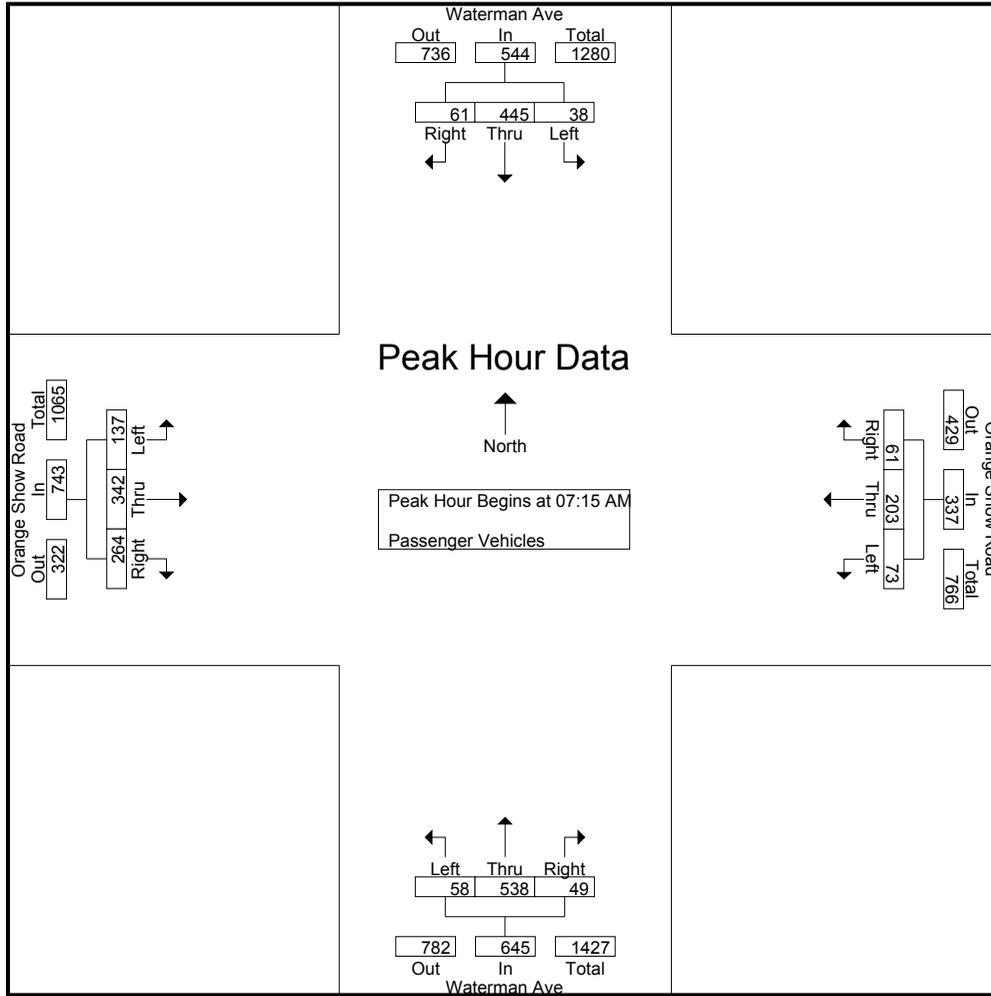
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 12                      | 68   | 16    | 96         | 11                         | 32   | 8     | 51         | 15                      | 98   | 15    | 128        | 30                         | 93   | 31    | 154        | 429        |
| 07:15 AM    | 6                       | 97   | 9     | 112        | 13                         | 38   | 12    | 63         | 8                       | 124  | 9     | 141        | 32                         | 85   | 44    | 161        | 477        |
| 07:30 AM    | 11                      | 107  | 18    | 136        | 21                         | 43   | 14    | 78         | 20                      | 110  | 16    | 146        | 31                         | 79   | 68    | 178        | 538        |
| 07:45 AM    | 11                      | 135  | 19    | 165        | 23                         | 60   | 24    | 107        | 12                      | 162  | 14    | 188        | 25                         | 84   | 84    | 193        | 653        |
| Total       | 40                      | 407  | 62    | 509        | 68                         | 173  | 58    | 299        | 55                      | 494  | 54    | 603        | 118                        | 341  | 227   | 686        | 2097       |
| 08:00 AM    | 10                      | 106  | 15    | 131        | 16                         | 62   | 11    | 89         | 18                      | 142  | 10    | 170        | 49                         | 94   | 68    | 211        | 601        |
| 08:15 AM    | 9                       | 116  | 14    | 139        | 18                         | 53   | 8     | 79         | 10                      | 123  | 10    | 143        | 20                         | 57   | 31    | 108        | 469        |
| 08:30 AM    | 9                       | 106  | 15    | 130        | 19                         | 39   | 10    | 68         | 19                      | 108  | 12    | 139        | 11                         | 37   | 26    | 74         | 411        |
| 08:45 AM    | 15                      | 117  | 13    | 145        | 8                          | 44   | 5     | 57         | 16                      | 108  | 6     | 130        | 23                         | 47   | 26    | 96         | 428        |
| Total       | 43                      | 445  | 57    | 545        | 61                         | 198  | 34    | 293        | 63                      | 481  | 38    | 582        | 103                        | 235  | 151   | 489        | 1909       |
| Grand Total | 83                      | 852  | 119   | 1054       | 129                        | 371  | 92    | 592        | 118                     | 975  | 92    | 1185       | 221                        | 576  | 378   | 1175       | 4006       |
| Apprch %    | 7.9                     | 80.8 | 11.3  |            | 21.8                       | 62.7 | 15.5  |            | 10                      | 82.3 | 7.8   |            | 18.8                       | 49   | 32.2  |            |            |
| Total %     | 2.1                     | 21.3 | 3     | 26.3       | 3.2                        | 9.3  | 2.3   | 14.8       | 2.9                     | 24.3 | 2.3   | 29.6       | 5.5                        | 14.4 | 9.4   | 29.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 6                       | 97   | 9     | 112        | 13                         | 38   | 12    | 63         | 8                       | 124  | 9     | 141        | 32                         | 85   | 44    | 161        | 477        |
| 07:30 AM   | 11                      | 107  | 18    | 136        | 21                         | 43   | 14    | 78         | 20                      | 110  | 16    | 146        | 31                         | 79   | 68    | 178        | 538        |
| 07:45 AM   | 11                      | 135  | 19    | 165        | 23                         | 60   | 24    | 107        | 12                      | 162  | 14    | 188        | 25                         | 84   | 84    | 193        | 653        |
| 08:00 AM   | 10                      | 106  | 15    | 131        | 16                         | 62   | 11    | 89         | 18                      | 142  | 10    | 170        | 49                         | 94   | 68    | 211        | 601        |
| Total Volume   | 38                      | 445  | 61    | 544        | 73                         | 203  | 61    | 337        | 58                      | 538  | 49    | 645        | 137                        | 342  | 264   | 743        | 2269       |
| % App. Total   | 7                       | 81.8 | 11.2  |            | 21.7                       | 60.2 | 18.1  |            | 9                       | 83.4 | 7.6   |            | 18.4                       | 46   | 35.5  |            |            |
| PHF  | .864                    | .824 | .803  | .824       | .793                       | .819 | .635  | .787       | .725                    | .830 | .766  | .858       | .699                       | .910 | .786  | .880       | .869       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 6        | 97   | 9    | 112  | 13       | 38   | 12   | 63   | 8        | 124  | 9    | 141  | 32       | 85   | 44   | 161  |
| +15 mins.    | 11       | 107  | 18   | 136  | 21       | 43   | 14   | 78   | 20       | 110  | 16   | 146  | 31       | 79   | 68   | 178  |
| +30 mins.    | 11       | 135  | 19   | 165  | 23       | 60   | 24   | 107  | 12       | 162  | 14   | 188  | 25       | 84   | 84   | 193  |
| +45 mins.    | 10       | 106  | 15   | 131  | 16       | 62   | 11   | 89   | 18       | 142  | 10   | 170  | 49       | 94   | 68   | 211  |
| Total Volume | 38       | 445  | 61   | 544  | 73       | 203  | 61   | 337  | 58       | 538  | 49   | 645  | 137      | 342  | 264  | 743  |
| % App. Total | 7        | 81.8 | 11.2 |      | 21.7     | 60.2 | 18.1 |      | 9        | 83.4 | 7.6  |      | 18.4     | 46   | 35.5 |      |
| PHF          | .864     | .824 | .803 | .824 | .793     | .819 | .635 | .787 | .725     | .830 | .766 | .858 | .699     | .910 | .786 | .880 |

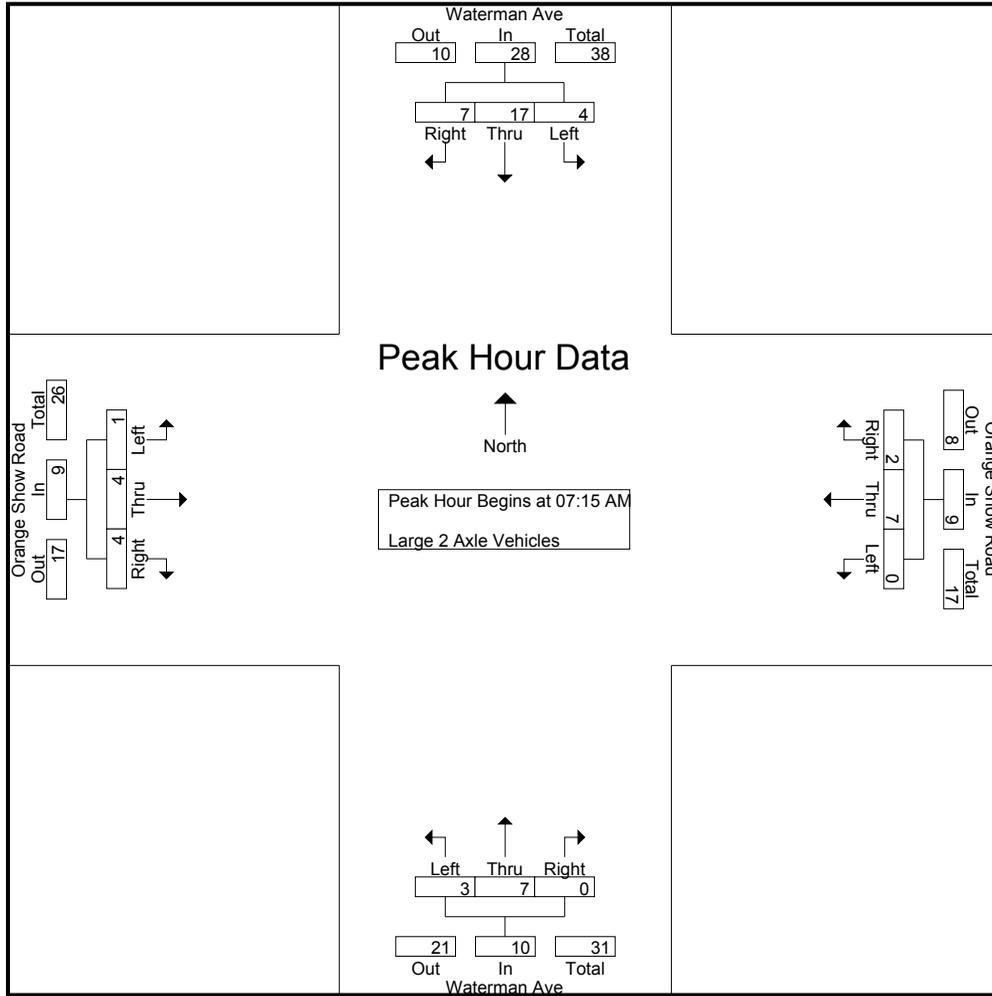
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 5    | 0     | 5          | 0                          | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 2                          | 2    | 0     | 4          | 15         |
| 07:15 AM    | 0                       | 8    | 1     | 9          | 0                          | 0    | 2     | 2          | 2                       | 1    | 0     | 3          | 0                          | 1    | 1     | 2          | 16         |
| 07:30 AM    | 0                       | 3    | 2     | 5          | 0                          | 3    | 0     | 3          | 1                       | 1    | 0     | 2          | 0                          | 0    | 1     | 1          | 11         |
| 07:45 AM    | 0                       | 3    | 1     | 4          | 0                          | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 1                          | 2    | 1     | 4          | 12         |
| Total       | 0                       | 19   | 4     | 23         | 0                          | 9    | 2     | 11         | 3                       | 6    | 0     | 9          | 3                          | 5    | 3     | 11         | 54         |
| 08:00 AM    | 4                       | 3    | 3     | 10         | 0                          | 2    | 0     | 2          | 0                       | 3    | 0     | 3          | 0                          | 1    | 1     | 2          | 17         |
| 08:15 AM    | 1                       | 3    | 4     | 8          | 1                          | 3    | 0     | 4          | 0                       | 4    | 1     | 5          | 1                          | 1    | 1     | 3          | 20         |
| 08:30 AM    | 1                       | 3    | 2     | 6          | 0                          | 5    | 0     | 5          | 2                       | 1    | 0     | 3          | 1                          | 0    | 0     | 1          | 15         |
| 08:45 AM    | 0                       | 2    | 10    | 12         | 0                          | 17   | 3     | 20         | 1                       | 2    | 1     | 4          | 1                          | 3    | 1     | 5          | 41         |
| Total       | 6                       | 11   | 19    | 36         | 1                          | 27   | 3     | 31         | 3                       | 10   | 2     | 15         | 3                          | 5    | 3     | 11         | 93         |
| Grand Total | 6                       | 30   | 23    | 59         | 1                          | 36   | 5     | 42         | 6                       | 16   | 2     | 24         | 6                          | 10   | 6     | 22         | 147        |
| Apprch %    | 10.2                    | 50.8 | 39    |            | 2.4                        | 85.7 | 11.9  |            | 25                      | 66.7 | 8.3   |            | 27.3                       | 45.5 | 27.3  |            |            |
| Total %     | 4.1                     | 20.4 | 15.6  | 40.1       | 0.7                        | 24.5 | 3.4   | 28.6       | 4.1                     | 10.9 | 1.4   | 16.3       | 4.1                        | 6.8  | 4.1   | 15         |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 8    | 1     | 9          | 0                          | 0    | 2     | 2          | 2                       | 1    | 0     | 3          | 0                          | 1    | 1     | 2          | 16         |
| 07:30 AM   | 0                       | 3    | 2     | 5          | 0                          | 3    | 0     | 3          | 1                       | 1    | 0     | 2          | 0                          | 0    | 1     | 1          | 11         |
| 07:45 AM   | 0                       | 3    | 1     | 4          | 0                          | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 1                          | 2    | 1     | 4          | 12         |
| 08:00 AM   | 4                       | 3    | 3     | 10         | 0                          | 2    | 0     | 2          | 0                       | 3    | 0     | 3          | 0                          | 1    | 1     | 2          | 17         |
| Total Volume   | 4                       | 17   | 7     | 28         | 0                          | 7    | 2     | 9          | 3                       | 7    | 0     | 10         | 1                          | 4    | 4     | 9          | 56         |
| % App. Total   | 14.3                    | 60.7 | 25    |            | 0                          | 77.8 | 22.2  |            | 30                      | 70   | 0     |            | 11.1                       | 44.4 | 44.4  |            |            |
| PHF  | .250                    | .531 | .583  | .700       | .000                       | .583 | .250  | .750       | .375                    | .583 | .000  | .833       | .250                       | .500 | 1.00  | .563       | .824       |



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |          |          |           | 07:15 AM |          |          |          | 07:15 AM |          |      |          | 07:15 AM |          |       |          |      |      |
|--------------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|------|----------|----------|----------|-------|----------|------|------|
| +0 mins.     | 0        | <b>8</b> | 1        | 9         | 0        | 0        | <b>2</b> | 2        | <b>2</b> | 1        | 0    | <b>3</b> | 0        | 0        | 1     | 1        | 2    | 1    |
| +15 mins.    | 0        | 3        | 2        | 5         | 0        | <b>3</b> | 0        | <b>3</b> | 1        | 1        | 0    | 2        | 0        | 0        | 0     | 1        | 1    | 1    |
| +30 mins.    | 0        | 3        | 1        | 4         | 0        | 2        | 0        | 2        | 0        | 2        | 0    | 2        | <b>1</b> | <b>2</b> | 1     | <b>4</b> | 1    | 1    |
| +45 mins.    | <b>4</b> | 3        | <b>3</b> | <b>10</b> | 0        | 2        | 0        | 2        | 0        | <b>3</b> | 0    | 3        | 0        | 1        | 1     | 2        | 1    | 1    |
| Total Volume | 4        | 17       | 7        | 28        | 0        | 7        | 2        | 9        | 3        | 7        | 0    | 10       | 1        | 4        | 4     | 9        | 1    | 1    |
| % App. Total | 14.3     | 60.7     | 25       |           | 0        | 77.8     | 22.2     |          | 30       | 70       | 0    |          | 11.1     | 44.4     | 44.4  |          | 11.1 | 11.1 |
| PHF          | .250     | .531     | .583     | .700      | .000     | .583     | .250     | .750     | .375     | .583     | .000 | .833     | .250     | .500     | 1.000 | .563     | .250 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

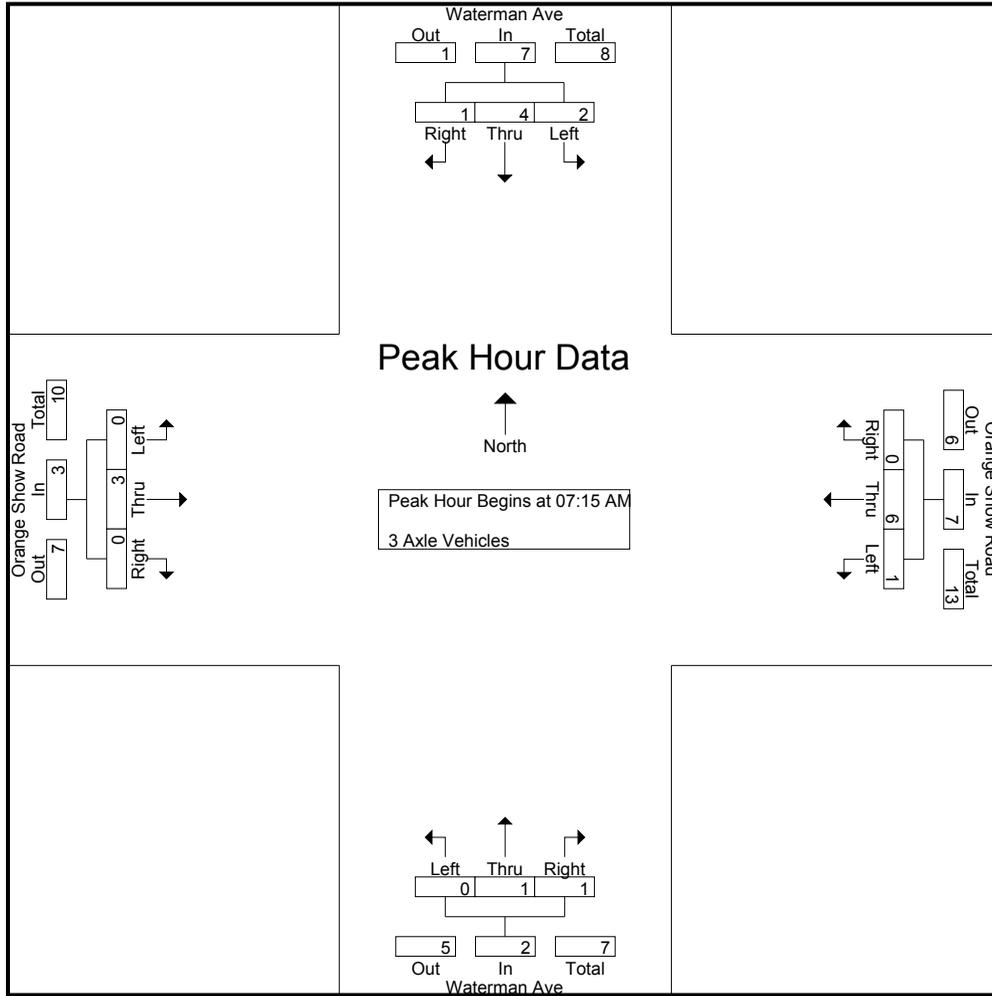
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 1    | 0     | 1          | 1                          | 1    | 1     | 3          | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 5          |
| 07:15 AM    | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 07:30 AM    | 1                       | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 4          |
| Total       | 1                       | 5    | 1     | 7          | 1                          | 4    | 1     | 6          | 0                       | 2    | 1     | 3          | 0                          | 2    | 0     | 2          | 18         |
| 08:00 AM    | 1                       | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 6          |
| 08:15 AM    | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1                          | 1    | 0     | 2          | 3          |
| 08:30 AM    | 0                       | 0    | 0     | 0          | 0                          | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 4          |
| 08:45 AM    | 1                       | 1    | 1     | 3          | 0                          | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 6          |
| Total       | 2                       | 2    | 1     | 5          | 1                          | 4    | 1     | 6          | 0                       | 1    | 0     | 1          | 1                          | 6    | 0     | 7          | 19         |
| Grand Total | 3                       | 7    | 2     | 12         | 2                          | 8    | 2     | 12         | 0                       | 3    | 1     | 4          | 1                          | 8    | 0     | 9          | 37         |
| Apprch %    | 25                      | 58.3 | 16.7  |            | 16.7                       | 66.7 | 16.7  |            | 0                       | 75   | 25    |            | 11.1                       | 88.9 | 0     |            |            |
| Total %     | 8.1                     | 18.9 | 5.4   | 32.4       | 5.4                        | 21.6 | 5.4   | 32.4       | 0                       | 8.1  | 2.7   | 10.8       | 2.7                        | 21.6 | 0     | 24.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 4          |
| 07:30 AM   | 1                       | 2    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 5          |
| 07:45 AM   | 0                       | 1    | 0     | 1          | 0                          | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                          | 1    | 0     | 1          | 4          |
| 08:00 AM   | 1                       | 0    | 0     | 1          | 1                          | 3    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 6          |
| Total Volume   | 2                       | 4    | 1     | 7          | 1                          | 6    | 0     | 7          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 19         |
| % App. Total   | 28.6                    | 57.1 | 14.3  |            | 14.3                       | 85.7 | 0     |            | 0                       | 50   | 50    |            | 0                          | 100  | 0     |            |            |
| PHF  | .500                    | .500 | .250  | .583       | .250                       | .500 | .000  | .438       | .000                    | .250 | .250  | .250       | .000                       | .750 | .000  | .750       | .792       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 1        | 2    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    |
| +45 mins.    | 1        | 0    | 0    | 1    | 1        | 3    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 4    | 1    | 7    | 1        | 6    | 0    | 7    | 0        | 1    | 1    | 2    | 0        | 3    | 0    | 3    |
| % App. Total | 28.6     | 57.1 | 14.3 |      | 14.3     | 85.7 | 0    |      | 0        | 50   | 50   |      | 0        | 100  | 0    |      |
| PHF          | .500     | .500 | .250 | .583 | .250     | .500 | .000 | .438 | .000     | .250 | .250 | .250 | .000     | .750 | .000 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

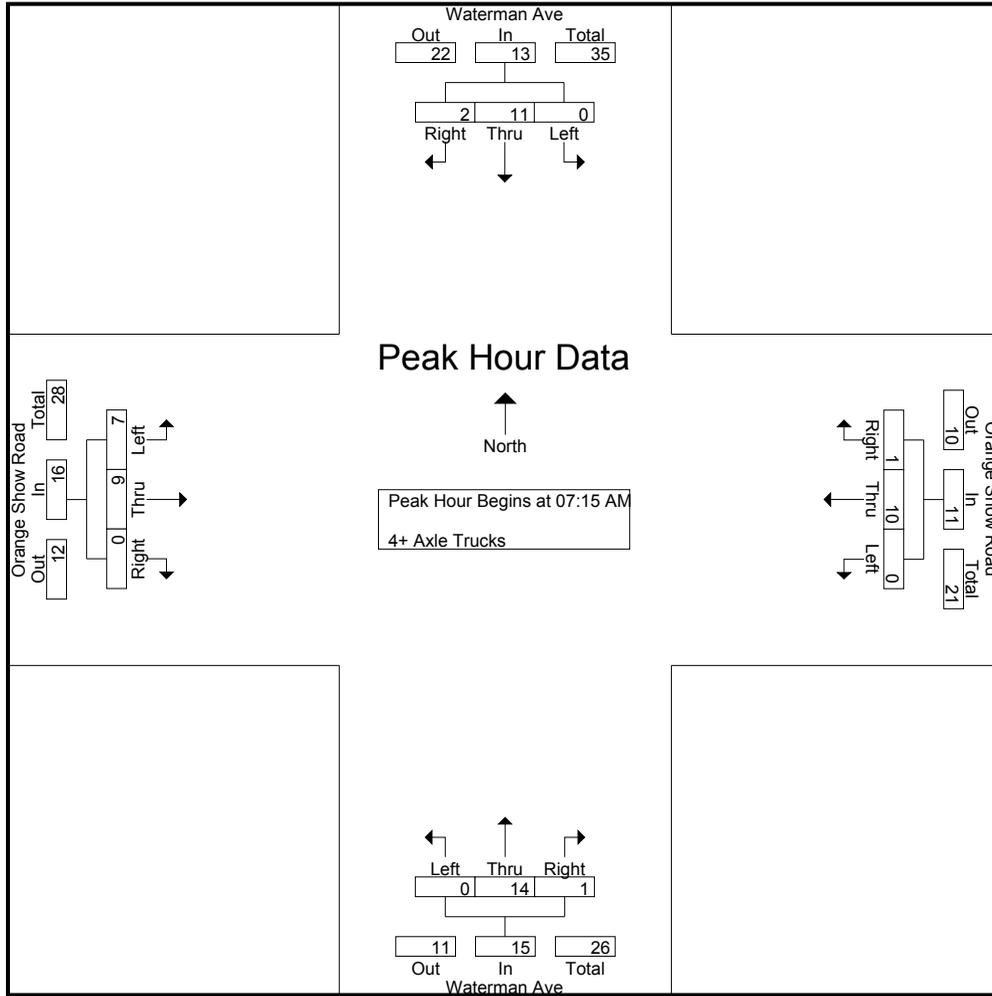
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 4    | 1     | 5          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 6    | 0     | 7          | 18         |
| 07:15 AM    | 0                       | 4    | 2     | 6          | 0                          | 4    | 0     | 4          | 0                       | 5    | 0     | 5          | 1                          | 1    | 0     | 2          | 17         |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 3                          | 2    | 0     | 5          | 8          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 4    | 0     | 5          | 14         |
| Total       | 0                       | 11   | 3     | 14         | 0                          | 10   | 0     | 10         | 0                       | 12   | 2     | 14         | 6                          | 13   | 0     | 19         | 57         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                          | 2    | 1     | 3          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 16         |
| 08:15 AM    | 0                       | 2    | 3     | 5          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 3                          | 3    | 1     | 7          | 18         |
| 08:30 AM    | 0                       | 3    | 1     | 4          | 0                          | 1    | 0     | 1          | 0                       | 3    | 1     | 4          | 3                          | 2    | 0     | 5          | 14         |
| 08:45 AM    | 1                       | 3    | 0     | 4          | 1                          | 1    | 0     | 2          | 0                       | 7    | 1     | 8          | 1                          | 6    | 0     | 7          | 21         |
| Total       | 1                       | 12   | 4     | 17         | 1                          | 6    | 1     | 8          | 0                       | 18   | 3     | 21         | 9                          | 13   | 1     | 23         | 69         |
| Grand Total | 1                       | 23   | 7     | 31         | 1                          | 16   | 1     | 18         | 0                       | 30   | 5     | 35         | 15                         | 26   | 1     | 42         | 126        |
| Apprch %    | 3.2                     | 74.2 | 22.6  |            | 5.6                        | 88.9 | 5.6   |            | 0                       | 85.7 | 14.3  |            | 35.7                       | 61.9 | 2.4   |            |            |
| Total %     | 0.8                     | 18.3 | 5.6   | 24.6       | 0.8                        | 12.7 | 0.8   | 14.3       | 0                       | 23.8 | 4     | 27.8       | 11.9                       | 20.6 | 0.8   | 33.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 07:15 AM   | 0                       | 4    | 2     | 6          | 0                          | 4    | 0     | 4          | 0                       | 5    | 0     | 5          | 1                          | 1    | 0     | 2          | 17         |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 3                          | 2    | 0     | 5          | 8          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                          | 2    | 0     | 2          | 0                       | 3    | 1     | 4          | 1                          | 4    | 0     | 5          | 14         |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                          | 2    | 1     | 3          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 16         |
| Total Volume   | 0                       | 11   | 2     | 13         | 0                          | 10   | 1     | 11         | 0                       | 14   | 1     | 15         | 7                          | 9    | 0     | 16         | 55         |
| % App. Total   | 0                       | 84.6 | 15.4  |            | 0                          | 90.9 | 9.1   |            | 0                       | 93.3 | 6.7   |            | 43.8                       | 56.2 | 0     |            |            |
| PHF  | .000                    | .688 | .250  | .542       | .000                       | .625 | .250  | .688       | .000                    | .700 | .250  | .750       | .583                       | .563 | .000  | .800       | .809       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      | 07:15 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 4    | 2    | 6    | 0        | 4    | 0    | 4    | 0        | 5    | 0    | 5    | 1        | 1    | 0    | 2    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 1    | 0    | 1    | 3        | 2    | 0    | 5    |
| +30 mins.    | 0        | 3    | 0    | 3    | 0        | 2    | 0    | 2    | 0        | 3    | 1    | 4    | 1        | 4    | 0    | 5    |
| +45 mins.    | 0        | 4    | 0    | 4    | 0        | 2    | 1    | 3    | 0        | 5    | 0    | 5    | 2        | 2    | 0    | 4    |
| Total Volume | 0        | 11   | 2    | 13   | 0        | 10   | 1    | 11   | 0        | 14   | 1    | 15   | 7        | 9    | 0    | 16   |
| % App. Total | 0        | 84.6 | 15.4 |      | 0        | 90.9 | 9.1  |      | 0        | 93.3 | 6.7  |      | 43.8     | 56.2 | 0    |      |
| PHF          | .000     | .688 | .250 | .542 | .000     | .625 | .250 | .688 | .000     | .700 | .250 | .750 | .583     | .563 | .000 | .800 |

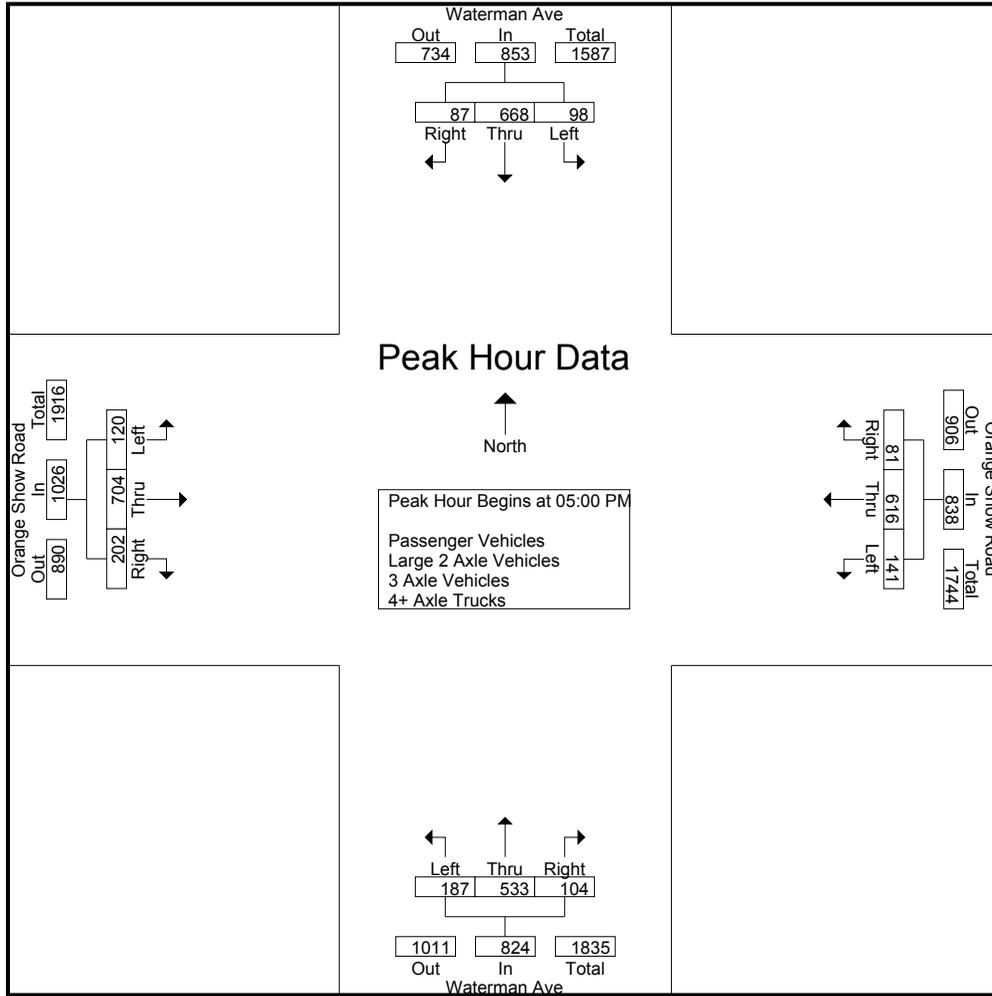
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM                | 15                      | 139  | 28    | 182        | 14                         | 52   | 20    | 86         | 33                      | 151  | 11    | 195        | 26                         | 66   | 25    | 117        | 580        |
| 04:15 PM                | 19                      | 174  | 20    | 213        | 14                         | 66   | 10    | 90         | 35                      | 128  | 11    | 174        | 27                         | 69   | 25    | 121        | 598        |
| 04:30 PM                | 21                      | 211  | 17    | 249        | 21                         | 105  | 12    | 138        | 30                      | 134  | 13    | 177        | 33                         | 102  | 44    | 179        | 743        |
| 04:45 PM                | 22                      | 211  | 19    | 252        | 20                         | 53   | 9     | 82         | 24                      | 103  | 14    | 141        | 26                         | 96   | 33    | 155        | 630        |
| Total                   | 77                      | 735  | 84    | 896        | 69                         | 276  | 51    | 396        | 122                     | 516  | 49    | 687        | 112                        | 333  | 127   | 572        | 2551       |
| 05:00 PM                | 23                      | 186  | 24    | 233        | 16                         | 133  | 14    | 163        | 52                      | 158  | 32    | 242        | 39                         | 154  | 49    | 242        | 880        |
| 05:15 PM                | 29                      | 179  | 18    | 226        | 35                         | 174  | 25    | 234        | 54                      | 113  | 24    | 191        | 26                         | 198  | 60    | 284        | 935        |
| 05:30 PM                | 32                      | 162  | 28    | 222        | 43                         | 170  | 17    | 230        | 47                      | 141  | 28    | 216        | 25                         | 172  | 52    | 249        | 917        |
| 05:45 PM                | 14                      | 141  | 17    | 172        | 47                         | 139  | 25    | 211        | 34                      | 121  | 20    | 175        | 30                         | 180  | 41    | 251        | 809        |
| Total                   | 98                      | 668  | 87    | 853        | 141                        | 616  | 81    | 838        | 187                     | 533  | 104   | 824        | 120                        | 704  | 202   | 1026       | 3541       |
| Grand Total             | 175                     | 1403 | 171   | 1749       | 210                        | 892  | 132   | 1234       | 309                     | 1049 | 153   | 1511       | 232                        | 1037 | 329   | 1598       | 6092       |
| Apprch %                | 10                      | 80.2 | 9.8   |            | 17                         | 72.3 | 10.7  |            | 20.5                    | 69.4 | 10.1  |            | 14.5                       | 64.9 | 20.6  |            |            |
| Total %                 | 2.9                     | 23   | 2.8   | 28.7       | 3.4                        | 14.6 | 2.2   | 20.3       | 5.1                     | 17.2 | 2.5   | 24.8       | 3.8                        | 17   | 5.4   | 26.2       |            |
| Passenger Vehicles      | 171                     | 1353 | 155   | 1679       | 199                        | 814  | 125   | 1138       | 306                     | 1006 | 148   | 1460       | 218                        | 976  | 319   | 1513       | 5790       |
| % Passenger Vehicles    | 97.7                    | 96.4 | 90.6  | 96         | 94.8                       | 91.3 | 94.7  | 92.2       | 99                      | 95.9 | 96.7  | 96.6       | 94                         | 94.1 | 97    | 94.7       | 95         |
| Large 2 Axle Vehicles   | 1                       | 22   | 10    | 33         | 0                          | 31   | 1     | 32         | 3                       | 21   | 2     | 26         | 4                          | 15   | 4     | 23         | 114        |
| % Large 2 Axle Vehicles | 0.6                     | 1.6  | 5.8   | 1.9        | 0                          | 3.5  | 0.8   | 2.6        | 1                       | 2    | 1.3   | 1.7        | 1.7                        | 1.4  | 1.2   | 1.4        | 1.9        |
| 3 Axle Vehicles         | 2                       | 3    | 2     | 7          | 1                          | 16   | 3     | 20         | 0                       | 7    | 1     | 8          | 2                          | 11   | 4     | 17         | 52         |
| % 3 Axle Vehicles       | 1.1                     | 0.2  | 1.2   | 0.4        | 0.5                        | 1.8  | 2.3   | 1.6        | 0                       | 0.7  | 0.7   | 0.5        | 0.9                        | 1.1  | 1.2   | 1.1        | 0.9        |
| 4+ Axle Trucks          | 1                       | 25   | 4     | 30         | 10                         | 31   | 3     | 44         | 0                       | 15   | 2     | 17         | 8                          | 35   | 2     | 45         | 136        |
| % 4+ Axle Trucks        | 0.6                     | 1.8  | 2.3   | 1.7        | 4.8                        | 3.5  | 2.3   | 3.6        | 0                       | 1.4  | 1.3   | 1.1        | 3.4                        | 3.4  | 0.6   | 2.8        | 2.2        |

| Start Time   | Waterman Ave Southbound |            |           |            | Orange Show Road Westbound |            |           |            | Waterman Ave Northbound |            |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| 05:00 PM   | 23                      | <b>186</b> | 24        | <b>233</b> | 16                         | 133        | 14        | 163        | 52                      | <b>158</b> | <b>32</b> | <b>242</b> | <b>39</b>                  | 154        | 49        | 242        | 880        |
| 05:15 PM   | 29                      | 179        | 18        | 226        | 35                         | <b>174</b> | <b>25</b> | <b>234</b> | <b>54</b>               | 113        | 24        | 191        | 26                         | <b>198</b> | <b>60</b> | <b>284</b> | <b>935</b> |
| 05:30 PM   | <b>32</b>               | 162        | <b>28</b> | 222        | 43                         | 170        | 17        | 230        | 47                      | 141        | 28        | 216        | 25                         | 172        | 52        | 249        | 917        |
| 05:45 PM   | 14                      | 141        | 17        | 172        | <b>47</b>                  | 139        | 25        | 211        | 34                      | 121        | 20        | 175        | 30                         | 180        | 41        | 251        | 809        |
| Total Volume   | 98                      | 668        | 87        | 853        | 141                        | 616        | 81        | 838        | 187                     | 533        | 104       | 824        | 120                        | 704        | 202       | 1026       | 3541       |
| % App. Total   | 11.5                    | 78.3       | 10.2      |            | 16.8                       | 73.5       | 9.7       |            | 22.7                    | 64.7       | 12.6      |            | 11.7                       | 68.6       | 19.7      |            |            |
| PHF  | .766                    | .898       | .777      | .915       | .750                       | .885       | .810      | .895       | .866                    | .843       | .813      | .851       | .769                       | .889       | .842      | .903       | .947       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM  |            |           |            | 05:00 PM  |            |           |            | 05:00 PM  |            |           |            | 05:00 PM  |            |           |            |
|--------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| +0 mins.     | 21        | <b>211</b> | 17        | 249        | 16        | 133        | 14        | 163        | 52        | <b>158</b> | <b>32</b> | <b>242</b> | <b>39</b> | 154        | 49        | 242        |
| +15 mins.    | 22        | 211        | 19        | <b>252</b> | 35        | <b>174</b> | <b>25</b> | <b>234</b> | <b>54</b> | 113        | 24        | 191        | 26        | <b>198</b> | <b>60</b> | <b>284</b> |
| +30 mins.    | 23        | 186        | <b>24</b> | 233        | 43        | 170        | 17        | 230        | 47        | 141        | 28        | 216        | 25        | 172        | 52        | 249        |
| +45 mins.    | <b>29</b> | 179        | 18        | 226        | <b>47</b> | 139        | 25        | 211        | 34        | 121        | 20        | 175        | 30        | 180        | 41        | 251        |
| Total Volume | 95        | 787        | 78        | 960        | 141       | 616        | 81        | 838        | 187       | 533        | 104       | 824        | 120       | 704        | 202       | 1026       |
| % App. Total | 9.9       | 82         | 8.1       |            | 16.8      | 73.5       | 9.7       |            | 22.7      | 64.7       | 12.6      |            | 11.7      | 68.6       | 19.7      |            |
| PHF          | .819      | .932       | .813      | .952       | .750      | .885       | .810      | .895       | .866      | .843       | .813      | .851       | .769      | .889       | .842      | .903       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
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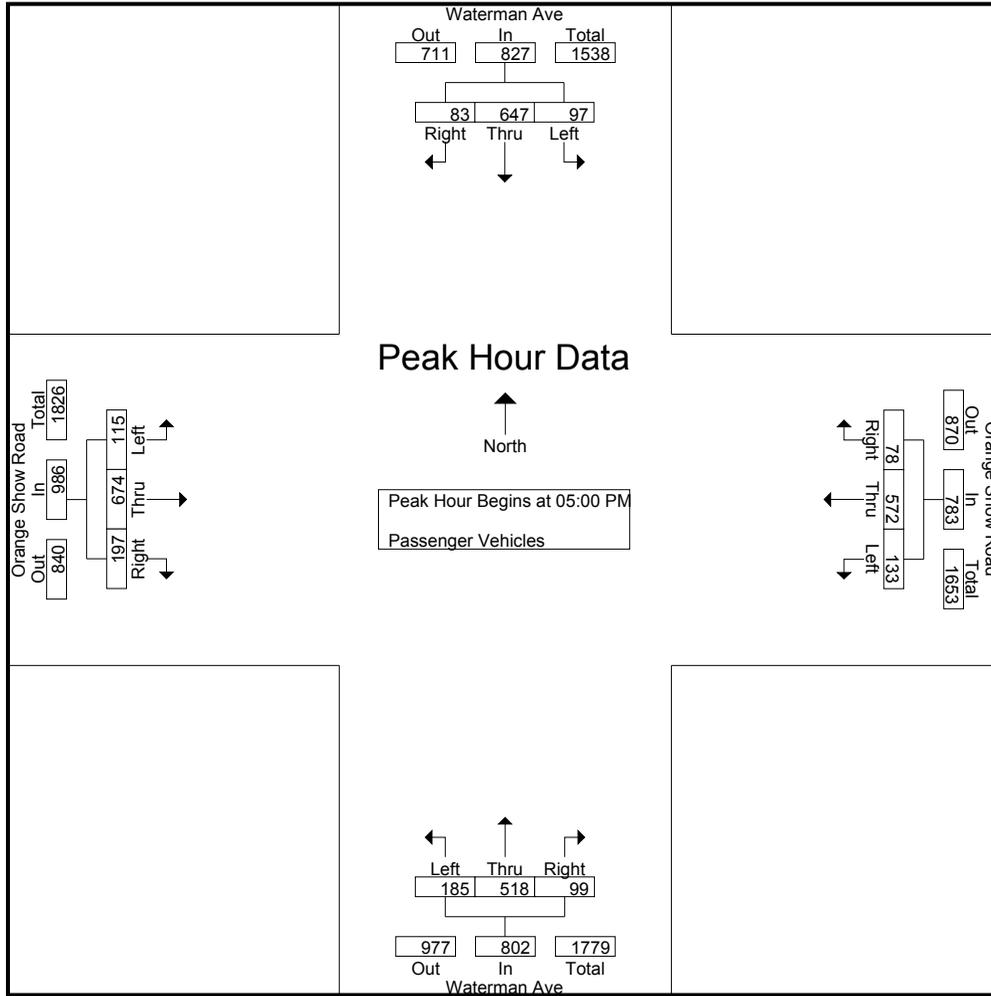
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 15                      | 135  | 20    | 170        | 13                         | 45   | 20    | 78         | 33                      | 141  | 11    | 185        | 21                         | 62   | 25    | 108        | 541        |
| 04:15 PM    | 17                      | 166  | 18    | 201        | 13                         | 54   | 10    | 77         | 34                      | 121  | 11    | 166        | 24                         | 61   | 24    | 109        | 553        |
| 04:30 PM    | 21                      | 204  | 16    | 241        | 21                         | 94   | 8     | 123        | 30                      | 127  | 13    | 170        | 32                         | 91   | 42    | 165        | 699        |
| 04:45 PM    | 21                      | 201  | 18    | 240        | 19                         | 49   | 9     | 77         | 24                      | 99   | 14    | 137        | 26                         | 88   | 31    | 145        | 599        |
| Total       | 74                      | 706  | 72    | 852        | 66                         | 242  | 47    | 355        | 121                     | 488  | 49    | 658        | 103                        | 302  | 122   | 527        | 2392       |
| 05:00 PM    | 23                      | 179  | 22    | 224        | 16                         | 123  | 14    | 153        | 52                      | 154  | 31    | 237        | 35                         | 150  | 47    | 232        | 846        |
| 05:15 PM    | 28                      | 176  | 18    | 222        | 34                         | 162  | 25    | 221        | 53                      | 110  | 23    | 186        | 26                         | 188  | 59    | 273        | 902        |
| 05:30 PM    | 32                      | 155  | 28    | 215        | 39                         | 161  | 14    | 214        | 46                      | 136  | 27    | 209        | 25                         | 165  | 52    | 242        | 880        |
| 05:45 PM    | 14                      | 137  | 15    | 166        | 44                         | 126  | 25    | 195        | 34                      | 118  | 18    | 170        | 29                         | 171  | 39    | 239        | 770        |
| Total       | 97                      | 647  | 83    | 827        | 133                        | 572  | 78    | 783        | 185                     | 518  | 99    | 802        | 115                        | 674  | 197   | 986        | 3398       |
| Grand Total | 171                     | 1353 | 155   | 1679       | 199                        | 814  | 125   | 1138       | 306                     | 1006 | 148   | 1460       | 218                        | 976  | 319   | 1513       | 5790       |
| Apprch %    | 10.2                    | 80.6 | 9.2   |            | 17.5                       | 71.5 | 11    |            | 21                      | 68.9 | 10.1  |            | 14.4                       | 64.5 | 21.1  |            |            |
| Total %     | 3                       | 23.4 | 2.7   | 29         | 3.4                        | 14.1 | 2.2   | 19.7       | 5.3                     | 17.4 | 2.6   | 25.2       | 3.8                        | 16.9 | 5.5   | 26.1       |            |

| Start Time   | Waterman Ave Southbound |            |           |            | Orange Show Road Westbound |            |           |            | Waterman Ave Northbound |            |           |            | Orange Show Road Eastbound |            |           |            | Int. Total |
|--|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|-------------------------|------------|-----------|------------|----------------------------|------------|-----------|------------|------------|
|  | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                       | Thru       | Right     | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |           |            |                            |            |           |            |                         |            |           |            |                            |            |           |            |            |
| 05:00 PM   | 23                      | <b>179</b> | 22        | <b>224</b> | 16                         | 123        | 14        | 153        | 52                      | <b>154</b> | <b>31</b> | <b>237</b> | <b>35</b>                  | 150        | 47        | 232        | 846        |
| 05:15 PM   | 28                      | 176        | 18        | 222        | 34                         | <b>162</b> | <b>25</b> | <b>221</b> | <b>53</b>               | 110        | 23        | 186        | 26                         | <b>188</b> | <b>59</b> | <b>273</b> | <b>902</b> |
| 05:30 PM   | <b>32</b>               | 155        | <b>28</b> | 215        | 39                         | 161        | 14        | 214        | 46                      | 136        | 27        | 209        | 25                         | 165        | 52        | 242        | 880        |
| 05:45 PM   | 14                      | 137        | 15        | 166        | <b>44</b>                  | 126        | 25        | 195        | 34                      | 118        | 18        | 170        | 29                         | 171        | 39        | 239        | 770        |
| Total Volume   | 97                      | 647        | 83        | 827        | 133                        | 572        | 78        | 783        | 185                     | 518        | 99        | 802        | 115                        | 674        | 197       | 986        | 3398       |
| % App. Total   | 11.7                    | 78.2       | 10        |            | 17                         | 73.1       | 10        |            | 23.1                    | 64.6       | 12.3      |            | 11.7                       | 68.4       | 20        |            |            |
| PHF  | .758                    | .904       | .741      | .923       | .756                       | .883       | .780      | .886       | .873                    | .841       | .798      | .846       | .821                       | .896       | .835      | .903       | .942       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |            |      |            | 05:00 PM |            |      |            | 05:00 PM |            |      |            | 05:00 PM |            |      |            |
|--------------|----------|------------|------|------------|----------|------------|------|------------|----------|------------|------|------------|----------|------------|------|------------|
| +0 mins.     | 23       | <b>179</b> | 22   | <b>224</b> | 16       | 123        | 14   | 153        | 52       | <b>154</b> | 31   | <b>237</b> | 35       | 150        | 47   | 232        |
| +15 mins.    | 28       | 176        | 18   | 222        | 34       | <b>162</b> | 25   | <b>221</b> | 53       | 110        | 23   | 186        | 26       | <b>188</b> | 59   | <b>273</b> |
| +30 mins.    | 32       | 155        | 28   | 215        | 39       | 161        | 14   | 214        | 46       | 136        | 27   | 209        | 25       | 165        | 52   | 242        |
| +45 mins.    | 14       | 137        | 15   | 166        | 44       | 126        | 25   | 195        | 34       | 118        | 18   | 170        | 29       | 171        | 39   | 239        |
| Total Volume | 97       | 647        | 83   | 827        | 133      | 572        | 78   | 783        | 185      | 518        | 99   | 802        | 115      | 674        | 197  | 986        |
| % App. Total | 11.7     | 78.2       | 10   |            | 17       | 73.1       | 10   |            | 23.1     | 64.6       | 12.3 |            | 11.7     | 68.4       | 20   |            |
| PHF          | .758     | .904       | .741 | .923       | .756     | .883       | .780 | .886       | .873     | .841       | .798 | .846       | .821     | .896       | .835 | .903       |

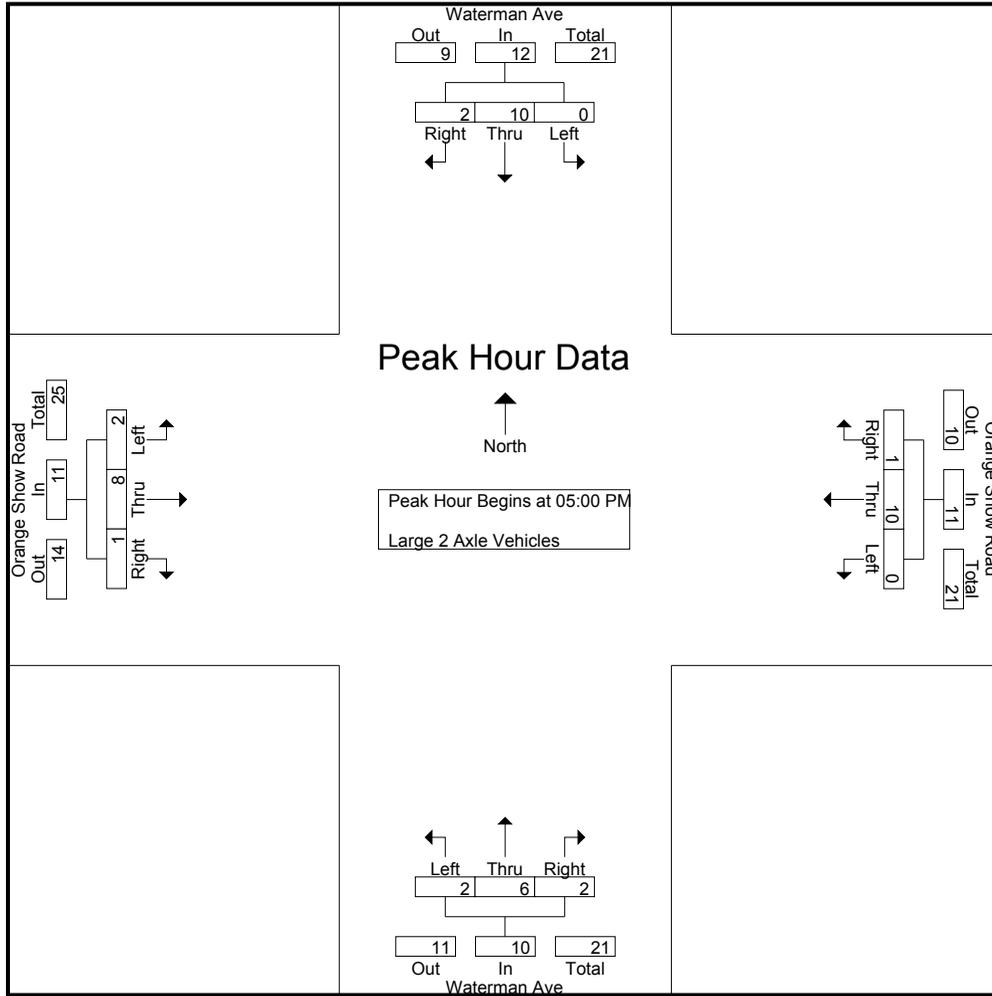
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 6     | 7          | 0                          | 5    | 0     | 5          | 0                       | 5    | 0     | 5          | 2                          | 2    | 0     | 4          | 21         |
| 04:15 PM    | 1                       | 3    | 1     | 5          | 0                          | 7    | 0     | 7          | 1                       | 4    | 0     | 5          | 0                          | 3    | 0     | 3          | 20         |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                          | 5    | 0     | 5          | 0                       | 4    | 0     | 4          | 0                          | 0    | 2     | 2          | 14         |
| 04:45 PM    | 0                       | 5    | 1     | 6          | 0                          | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 0                          | 2    | 1     | 3          | 15         |
| Total       | 1                       | 12   | 8     | 21         | 0                          | 21   | 0     | 21         | 1                       | 15   | 0     | 16         | 2                          | 7    | 3     | 12         | 70         |
| 05:00 PM    | 0                       | 5    | 2     | 7          | 0                          | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 2                          | 1    | 1     | 4          | 14         |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 1                       | 1    | 0     | 2          | 0                          | 2    | 0     | 2          | 7          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                          | 4    | 1     | 5          | 1                       | 2    | 1     | 4          | 0                          | 2    | 0     | 2          | 13         |
| 05:45 PM    | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| Total       | 0                       | 10   | 2     | 12         | 0                          | 10   | 1     | 11         | 2                       | 6    | 2     | 10         | 2                          | 8    | 1     | 11         | 44         |
| Grand Total | 1                       | 22   | 10    | 33         | 0                          | 31   | 1     | 32         | 3                       | 21   | 2     | 26         | 4                          | 15   | 4     | 23         | 114        |
| Apprch %    | 3                       | 66.7 | 30.3  |            | 0                          | 96.9 | 3.1   |            | 11.5                    | 80.8 | 7.7   |            | 17.4                       | 65.2 | 17.4  |            |            |
| Total %     | 0.9                     | 19.3 | 8.8   | 28.9       | 0                          | 27.2 | 0.9   | 28.1       | 2.6                     | 18.4 | 1.8   | 22.8       | 3.5                        | 13.2 | 3.5   | 20.2       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 5    | 2     | 7          | 0                          | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 2                          | 1    | 1     | 4          | 14         |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 1                       | 1    | 0     | 2          | 0                          | 2    | 0     | 2          | 7          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                          | 4    | 1     | 5          | 1                       | 2    | 1     | 4          | 0                          | 2    | 0     | 2          | 13         |
| 05:45 PM   | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 0                       | 1    | 1     | 2          | 0                          | 3    | 0     | 3          | 10         |
| Total Volume   | 0                       | 10   | 2     | 12         | 0                          | 10   | 1     | 11         | 2                       | 6    | 2     | 10         | 2                          | 8    | 1     | 11         | 44         |
| % App. Total   | 0                       | 83.3 | 16.7  |            | 0                          | 90.9 | 9.1   |            | 20                      | 60   | 20    |            | 18.2                       | 72.7 | 9.1   |            |            |
| PHF  | .000                    | .500 | .250  | .429       | .000                       | .625 | .250  | .550       | .500                    | .750 | .500  | .625       | .250                       | .667 | .250  | .688       | .786       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 2    | 7    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    | 2        | 1    | 1    | 4    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    | 1        | 1    | 0    | 2    | 0        | 2    | 0    | 2    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 4    | 1    | 5    | 1        | 2    | 1    | 4    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 3    | 0    | 3    | 0        | 1    | 1    | 2    | 0        | 3    | 0    | 3    |
| Total Volume | 0        | 10   | 2    | 12   | 0        | 10   | 1    | 11   | 2        | 6    | 2    | 10   | 2        | 8    | 1    | 11   |
| % App. Total | 0        | 83.3 | 16.7 |      | 0        | 90.9 | 9.1  |      | 20       | 60   | 20   |      | 18.2     | 72.7 | 9.1  |      |
| PHF          | .000     | .500 | .250 | .429 | .000     | .625 | .250 | .550 | .500     | .750 | .500 | .625 | .250     | .667 | .250 | .688 |

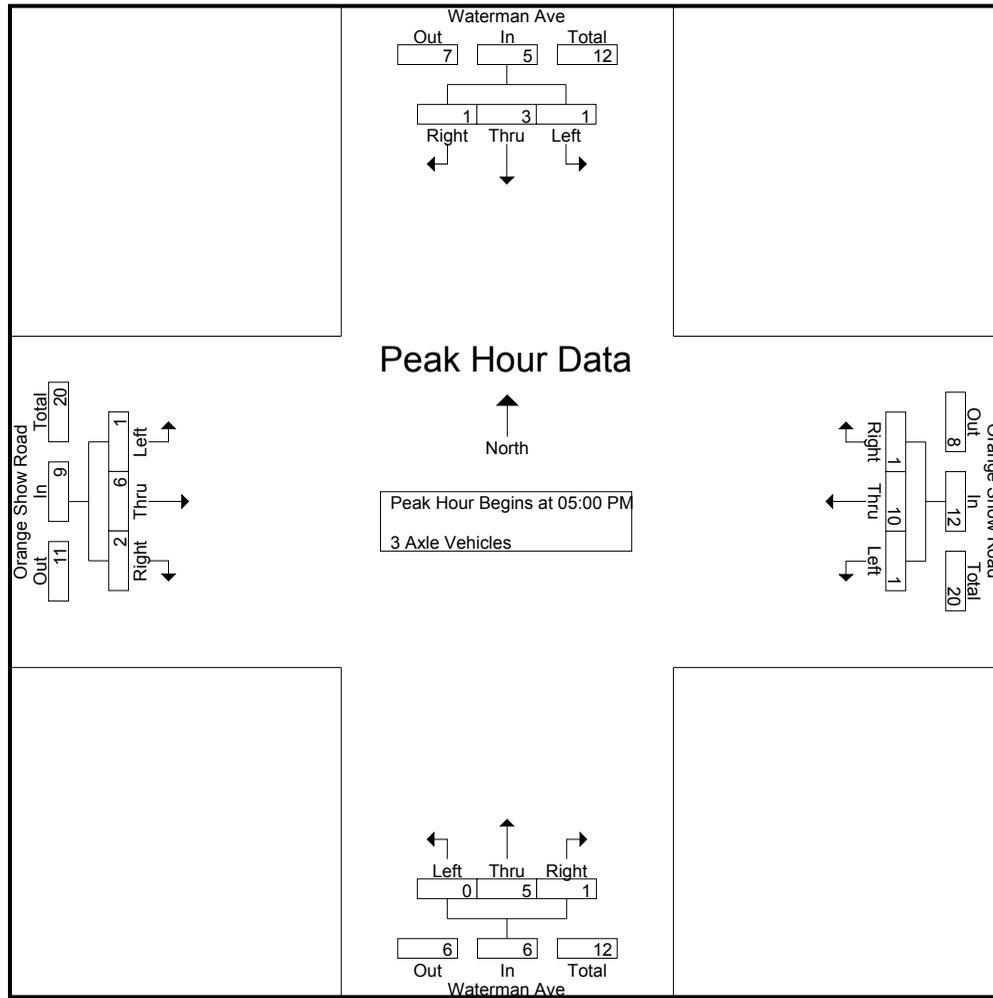
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 0    | 1     | 1          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 1                          | 1    | 0     | 2          | 6          |
| 04:15 PM    | 1                       | 0    | 0     | 1          | 0                          | 2    | 0     | 2          | 0                       | 1    | 0     | 1          | 0                          | 1    | 1     | 2          | 6          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                          | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 04:45 PM    | 0                       | 0    | 0     | 0          | 0                          | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                          | 2    | 1     | 3          | 3          |
| Total       | 1                       | 0    | 1     | 2          | 0                          | 6    | 2     | 8          | 0                       | 2    | 0     | 2          | 1                          | 5    | 2     | 8          | 20         |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 05:15 PM    | 1                       | 1    | 0     | 2          | 1                          | 2    | 0     | 3          | 0                       | 2    | 1     | 3          | 0                          | 2    | 1     | 3          | 11         |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                          | 1    | 1     | 2          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM    | 0                       | 0    | 1     | 1          | 0                          | 3    | 0     | 3          | 0                       | 2    | 0     | 2          | 1                          | 1    | 1     | 3          | 9          |
| Total       | 1                       | 3    | 1     | 5          | 1                          | 10   | 1     | 12         | 0                       | 5    | 1     | 6          | 1                          | 6    | 2     | 9          | 32         |
| Grand Total | 2                       | 3    | 2     | 7          | 1                          | 16   | 3     | 20         | 0                       | 7    | 1     | 8          | 2                          | 11   | 4     | 17         | 52         |
| Apprch %    | 28.6                    | 42.9 | 28.6  |            | 5                          | 80   | 15    |            | 0                       | 87.5 | 12.5  |            | 11.8                       | 64.7 | 23.5  |            |            |
| Total %     | 3.8                     | 5.8  | 3.8   | 13.5       | 1.9                        | 30.8 | 5.8   | 38.5       | 0                       | 13.5 | 1.9   | 15.4       | 3.8                        | 21.2 | 7.7   | 32.7       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                          | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 0                          | 1    | 0     | 1          | 5          |
| 05:15 PM   | 1                       | 1    | 0     | 2          | 1                          | 2    | 0     | 3          | 0                       | 2    | 1     | 3          | 0                          | 2    | 1     | 3          | 11         |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                          | 1    | 1     | 2          | 0                       | 1    | 0     | 1          | 0                          | 2    | 0     | 2          | 7          |
| 05:45 PM   | 0                       | 0    | 1     | 1          | 0                          | 3    | 0     | 3          | 0                       | 2    | 0     | 2          | 1                          | 1    | 1     | 3          | 9          |
| Total Volume   | 1                       | 3    | 1     | 5          | 1                          | 10   | 1     | 12         | 0                       | 5    | 1     | 6          | 1                          | 6    | 2     | 9          | 32         |
| % App. Total   | 20                      | 60   | 20    |            | 8.3                        | 83.3 | 8.3   |            | 0                       | 83.3 | 16.7  |            | 11.1                       | 66.7 | 22.2  |            |            |
| PHF  | .250                    | .375 | .250  | .625       | .250                       | .625 | .250  | .750       | .000                    | .625 | .250  | .500       | .250                       | .750 | .500  | .750       | .727       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    |
| +15 mins.    | 1        | 1    | 0    | 2    | 1        | 2    | 0    | 3    | 0        | 2    | 1    | 3    | 0        | 2    | 1    | 3    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 1    | 1    | 2    | 0        | 1    | 0    | 1    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 0    | 1    | 1    | 0        | 3    | 0    | 3    | 0        | 2    | 0    | 2    | 1        | 1    | 1    | 3    |
| Total Volume | 1        | 3    | 1    | 5    | 1        | 10   | 1    | 12   | 0        | 5    | 1    | 6    | 1        | 6    | 2    | 9    |
| % App. Total | 20       | 60   | 20   |      | 8.3      | 83.3 | 8.3  |      | 0        | 83.3 | 16.7 |      | 11.1     | 66.7 | 22.2 |      |
| PHF          | .250     | .375 | .250 | .625 | .250     | .625 | .250 | .750 | .000     | .625 | .250 | .500 | .250     | .750 | .500 | .750 |

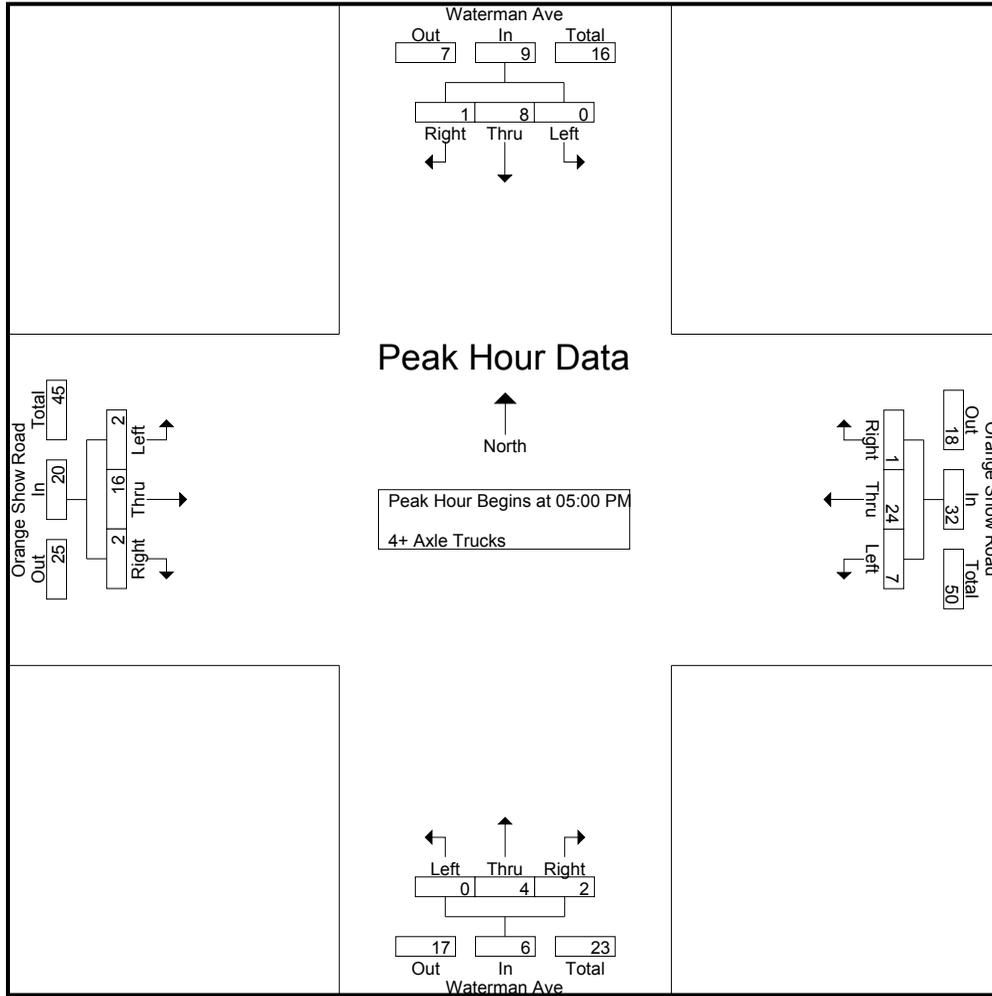
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Orange Show Road  
 Weather: Clear

File Name : SBCWAORPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 3    | 1     | 4          | 1                          | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 2                          | 1    | 0     | 3          | 12         |
| 04:15 PM    | 0                       | 5    | 1     | 6          | 1                          | 3    | 0     | 4          | 0                       | 2    | 0     | 2          | 3                          | 4    | 0     | 7          | 19         |
| 04:30 PM    | 0                       | 4    | 1     | 5          | 0                          | 4    | 2     | 6          | 0                       | 3    | 0     | 3          | 1                          | 10   | 0     | 11         | 25         |
| 04:45 PM    | 1                       | 5    | 0     | 6          | 1                          | 0    | 0     | 1          | 0                       | 2    | 0     | 2          | 0                          | 4    | 0     | 4          | 13         |
| Total       | 1                       | 17   | 3     | 21         | 3                          | 7    | 2     | 12         | 0                       | 11   | 0     | 11         | 6                          | 19   | 0     | 25         | 69         |
| 05:00 PM    | 0                       | 2    | 0     | 2          | 0                          | 5    | 0     | 5          | 0                       | 2    | 1     | 3          | 2                          | 2    | 1     | 5          | 15         |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                          | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| 05:30 PM    | 0                       | 3    | 0     | 3          | 4                          | 4    | 1     | 9          | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 17         |
| 05:45 PM    | 0                       | 2    | 1     | 3          | 3                          | 7    | 0     | 10         | 0                       | 0    | 1     | 1          | 0                          | 5    | 1     | 6          | 20         |
| Total       | 0                       | 8    | 1     | 9          | 7                          | 24   | 1     | 32         | 0                       | 4    | 2     | 6          | 2                          | 16   | 2     | 20         | 67         |
| Grand Total | 1                       | 25   | 4     | 30         | 10                         | 31   | 3     | 44         | 0                       | 15   | 2     | 17         | 8                          | 35   | 2     | 45         | 136        |
| Apprch %    | 3.3                     | 83.3 | 13.3  |            | 22.7                       | 70.5 | 6.8   |            | 0                       | 88.2 | 11.8  |            | 17.8                       | 77.8 | 4.4   |            |            |
| Total %     | 0.7                     | 18.4 | 2.9   | 22.1       | 7.4                        | 22.8 | 2.2   | 32.4       | 0                       | 11   | 1.5   | 12.5       | 5.9                        | 25.7 | 1.5   | 33.1       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Orange Show Road Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Orange Show Road Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|----------------------------|------|-------|------------|-------------------------|------|-------|------------|----------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                       | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                            |      |       |            |                         |      |       |            |                            |      |       |            |            |
| 05:00 PM   | 0                       | 2    | 0     | 2          | 0                          | 5    | 0     | 5          | 0                       | 2    | 1     | 3          | 2                          | 2    | 1     | 5          | 15         |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                          | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 0                          | 6    | 0     | 6          | 15         |
| 05:30 PM   | 0                       | 3    | 0     | 3          | 4                          | 4    | 1     | 9          | 0                       | 2    | 0     | 2          | 0                          | 3    | 0     | 3          | 17         |
| 05:45 PM   | 0                       | 2    | 1     | 3          | 3                          | 7    | 0     | 10         | 0                       | 0    | 1     | 1          | 0                          | 5    | 1     | 6          | 20         |
| Total Volume   | 0                       | 8    | 1     | 9          | 7                          | 24   | 1     | 32         | 0                       | 4    | 2     | 6          | 2                          | 16   | 2     | 20         | 67         |
| % App. Total   | 0                       | 88.9 | 11.1  |            | 21.9                       | 75   | 3.1   |            | 0                       | 66.7 | 33.3  |            | 10                         | 80   | 10    |            |            |
| PHF  | .000                    | .667 | .250  | .750       | .438                       | .750 | .250  | .800       | .000                    | .500 | .500  | .500       | .250                       | .667 | .500  | .833       | .838       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 5    | 0    | 5    | 0        | 2    | 1    | 3    | 2        | 2    | 1    | 5    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    | 0        | 6    | 0    | 6    |
| +30 mins.    | 0        | 3    | 0    | 3    | 4        | 4    | 1    | 9    | 0        | 2    | 0    | 2    | 0        | 3    | 0    | 3    |
| +45 mins.    | 0        | 2    | 1    | 3    | 3        | 7    | 0    | 10   | 0        | 0    | 1    | 1    | 0        | 5    | 1    | 6    |
| Total Volume | 0        | 8    | 1    | 9    | 7        | 24   | 1    | 32   | 0        | 4    | 2    | 6    | 2        | 16   | 2    | 20   |
| % App. Total | 0        | 88.9 | 11.1 |      | 21.9     | 75   | 3.1  |      | 0        | 66.7 | 33.3 |      | 10       | 80   | 10   |      |
| PHF          | .000     | .667 | .250 | .750 | .438     | .750 | .250 | .800 | .000     | .500 | .500 | .500 | .250     | .667 | .500 | .833 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

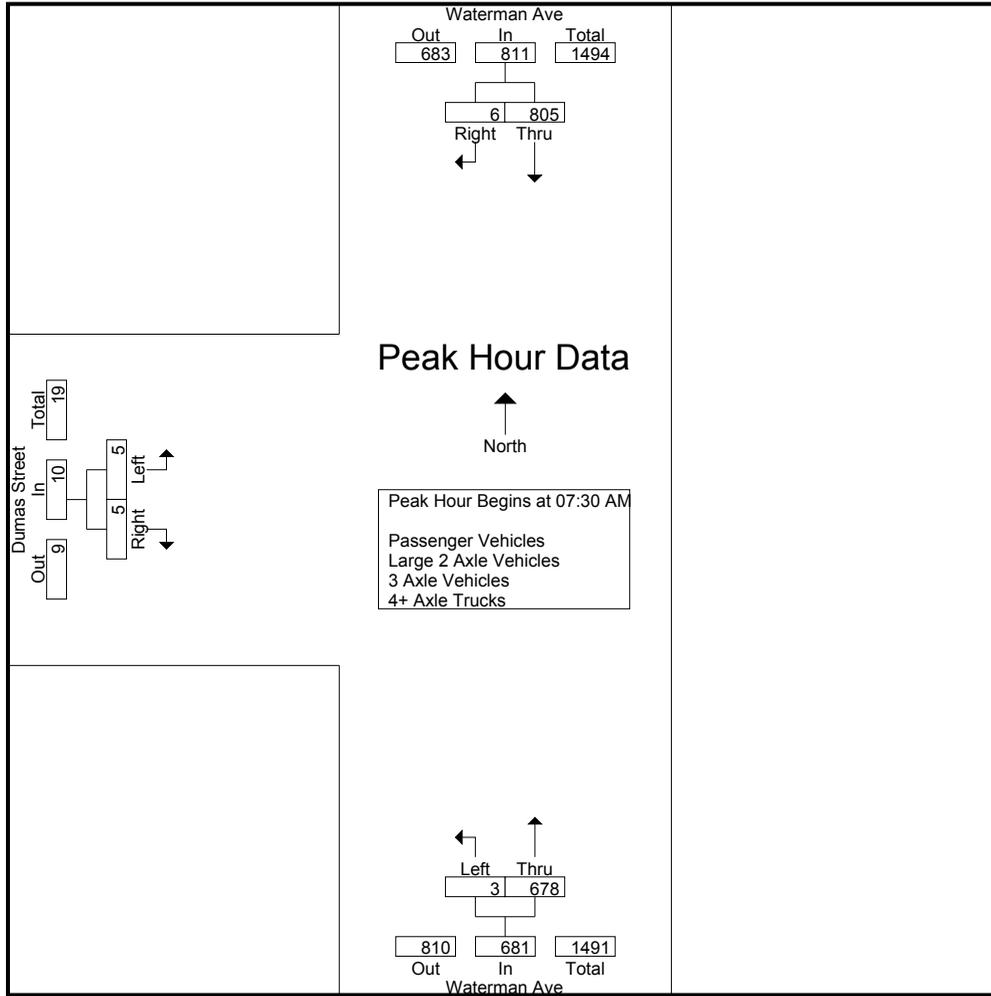
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|                         | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM                | 126                     | 0     | 126        | 0                       | 145  | 145        | 0                      | 0     | 0          | 271        |
| 07:15 AM                | 169                     | 1     | 170        | 1                       | 145  | 146        | 1                      | 0     | 1          | 317        |
| 07:30 AM                | 188                     | 5     | 193        | 1                       | 157  | 158        | 2                      | 0     | 2          | 353        |
| 07:45 AM                | 245                     | 1     | 246        | 0                       | 187  | 187        | 0                      | 4     | 4          | 437        |
| Total                   | 728                     | 7     | 735        | 2                       | 634  | 636        | 3                      | 4     | 7          | 1378       |
| 08:00 AM                | 197                     | 0     | 197        | 1                       | 178  | 179        | 3                      | 0     | 3          | 379        |
| 08:15 AM                | 175                     | 0     | 175        | 1                       | 156  | 157        | 0                      | 1     | 1          | 333        |
| 08:30 AM                | 160                     | 1     | 161        | 1                       | 161  | 162        | 0                      | 0     | 0          | 323        |
| 08:45 AM                | 152                     | 1     | 153        | 2                       | 123  | 125        | 1                      | 2     | 3          | 281        |
| Total                   | 684                     | 2     | 686        | 5                       | 618  | 623        | 4                      | 3     | 7          | 1316       |
| Grand Total             | 1412                    | 9     | 1421       | 7                       | 1252 | 1259       | 7                      | 7     | 14         | 2694       |
| Apprch %                | 99.4                    | 0.6   |            | 0.6                     | 99.4 |            | 50                     | 50    |            |            |
| Total %                 | 52.4                    | 0.3   | 52.7       | 0.3                     | 46.5 | 46.7       | 0.3                    | 0.3   | 0.5        |            |
| Passenger Vehicles      | 1343                    | 6     | 1349       | 7                       | 1184 | 1191       | 7                      | 6     | 13         | 2553       |
| % Passenger Vehicles    | 95.1                    | 66.7  | 94.9       | 100                     | 94.6 | 94.6       | 100                    | 85.7  | 92.9       | 94.8       |
| Large 2 Axle Vehicles   | 35                      | 3     | 38         | 0                       | 27   | 27         | 0                      | 1     | 1          | 66         |
| % Large 2 Axle Vehicles |                         |       |            |                         |      |            |                        |       |            |            |
| 3 Axle Vehicles         | 9                       | 0     | 9          | 0                       | 5    | 5          | 0                      | 0     | 0          | 14         |
| % 3 Axle Vehicles       | 0.6                     | 0     | 0.6        | 0                       | 0.4  | 0.4        | 0                      | 0     | 0          | 0.5        |
| 4+ Axle Trucks          | 25                      | 0     | 25         | 0                       | 36   | 36         | 0                      | 0     | 0          | 61         |
| % 4+ Axle Trucks        | 1.8                     | 0     | 1.8        | 0                       | 2.9  | 2.9        | 0                      | 0     | 0          | 2.3        |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 188                     | 5     | 193        | 1                       | 157  | 158        | 2                      | 0     | 2          | 353        |
| 07:45 AM   | 245                     | 1     | 246        | 0                       | 187  | 187        | 0                      | 4     | 4          | 437        |
| 08:00 AM   | 197                     | 0     | 197        | 1                       | 178  | 179        | 3                      | 0     | 3          | 379        |
| 08:15 AM   | 175                     | 0     | 175        | 1                       | 156  | 157        | 0                      | 1     | 1          | 333        |
| Total Volume   | 805                     | 6     | 811        | 3                       | 678  | 681        | 5                      | 5     | 10         | 1502       |
| % App. Total   | 99.3                    | 0.7   |            | 0.4                     | 99.6 |            | 50                     | 50    |            |            |
| PHF  | .821                    | .300  | .824       | .750                    | .906 | .910       | .417                   | .313  | .625       | .859       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM   |      |            | 07:45 AM |            |            | 07:15 AM |          |          |
|--------------|------------|------|------------|----------|------------|------------|----------|----------|----------|
| +0 mins.     | 188        | 5    | 193        | 0        | <b>187</b> | <b>187</b> | 1        | 0        | 1        |
| +15 mins.    | <b>245</b> | 1    | <b>246</b> | 1        | 178        | 179        | 2        | 0        | 2        |
| +30 mins.    | 197        | 0    | 197        | 1        | 156        | 157        | 0        | <b>4</b> | <b>4</b> |
| +45 mins.    | 175        | 0    | 175        | 1        | 161        | 162        | <b>3</b> | 0        | 3        |
| Total Volume | 805        | 6    | 811        | 3        | 682        | 685        | 6        | 4        | 10       |
| % App. Total | 99.3       | 0.7  |            | 0.4      | 99.6       |            | 60       | 40       |          |
| PHF          | .821       | .300 | .824       | .750     | .912       | .916       | .500     | .250     | .625     |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

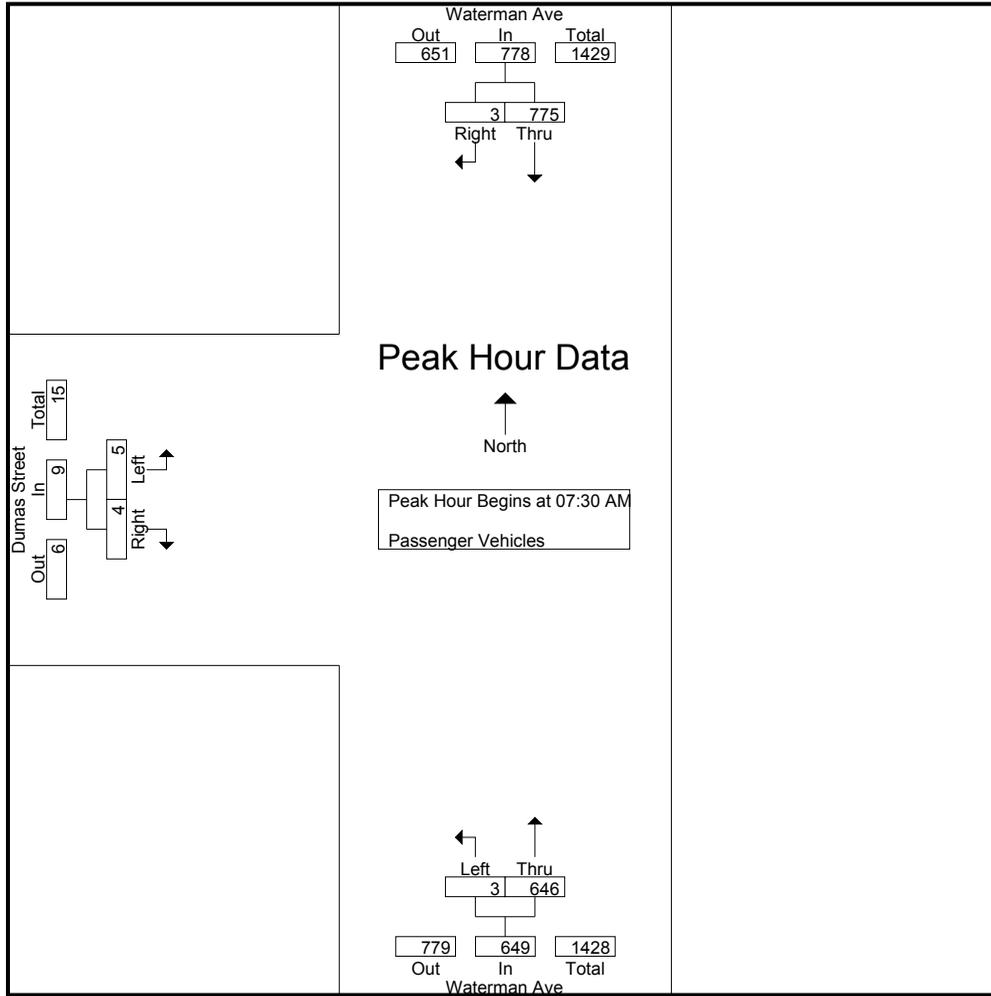
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 116                     | 0     | 116        | 0                       | 138  | 138        | 0                      | 0     | 0          | 254        |
| 07:15 AM    | 155                     | 1     | 156        | 1                       | 137  | 138        | 1                      | 0     | 1          | 295        |
| 07:30 AM    | 184                     | 2     | 186        | 1                       | 154  | 155        | 2                      | 0     | 2          | 343        |
| 07:45 AM    | 237                     | 1     | 238        | 0                       | 177  | 177        | 0                      | 3     | 3          | 418        |
| Total       | 692                     | 4     | 696        | 2                       | 606  | 608        | 3                      | 3     | 6          | 1310       |
| 08:00 AM    | 188                     | 0     | 188        | 1                       | 169  | 170        | 3                      | 0     | 3          | 361        |
| 08:15 AM    | 166                     | 0     | 166        | 1                       | 146  | 147        | 0                      | 1     | 1          | 314        |
| 08:30 AM    | 154                     | 1     | 155        | 1                       | 152  | 153        | 0                      | 0     | 0          | 308        |
| 08:45 AM    | 143                     | 1     | 144        | 2                       | 111  | 113        | 1                      | 2     | 3          | 260        |
| Total       | 651                     | 2     | 653        | 5                       | 578  | 583        | 4                      | 3     | 7          | 1243       |
| Grand Total | 1343                    | 6     | 1349       | 7                       | 1184 | 1191       | 7                      | 6     | 13         | 2553       |
| Apprch %    | 99.6                    | 0.4   |            | 0.6                     | 99.4 |            | 53.8                   | 46.2  |            |            |
| Total %     | 52.6                    | 0.2   | 52.8       | 0.3                     | 46.4 | 46.7       | 0.3                    | 0.2   | 0.5        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 184                     | 2     | 186        | 1                       | 154  | 155        | 2                      | 0     | 2          | 343        |
| 07:45 AM   | 237                     | 1     | 238        | 0                       | 177  | 177        | 0                      | 3     | 3          | 418        |
| 08:00 AM   | 188                     | 0     | 188        | 1                       | 169  | 170        | 3                      | 0     | 3          | 361        |
| 08:15 AM   | 166                     | 0     | 166        | 1                       | 146  | 147        | 0                      | 1     | 1          | 314        |
| Total Volume   | 775                     | 3     | 778        | 3                       | 646  | 649        | 5                      | 4     | 9          | 1436       |
| % App. Total   | 99.6                    | 0.4   |            | 0.5                     | 99.5 |            | 55.6                   | 44.4  |            |            |
| PHF  | .818                    | .375  | .817       | .750                    | .912 | .917       | .417                   | .333  | .750       | .859       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 184      | 2    | 186  | 1        | 154  | 155  | 2        | 0    | 2    |
| +15 mins.    | 237      | 1    | 238  | 0        | 177  | 177  | 0        | 3    | 3    |
| +30 mins.    | 188      | 0    | 188  | 1        | 169  | 170  | 3        | 0    | 3    |
| +45 mins.    | 166      | 0    | 166  | 1        | 146  | 147  | 0        | 1    | 1    |
| Total Volume | 775      | 3    | 778  | 3        | 646  | 649  | 5        | 4    | 9    |
| % App. Total | 99.6     | 0.4  |      | 0.5      | 99.5 |      | 55.6     | 44.4 |      |
| PHF          | .818     | .375 | .817 | .750     | .912 | .917 | .417     | .333 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

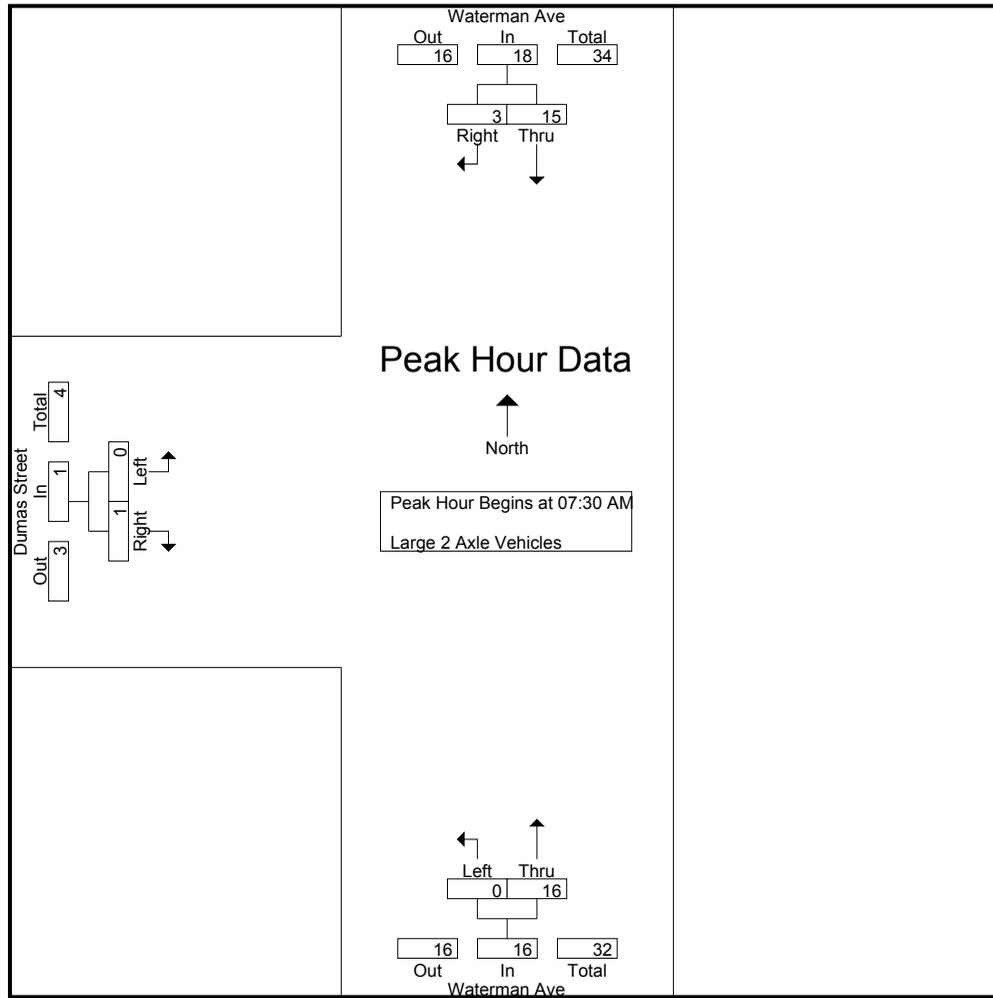
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 4                       | 0     | 4          | 0                       | 1    | 1          | 0                      | 0     | 0          | 5          |
| 07:15 AM    | 9                       | 0     | 9          | 0                       | 3    | 3          | 0                      | 0     | 0          | 12         |
| 07:30 AM    | 2                       | 3     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 07:45 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 1     | 1          | 9          |
| Total       | 19                      | 3     | 22         | 0                       | 10   | 10         | 0                      | 1     | 1          | 33         |
| 08:00 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 08:15 AM    | 5                       | 0     | 5          | 0                       | 6    | 6          | 0                      | 0     | 0          | 11         |
| 08:30 AM    | 3                       | 0     | 3          | 0                       | 3    | 3          | 0                      | 0     | 0          | 6          |
| 08:45 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| Total       | 16                      | 0     | 16         | 0                       | 17   | 17         | 0                      | 0     | 0          | 33         |
| Grand Total | 35                      | 3     | 38         | 0                       | 27   | 27         | 0                      | 1     | 1          | 66         |
| Apprch %    | 92.1                    | 7.9   |            | 0                       | 100  |            | 0                      | 100   |            |            |
| Total %     | 53                      | 4.5   | 57.6       | 0                       | 40.9 | 40.9       | 0                      | 1.5   | 1.5        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 2                       | 3     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 07:45 AM   | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 1     | 1          | 9          |
| 08:00 AM   | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 08:15 AM   | 5                       | 0     | 5          | 0                       | 6    | 6          | 0                      | 0     | 0          | 11         |
| Total Volume   | 15                      | 3     | 18         | 0                       | 16   | 16         | 0                      | 1     | 1          | 35         |
| % App. Total   | 83.3                    | 16.7  |            | 0                       | 100  |            | 0                      | 100   |            |            |
| PHF  | .750                    | .250  | .900       | .000                    | .667 | .667       | .000                   | .250  | .250       | .795       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 3    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 4        | 0    | 4    | 0        | 4    | 4    | 0        | 1    | 1    |
| +30 mins.    | 4        | 0    | 4    | 0        | 4    | 4    | 0        | 0    | 0    |
| +45 mins.    | 5        | 0    | 5    | 0        | 6    | 6    | 0        | 0    | 0    |
| Total Volume | 15       | 3    | 18   | 0        | 16   | 16   | 0        | 1    | 1    |
| % App. Total | 83.3     | 16.7 |      | 0        | 100  |      | 0        | 100  |      |
| PHF          | .750     | .250 | .900 | .000     | .667 | .667 | .000     | .250 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

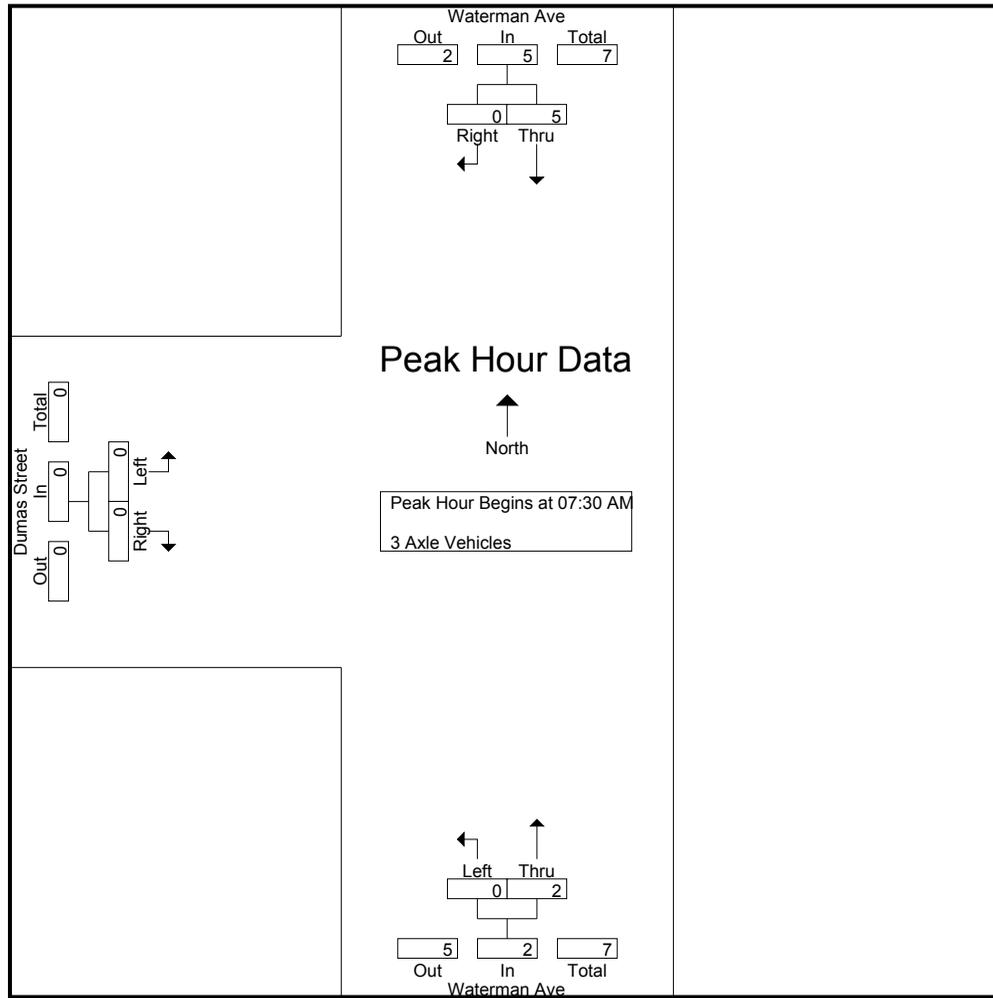
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 07:15 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 07:30 AM    | 2                       | 0     | 2          | 0                       | 0    | 0          | 0                      | 0     | 0          | 2          |
| 07:45 AM    | 1                       | 0     | 1          | 0                       | 2    | 2          | 0                      | 0     | 0          | 3          |
| Total       | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| 08:00 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:15 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:30 AM    | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 08:45 AM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total       | 3                       | 0     | 3          | 0                       | 1    | 1          | 0                      | 0     | 0          | 4          |
| Grand Total | 9                       | 0     | 9          | 0                       | 5    | 5          | 0                      | 0     | 0          | 14         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 64.3                    | 0     | 64.3       | 0                       | 35.7 | 35.7       | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 2                       | 0     | 2          | 0                       | 0    | 0          | 0                      | 0     | 0          | 2          |
| 07:45 AM   | 1                       | 0     | 1          | 0                       | 2    | 2          | 0                      | 0     | 0          | 3          |
| 08:00 AM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 08:15 AM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total Volume   | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .625                    | .000  | .625       | .000                    | .250 | .250       | .000                   | .000  | .000       | .583       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 0    | 2    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 5        | 0    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .625     | .000 | .625 | .000     | .250 | .250 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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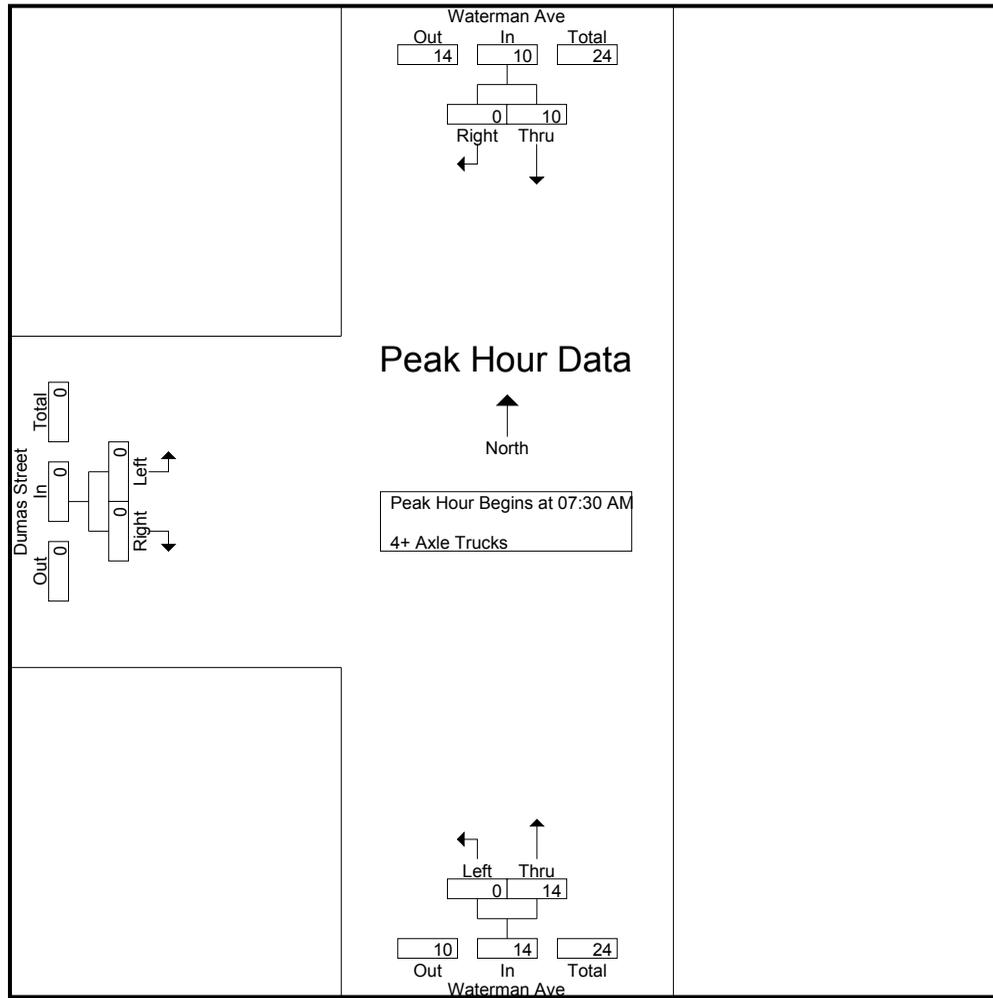
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 07:00 AM    | 4                       | 0     | 4          | 0                       | 4    | 4          | 0                      | 0     | 0          | 8          |
| 07:15 AM    | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 07:30 AM    | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 07:45 AM    | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| Total       | 11                      | 0     | 11         | 0                       | 14   | 14         | 0                      | 0     | 0          | 25         |
| 08:00 AM    | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 08:15 AM    | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| 08:30 AM    | 3                       | 0     | 3          | 0                       | 5    | 5          | 0                      | 0     | 0          | 8          |
| 08:45 AM    | 4                       | 0     | 4          | 0                       | 8    | 8          | 0                      | 0     | 0          | 12         |
| Total       | 14                      | 0     | 14         | 0                       | 22   | 22         | 0                      | 0     | 0          | 36         |
| Grand Total | 25                      | 0     | 25         | 0                       | 36   | 36         | 0                      | 0     | 0          | 61         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 41                      | 0     | 41         | 0                       | 59   | 59         | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |       |            |                         |      |            |                        |       |            |            |
| 07:30 AM   | 0                       | 0     | 0          | 0                       | 1    | 1          | 0                      | 0     | 0          | 1          |
| 07:45 AM   | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| 08:00 AM   | 4                       | 0     | 4          | 0                       | 5    | 5          | 0                      | 0     | 0          | 9          |
| 08:15 AM   | 3                       | 0     | 3          | 0                       | 4    | 4          | 0                      | 0     | 0          | 7          |
| Total Volume   | 10                      | 0     | 10         | 0                       | 14   | 14         | 0                      | 0     | 0          | 24         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .625                    | .000  | .625       | .000                    | .700 | .700       | .000                   | .000  | .000       | .667       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUAM  
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 1    | 1    | 0        | 0    | 0    |
| +15 mins.    | 3        | 0    | 3    | 0        | 4    | 4    | 0        | 0    | 0    |
| +30 mins.    | 4        | 0    | 4    | 0        | 5    | 5    | 0        | 0    | 0    |
| +45 mins.    | 3        | 0    | 3    | 0        | 4    | 4    | 0        | 0    | 0    |
| Total Volume | 10       | 0    | 10   | 0        | 14   | 14   | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .625     | .000 | .625 | .000     | .700 | .700 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

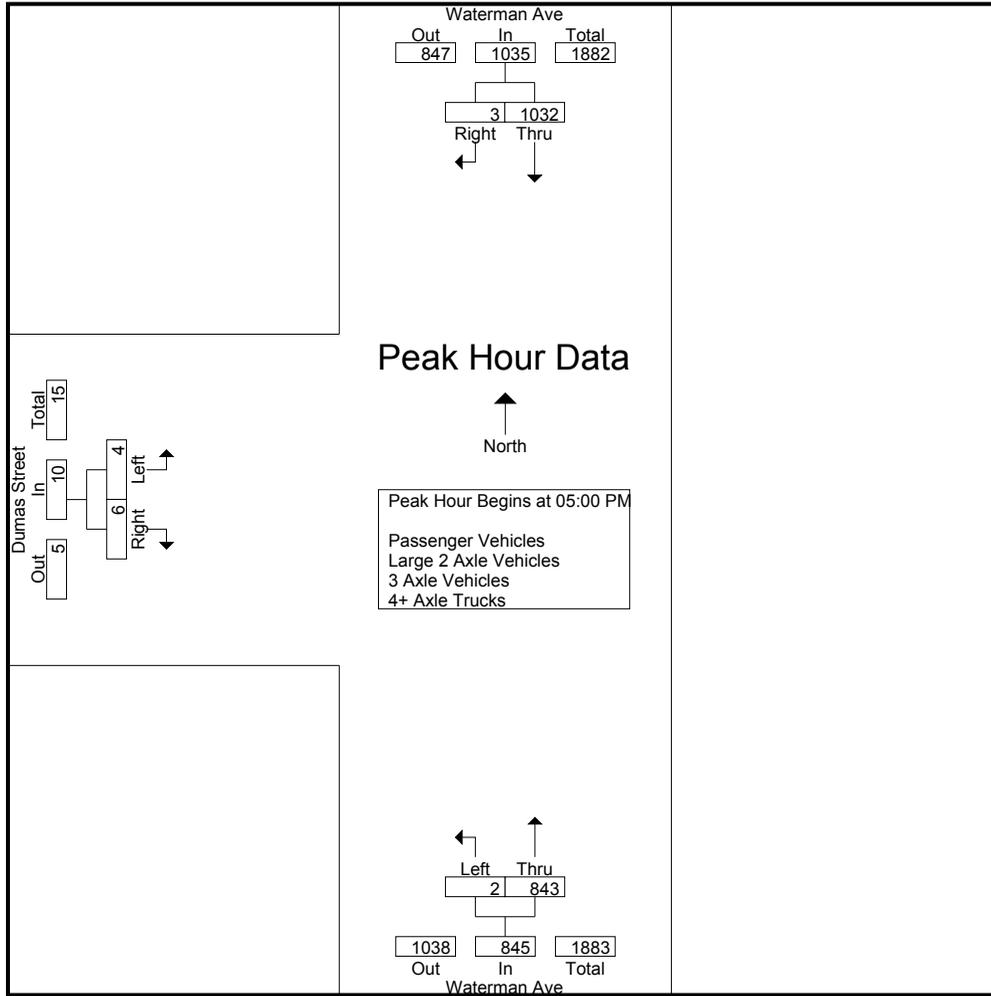
| Start Time              | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|                         | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM                | 172                     | 2     | 174        | 2                       | 195  | 197        | 0                      | 0     | 0          | 371        |
| 04:15 PM                | 217                     | 1     | 218        | 0                       | 168  | 168        | 1                      | 1     | 2          | 388        |
| 04:30 PM                | 274                     | 1     | 275        | 1                       | 182  | 183        | 0                      | 2     | 2          | 460        |
| 04:45 PM                | 254                     | 4     | 258        | 2                       | 139  | 141        | 1                      | 2     | 3          | 402        |
| Total                   | 917                     | 8     | 925        | 5                       | 684  | 689        | 2                      | 5     | 7          | 1621       |
| 05:00 PM                | 257                     | 1     | 258        | 1                       | 251  | 252        | 0                      | 1     | 1          | 511        |
| 05:15 PM                | 295                     | 0     | 295        | 0                       | 202  | 202        | 1                      | 1     | 2          | 499        |
| 05:30 PM                | 239                     | 1     | 240        | 0                       | 201  | 201        | 1                      | 2     | 3          | 444        |
| 05:45 PM                | 241                     | 1     | 242        | 1                       | 189  | 190        | 2                      | 2     | 4          | 436        |
| Total                   | 1032                    | 3     | 1035       | 2                       | 843  | 845        | 4                      | 6     | 10         | 1890       |
| Grand Total             | 1949                    | 11    | 1960       | 7                       | 1527 | 1534       | 6                      | 11    | 17         | 3511       |
| Apprch %                | 99.4                    | 0.6   |            | 0.5                     | 99.5 |            | 35.3                   | 64.7  |            |            |
| Total %                 | 55.5                    | 0.3   | 55.8       | 0.2                     | 43.5 | 43.7       | 0.2                    | 0.3   | 0.5        |            |
| Passenger Vehicles      | 1877                    | 9     | 1886       | 6                       | 1476 | 1482       | 6                      | 9     | 15         | 3383       |
| % Passenger Vehicles    | 96.3                    | 81.8  | 96.2       | 85.7                    | 96.7 | 96.6       | 100                    | 81.8  | 88.2       | 96.4       |
| Large 2 Axle Vehicles   | 27                      | 0     | 27         | 1                       | 26   | 27         | 0                      | 1     | 1          | 55         |
| % Large 2 Axle Vehicles |                         |       |            |                         |      |            |                        |       |            |            |
| 3 Axle Vehicles         | 9                       | 0     | 9          | 0                       | 6    | 6          | 0                      | 0     | 0          | 15         |
| % 3 Axle Vehicles       | 0.5                     | 0     | 0.5        | 0                       | 0.4  | 0.4        | 0                      | 0     | 0          | 0.4        |
| 4+ Axle Trucks          | 36                      | 2     | 38         | 0                       | 19   | 19         | 0                      | 1     | 1          | 58         |
| % 4+ Axle Trucks        | 1.8                     | 18.2  | 1.9        | 0                       | 1.2  | 1.2        | 0                      | 9.1   | 5.9        | 1.7        |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|              | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 05:00 PM     | 257                     | 1     | 258        | 1                       | 251  | 252        | 0                      | 1     | 1          | 511        |
| 05:15 PM     | 295                     | 0     | 295        | 0                       | 202  | 202        | 1                      | 1     | 2          | 499        |
| 05:30 PM     | 239                     | 1     | 240        | 0                       | 201  | 201        | 1                      | 2     | 3          | 444        |
| 05:45 PM     | 241                     | 1     | 242        | 1                       | 189  | 190        | 2                      | 2     | 4          | 436        |
| Total Volume | 1032                    | 3     | 1035       | 2                       | 843  | 845        | 4                      | 6     | 10         | 1890       |
| % App. Total | 99.7                    | 0.3   |            | 0.2                     | 99.8 |            | 40                     | 60    |            |            |
| PHF          | .875                    | .750  | .877       | .500                    | .840 | .838       | .500                   | .750  | .625       | .925       |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 05:00 PM

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 274      | 1    | 275  | 1        | 251  | 252  | 0        | 1    | 1    |
| +15 mins.    | 254      | 4    | 258  | 0        | 202  | 202  | 1        | 1    | 2    |
| +30 mins.    | 257      | 1    | 258  | 0        | 201  | 201  | 1        | 2    | 3    |
| +45 mins.    | 295      | 0    | 295  | 1        | 189  | 190  | 2        | 2    | 4    |
| Total Volume | 1080     | 6    | 1086 | 2        | 843  | 845  | 4        | 6    | 10   |
| % App. Total | 99.4     | 0.6  |      | 0.2      | 99.8 |      | 40       | 60   |      |
| PHF          | .915     | .375 | .920 | .500     | .840 | .838 | .500     | .750 | .625 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

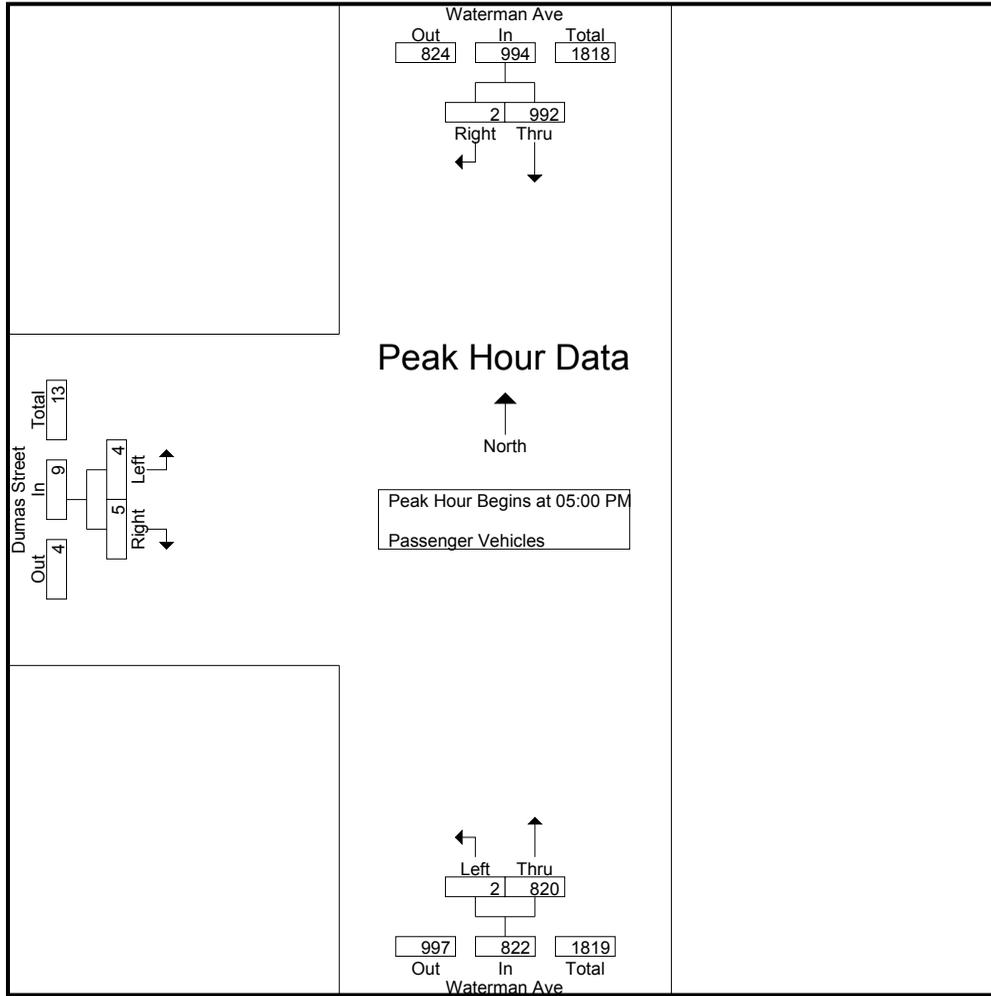
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 166                     | 1     | 167        | 2                       | 186  | 188        | 0                      | 0     | 0          | 355        |
| 04:15 PM    | 210                     | 1     | 211        | 0                       | 160  | 160        | 1                      | 0     | 1          | 372        |
| 04:30 PM    | 263                     | 1     | 264        | 1                       | 174  | 175        | 0                      | 2     | 2          | 441        |
| 04:45 PM    | 246                     | 4     | 250        | 1                       | 136  | 137        | 1                      | 2     | 3          | 390        |
| Total       | 885                     | 7     | 892        | 4                       | 656  | 660        | 2                      | 4     | 6          | 1558       |
| 05:00 PM    | 245                     | 0     | 245        | 1                       | 245  | 246        | 0                      | 1     | 1          | 492        |
| 05:15 PM    | 286                     | 0     | 286        | 0                       | 198  | 198        | 1                      | 1     | 2          | 486        |
| 05:30 PM    | 228                     | 1     | 229        | 0                       | 194  | 194        | 1                      | 2     | 3          | 426        |
| 05:45 PM    | 233                     | 1     | 234        | 1                       | 183  | 184        | 2                      | 1     | 3          | 421        |
| Total       | 992                     | 2     | 994        | 2                       | 820  | 822        | 4                      | 5     | 9          | 1825       |
| Grand Total | 1877                    | 9     | 1886       | 6                       | 1476 | 1482       | 6                      | 9     | 15         | 3383       |
| Apprch %    | 99.5                    | 0.5   |            | 0.4                     | 99.6 |            | 40                     | 60    |            |            |
| Total %     | 55.5                    | 0.3   | 55.7       | 0.2                     | 43.6 | 43.8       | 0.2                    | 0.3   | 0.4        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 245                     | 0     | 245        | 1                       | 245  | 246        | 0                      | 1     | 1          | 492        |
| 05:15 PM   | 286                     | 0     | 286        | 0                       | 198  | 198        | 1                      | 1     | 2          | 486        |
| 05:30 PM   | 228                     | 1     | 229        | 0                       | 194  | 194        | 1                      | 2     | 3          | 426        |
| 05:45 PM   | 233                     | 1     | 234        | 1                       | 183  | 184        | 2                      | 1     | 3          | 421        |
| Total Volume   | 992                     | 2     | 994        | 2                       | 820  | 822        | 4                      | 5     | 9          | 1825       |
| % App. Total   | 99.8                    | 0.2   |            | 0.2                     | 99.8 |            | 44.4                   | 55.6  |            |            |
| PHF  | .867                    | .500  | .869       | .500                    | .837 | .835       | .500                   | .625  | .750       | .927       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 245      | 0    | 245  | 1        | 245  | 246  | 0        | 1    | 1    |
| +15 mins.    | 286      | 0    | 286  | 0        | 198  | 198  | 1        | 1    | 2    |
| +30 mins.    | 228      | 1    | 229  | 0        | 194  | 194  | 1        | 2    | 3    |
| +45 mins.    | 233      | 1    | 234  | 1        | 183  | 184  | 2        | 1    | 3    |
| Total Volume | 992      | 2    | 994  | 2        | 820  | 822  | 4        | 5    | 9    |
| % App. Total | 99.8     | 0.2  | 99.8 | 0.2      | 99.8 | 99.8 | 44.4     | 55.6 |      |
| PHF          | .867     | .500 | .869 | .500     | .837 | .835 | .500     | .625 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

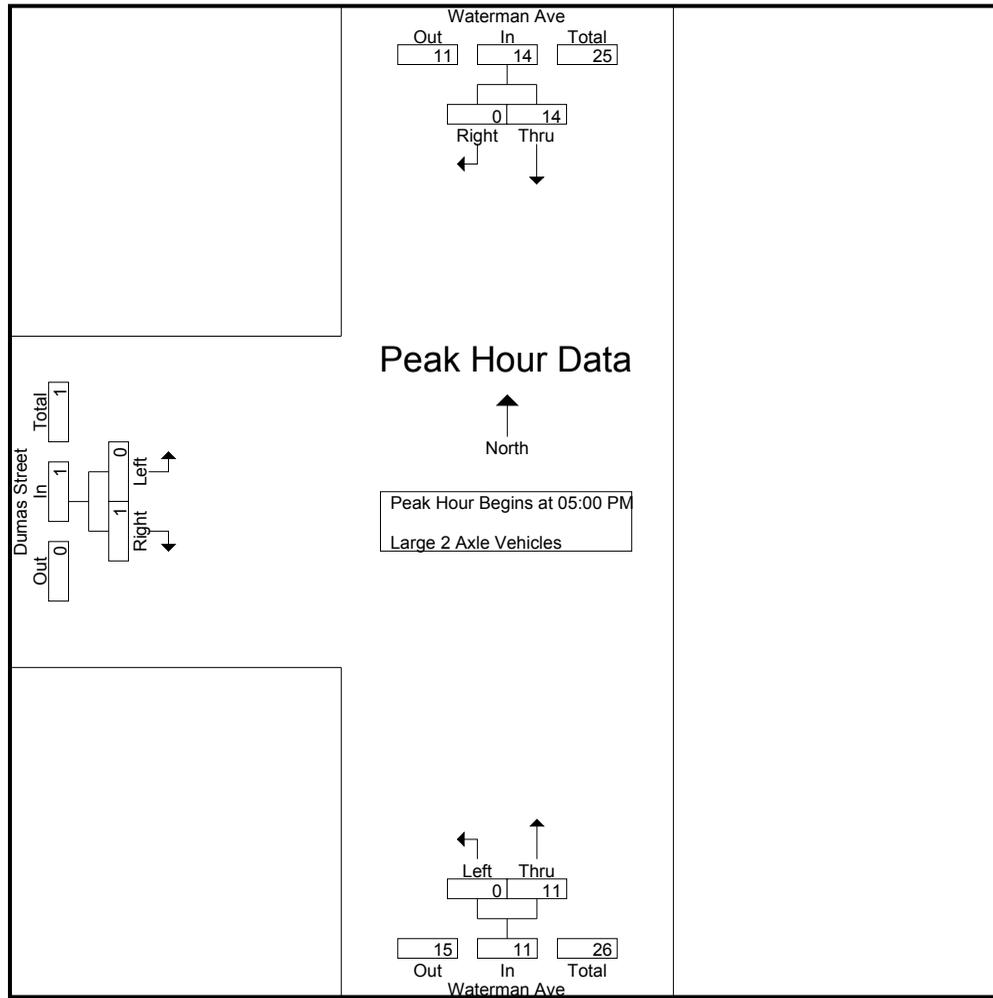
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 1                       | 0     | 1          | 0                       | 4    | 4          | 0                      | 0     | 0          | 5          |
| 04:15 PM    | 1                       | 0     | 1          | 0                       | 5    | 5          | 0                      | 0     | 0          | 6          |
| 04:30 PM    | 6                       | 0     | 6          | 0                       | 5    | 5          | 0                      | 0     | 0          | 11         |
| 04:45 PM    | 5                       | 0     | 5          | 1                       | 1    | 2          | 0                      | 0     | 0          | 7          |
| Total       | 13                      | 0     | 13         | 1                       | 15   | 16         | 0                      | 0     | 0          | 29         |
| 05:00 PM    | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 05:15 PM    | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| 05:30 PM    | 2                       | 0     | 2          | 0                       | 4    | 4          | 0                      | 0     | 0          | 6          |
| 05:45 PM    | 1                       | 0     | 1          | 0                       | 3    | 3          | 0                      | 1     | 1          | 5          |
| Total       | 14                      | 0     | 14         | 0                       | 11   | 11         | 0                      | 1     | 1          | 26         |
| Grand Total | 27                      | 0     | 27         | 1                       | 26   | 27         | 0                      | 1     | 1          | 55         |
| Apprch %    | 100                     | 0     |            | 3.7                     | 96.3 |            | 0                      | 100   |            |            |
| Total %     | 49.1                    | 0     | 49.1       | 1.8                     | 47.3 | 49.1       | 0                      | 1.8   | 1.8        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 0     | 0          | 7          |
| 05:15 PM   | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| 05:30 PM   | 2                       | 0     | 2          | 0                       | 4    | 4          | 0                      | 0     | 0          | 6          |
| 05:45 PM   | 1                       | 0     | 1          | 0                       | 3    | 3          | 0                      | 1     | 1          | 5          |
| Total Volume   | 14                      | 0     | 14         | 0                       | 11   | 11         | 0                      | 1     | 1          | 26         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 100   |            |            |
| PHF  | .583                    | .000  | .583       | .000                    | .688 | .688       | .000                   | .250  | .250       | .813       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 5        | 0    | 5    | 0        | 2    | 2    | 0        | 0    | 0    |
| +15 mins.    | 6        | 0    | 6    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 2        | 0    | 2    | 0        | 4    | 4    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 3    | 3    | 0        | 1    | 1    |
| Total Volume | 14       | 0    | 14   | 0        | 11   | 11   | 0        | 1    | 1    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 100  |      |
| PHF          | .583     | .000 | .583 | .000     | .688 | .688 | .000     | .250 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

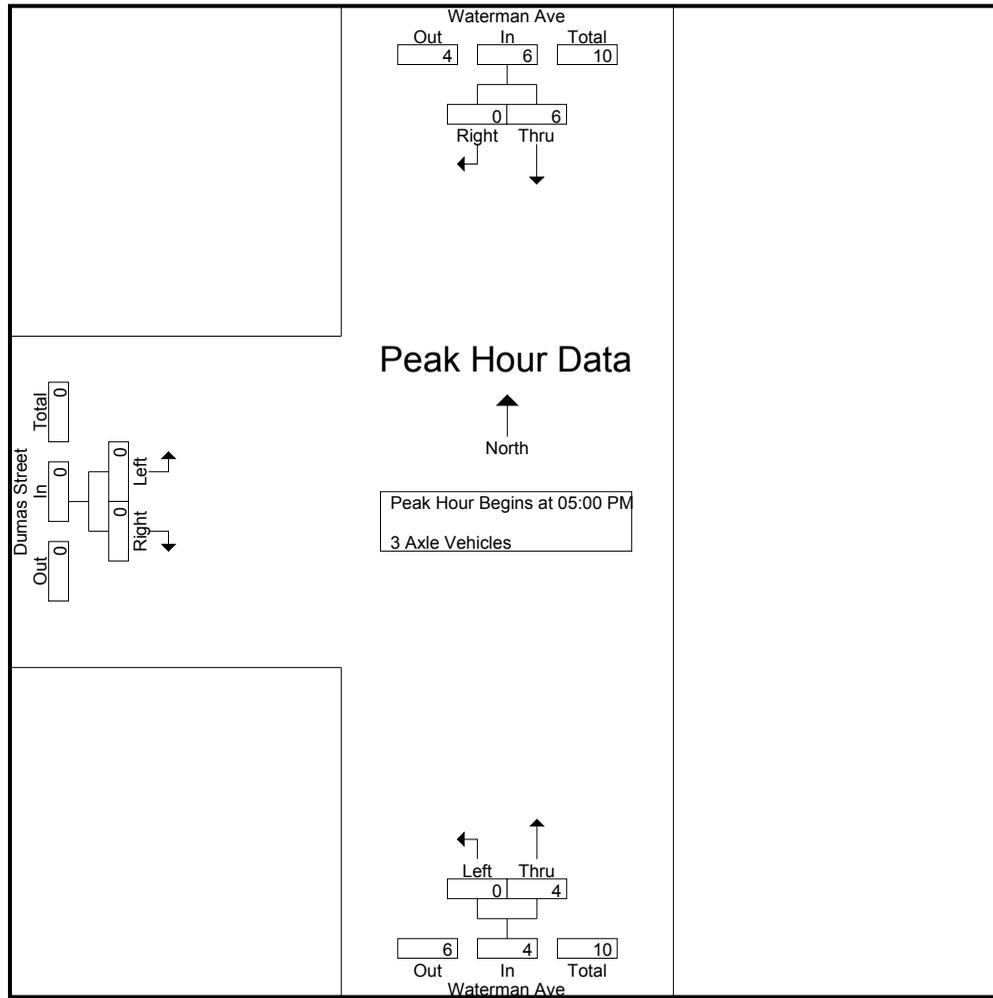
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| 04:15 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0     | 0          | 0                       | 0    | 0          | 0                      | 0     | 0          | 0          |
| 04:45 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| Total       | 3                       | 0     | 3          | 0                       | 2    | 2          | 0                      | 0     | 0          | 5          |
| 05:00 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:15 PM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 05:30 PM    | 2                       | 0     | 2          | 0                       | 1    | 1          | 0                      | 0     | 0          | 3          |
| 05:45 PM    | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| Total       | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| Grand Total | 9                       | 0     | 9          | 0                       | 6    | 6          | 0                      | 0     | 0          | 15         |
| Apprch %    | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| Total %     | 60                      | 0     | 60         | 0                       | 40   | 40         | 0                      | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:15 PM   | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| 05:30 PM   | 2                       | 0     | 2          | 0                       | 1    | 1          | 0                      | 0     | 0          | 3          |
| 05:45 PM   | 1                       | 0     | 1          | 0                       | 1    | 1          | 0                      | 0     | 0          | 2          |
| Total Volume   | 6                       | 0     | 6          | 0                       | 4    | 4          | 0                      | 0     | 0          | 10         |
| % App. Total   | 100                     | 0     |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .750                    | .000  | .750       | .000                    | .500 | .500       | .000                   | .000  | .000       | .625       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 2        | 0    | 2    | 0        | 2    | 2    | 0        | 0    | 0    |
| +30 mins.    | 2        | 0    | 2    | 0        | 1    | 1    | 0        | 0    | 0    |
| +45 mins.    | 1        | 0    | 1    | 0        | 1    | 1    | 0        | 0    | 0    |
| Total Volume | 6        | 0    | 6    | 0        | 4    | 4    | 0        | 0    | 0    |
| % App. Total | 100      | 0    |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .750     | .000 | .750 | .000     | .500 | .500 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

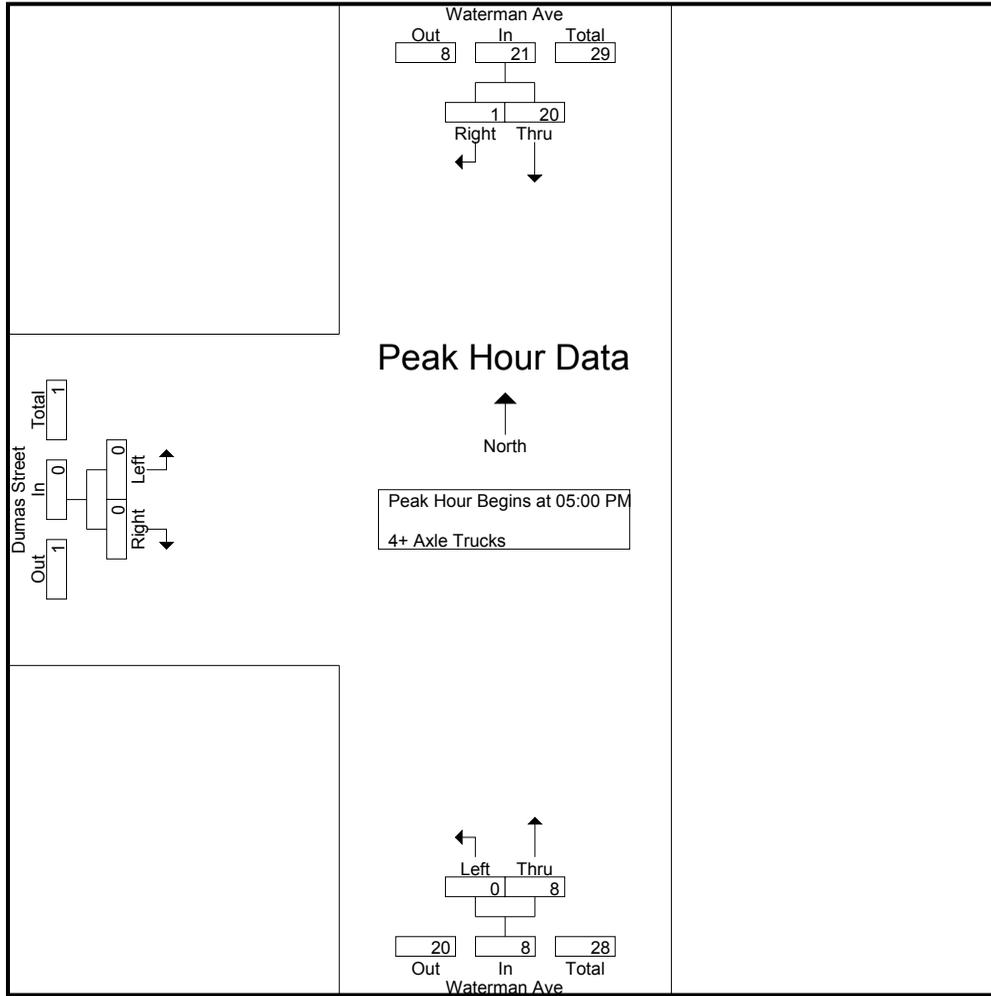
Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|-------------|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|             | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| 04:00 PM    | 4                       | 1     | 5          | 0                       | 4    | 4          | 0                      | 0     | 0          | 9          |
| 04:15 PM    | 5                       | 0     | 5          | 0                       | 2    | 2          | 0                      | 1     | 1          | 8          |
| 04:30 PM    | 5                       | 0     | 5          | 0                       | 3    | 3          | 0                      | 0     | 0          | 8          |
| 04:45 PM    | 2                       | 0     | 2          | 0                       | 2    | 2          | 0                      | 0     | 0          | 4          |
| Total       | 16                      | 1     | 17         | 0                       | 11   | 11         | 0                      | 1     | 1          | 29         |
| 05:00 PM    | 6                       | 1     | 7          | 0                       | 4    | 4          | 0                      | 0     | 0          | 11         |
| 05:15 PM    | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:30 PM    | 7                       | 0     | 7          | 0                       | 2    | 2          | 0                      | 0     | 0          | 9          |
| 05:45 PM    | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| Total       | 20                      | 1     | 21         | 0                       | 8    | 8          | 0                      | 0     | 0          | 29         |
| Grand Total | 36                      | 2     | 38         | 0                       | 19   | 19         | 0                      | 1     | 1          | 58         |
| Apprch %    | 94.7                    | 5.3   |            | 0                       | 100  |            | 0                      | 100   |            |            |
| Total %     | 62.1                    | 3.4   | 65.5       | 0                       | 32.8 | 32.8       | 0                      | 1.7   | 1.7        |            |

| Start Time   | Waterman Ave Southbound |       |            | Waterman Ave Northbound |      |            | Dumas Street Eastbound |       |            | Int. Total |
|--|-------------------------|-------|------------|-------------------------|------|------------|------------------------|-------|------------|------------|
|  | Thru                    | Right | App. Total | Left                    | Thru | App. Total | Left                   | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |       |            |                         |      |            |                        |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |       |            |                         |      |            |                        |       |            |            |
| 05:00 PM   | 6                       | 1     | 7          | 0                       | 4    | 4          | 0                      | 0     | 0          | 11         |
| 05:15 PM   | 1                       | 0     | 1          | 0                       | 0    | 0          | 0                      | 0     | 0          | 1          |
| 05:30 PM   | 7                       | 0     | 7          | 0                       | 2    | 2          | 0                      | 0     | 0          | 9          |
| 05:45 PM   | 6                       | 0     | 6          | 0                       | 2    | 2          | 0                      | 0     | 0          | 8          |
| Total Volume   | 20                      | 1     | 21         | 0                       | 8    | 8          | 0                      | 0     | 0          | 29         |
| % App. Total   | 95.2                    | 4.8   |            | 0                       | 100  |            | 0                      | 0     |            |            |
| PHF  | .714                    | .250  | .750       | .000                    | .500 | .500       | .000                   | .000  | .000       | .659       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Dumas Street  
 Weather: Clear

File Name : SBCWADUPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      | 05:00 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 6        | 1    | 7    | 0        | 4    | 4    | 0        | 0    | 0    |
| +15 mins.    | 1        | 0    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 7        | 0    | 7    | 0        | 2    | 2    | 0        | 0    | 0    |
| +45 mins.    | 6        | 0    | 6    | 0        | 2    | 2    | 0        | 0    | 0    |
| Total Volume | 20       | 1    | 21   | 0        | 8    | 8    | 0        | 0    | 0    |
| % App. Total | 95.2     | 4.8  |      | 0        | 100  |      | 0        | 0    |      |
| PHF          | .714     | .250 | .750 | .000     | .500 | .500 | .000     | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

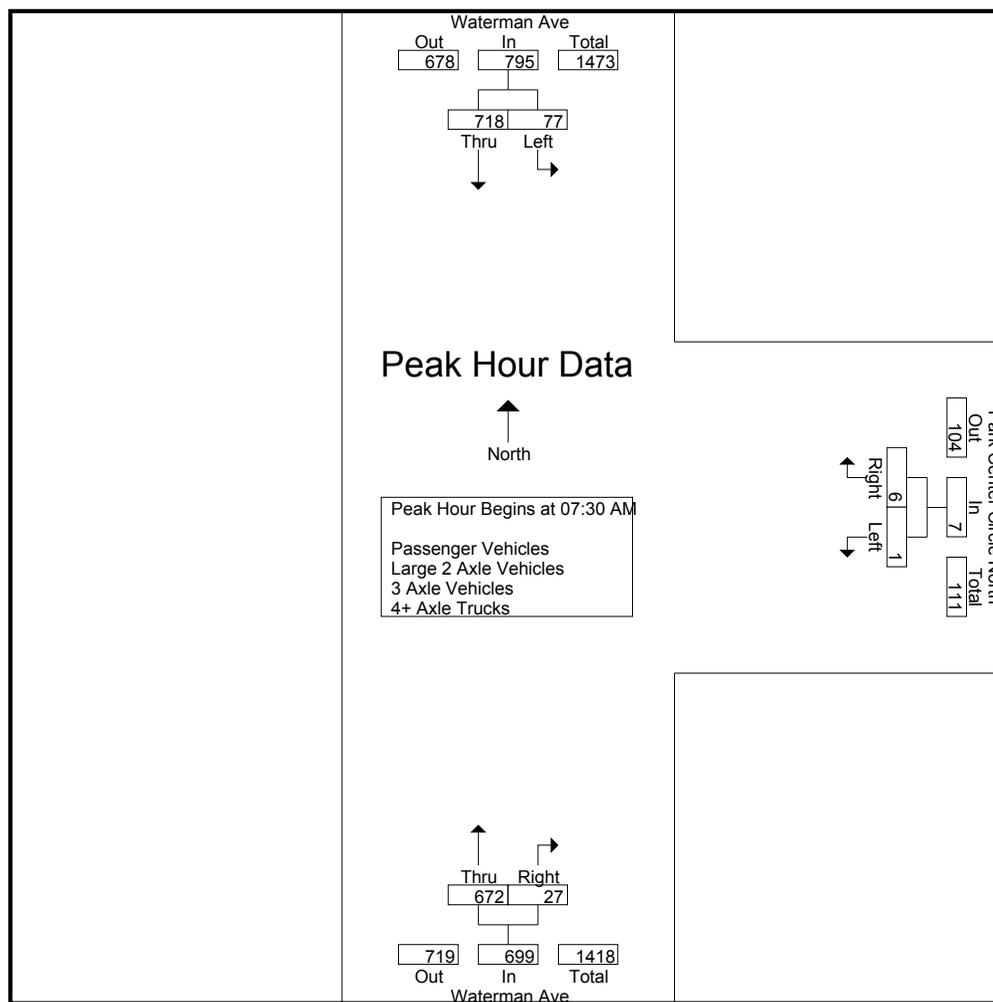
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|                         | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM                | 11                      | 114  | 125        | 1                                  | 0     | 1          | 139                     | 5     | 144        | 270        |
| 07:15 AM                | 23                      | 143  | 166        | 1                                  | 2     | 3          | 150                     | 8     | 158        | 327        |
| 07:30 AM                | 29                      | 152  | 181        | 0                                  | 0     | 0          | 158                     | 9     | 167        | 348        |
| 07:45 AM                | 23                      | 219  | 242        | 1                                  | 1     | 2          | 188                     | 5     | 193        | 437        |
| Total                   | 86                      | 628  | 714        | 3                                  | 3     | 6          | 635                     | 27    | 662        | 1382       |
| 08:00 AM                | 17                      | 180  | 197        | 0                                  | 5     | 5          | 175                     | 8     | 183        | 385        |
| 08:15 AM                | 8                       | 167  | 175        | 0                                  | 0     | 0          | 151                     | 5     | 156        | 331        |
| 08:30 AM                | 13                      | 152  | 165        | 2                                  | 2     | 4          | 158                     | 3     | 161        | 330        |
| 08:45 AM                | 4                       | 162  | 166        | 2                                  | 3     | 5          | 125                     | 7     | 132        | 303        |
| Total                   | 42                      | 661  | 703        | 4                                  | 10    | 14         | 609                     | 23    | 632        | 1349       |
| Grand Total             | 128                     | 1289 | 1417       | 7                                  | 13    | 20         | 1244                    | 50    | 1294       | 2731       |
| Apprch %                | 9                       | 91   |            | 35                                 | 65    |            | 96.1                    | 3.9   |            |            |
| Total %                 | 4.7                     | 47.2 | 51.9       | 0.3                                | 0.5   | 0.7        | 45.6                    | 1.8   | 47.4       |            |
| Passenger Vehicles      | 128                     | 1222 | 1350       | 4                                  | 10    | 14         | 1182                    | 50    | 1232       | 2596       |
| % Passenger Vehicles    | 100                     | 94.8 | 95.3       | 57.1                               | 76.9  | 70         | 95                      | 100   | 95.2       | 95.1       |
| Large 2 Axle Vehicles   | 0                       | 32   | 32         | 2                                  | 3     | 5          | 20                      | 0     | 20         | 57         |
| % Large 2 Axle Vehicles | 0                       | 2.5  | 2.3        | 28.6                               | 23.1  | 25         | 1.6                     | 0     | 1.5        | 2.1        |
| 3 Axle Vehicles         | 0                       | 9    | 9          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 13         |
| % 3 Axle Vehicles       | 0                       | 0.7  | 0.6        | 0                                  | 0     | 0          | 0.3                     | 0     | 0.3        | 0.5        |
| 4+ Axle Trucks          | 0                       | 26   | 26         | 1                                  | 0     | 1          | 38                      | 0     | 38         | 65         |
| % 4+ Axle Trucks        | 0                       | 2    | 1.8        | 14.3                               | 0     | 5          | 3.1                     | 0     | 2.9        | 2.4        |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 29                      | 152  | 181        | 0                                  | 0     | 0          | 158                     | 9     | 167        | 348        |
| 07:45 AM     | 23                      | 219  | 242        | 1                                  | 1     | 2          | 188                     | 5     | 193        | 437        |
| 08:00 AM     | 17                      | 180  | 197        | 0                                  | 5     | 5          | 175                     | 8     | 183        | 385        |
| 08:15 AM     | 8                       | 167  | 175        | 0                                  | 0     | 0          | 151                     | 5     | 156        | 331        |
| Total Volume | 77                      | 718  | 795        | 1                                  | 6     | 7          | 672                     | 27    | 699        | 1501       |
| % App. Total | 9.7                     | 90.3 |            | 14.3                               | 85.7  |            | 96.1                    | 3.9   |            |            |
| PHF          | .664                    | .820 | .821       | .250                               | .300  | .350       | .894                    | .750  | .905       | .859       |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 08:00 AM |      |      | 07:15 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 29       | 152  | 181  | 0        | 5    | 5    | 150      | 8    | 158  |
| +15 mins.    | 23       | 219  | 242  | 0        | 0    | 0    | 158      | 9    | 167  |
| +30 mins.    | 17       | 180  | 197  | 2        | 2    | 4    | 188      | 5    | 193  |
| +45 mins.    | 8        | 167  | 175  | 2        | 3    | 5    | 175      | 8    | 183  |
| Total Volume | 77       | 718  | 795  | 4        | 10   | 14   | 671      | 30   | 701  |
| % App. Total | 9.7      | 90.3 |      | 28.6     | 71.4 |      | 95.7     | 4.3  |      |
| PHF          | .664     | .820 | .821 | .500     | .500 | .700 | .892     | .833 | .908 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

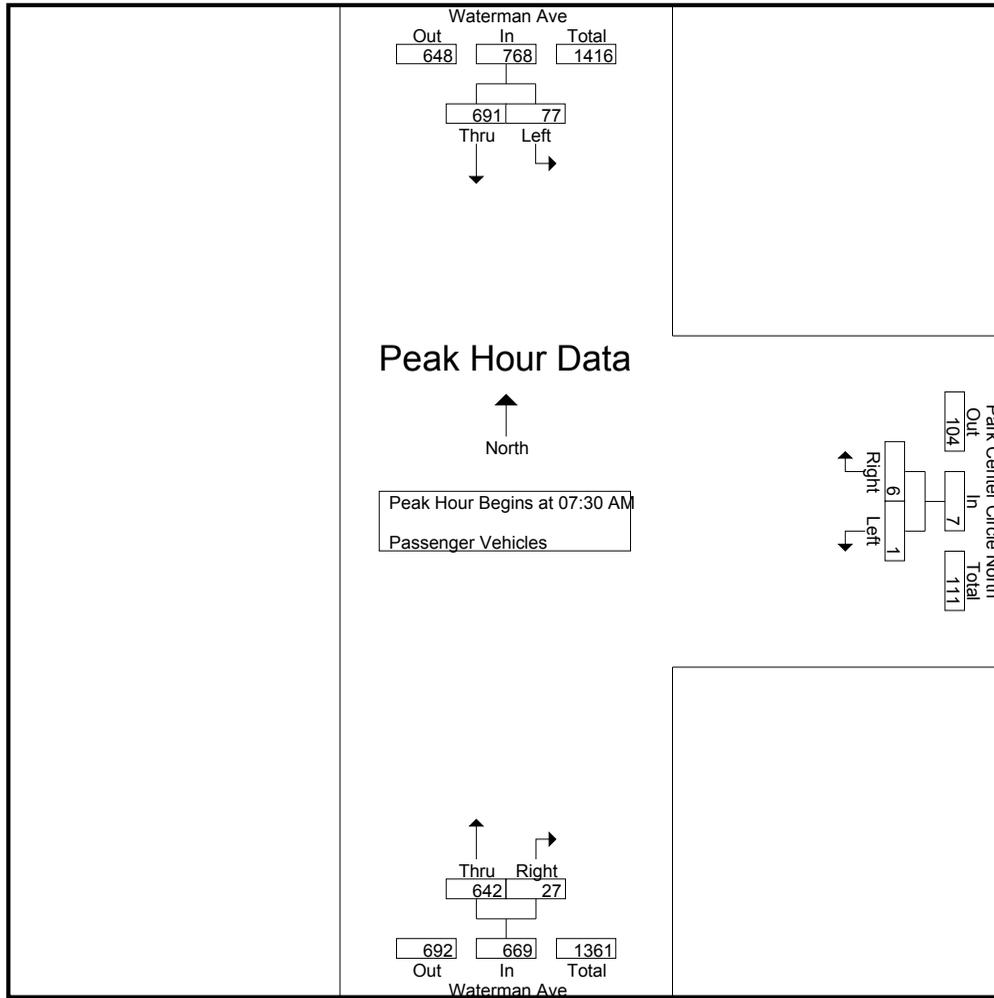
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 11                      | 105  | 116        | 0                                  | 0     | 0          | 133                     | 5     | 138        | 254        |
| 07:15 AM    | 23                      | 128  | 151        | 0                                  | 1     | 1          | 143                     | 8     | 151        | 303        |
| 07:30 AM    | 29                      | 149  | 178        | 0                                  | 0     | 0          | 155                     | 9     | 164        | 342        |
| 07:45 AM    | 23                      | 211  | 234        | 1                                  | 1     | 2          | 179                     | 5     | 184        | 420        |
| Total       | 86                      | 593  | 679        | 1                                  | 2     | 3          | 610                     | 27    | 637        | 1319       |
| 08:00 AM    | 17                      | 173  | 190        | 0                                  | 5     | 5          | 167                     | 8     | 175        | 370        |
| 08:15 AM    | 8                       | 158  | 166        | 0                                  | 0     | 0          | 141                     | 5     | 146        | 312        |
| 08:30 AM    | 13                      | 145  | 158        | 2                                  | 1     | 3          | 150                     | 3     | 153        | 314        |
| 08:45 AM    | 4                       | 153  | 157        | 1                                  | 2     | 3          | 114                     | 7     | 121        | 281        |
| Total       | 42                      | 629  | 671        | 3                                  | 8     | 11         | 572                     | 23    | 595        | 1277       |
| Grand Total | 128                     | 1222 | 1350       | 4                                  | 10    | 14         | 1182                    | 50    | 1232       | 2596       |
| Apprch %    | 9.5                     | 90.5 |            | 28.6                               | 71.4  |            | 95.9                    | 4.1   |            |            |
| Total %     | 4.9                     | 47.1 | 52         | 0.2                                | 0.4   | 0.5        | 45.5                    | 1.9   | 47.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 29                      | 149  | 178        | 0                                  | 0     | 0          | 155                     | 9     | 164        | 342        |
| 07:45 AM     | 23                      | 211  | 234        | 1                                  | 1     | 2          | 179                     | 5     | 184        | 420        |
| 08:00 AM     | 17                      | 173  | 190        | 0                                  | 5     | 5          | 167                     | 8     | 175        | 370        |
| 08:15 AM     | 8                       | 158  | 166        | 0                                  | 0     | 0          | 141                     | 5     | 146        | 312        |
| Total Volume | 77                      | 691  | 768        | 1                                  | 6     | 7          | 642                     | 27    | 669        | 1444       |
| % App. Total | 10                      | 90   |            | 14.3                               | 85.7  |            | 96                      | 4     |            |            |
| PHF          | .664                    | .819 | .821       | .250                               | .300  | .350       | .897                    | .750  | .909       | .860       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 29       | 149  | 178  | 0        | 0    | 0    | 155      | 9    | 164  |
| +15 mins.    | 23       | 211  | 234  | 1        | 1    | 2    | 179      | 5    | 184  |
| +30 mins.    | 17       | 173  | 190  | 0        | 5    | 5    | 167      | 8    | 175  |
| +45 mins.    | 8        | 158  | 166  | 0        | 0    | 0    | 141      | 5    | 146  |
| Total Volume | 77       | 691  | 768  | 1        | 6    | 7    | 642      | 27   | 669  |
| % App. Total | 10       | 90   |      | 14.3     | 85.7 |      | 96       | 4    |      |
| PHF          | .664     | .819 | .821 | .250     | .300 | .350 | .897     | .750 | .909 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

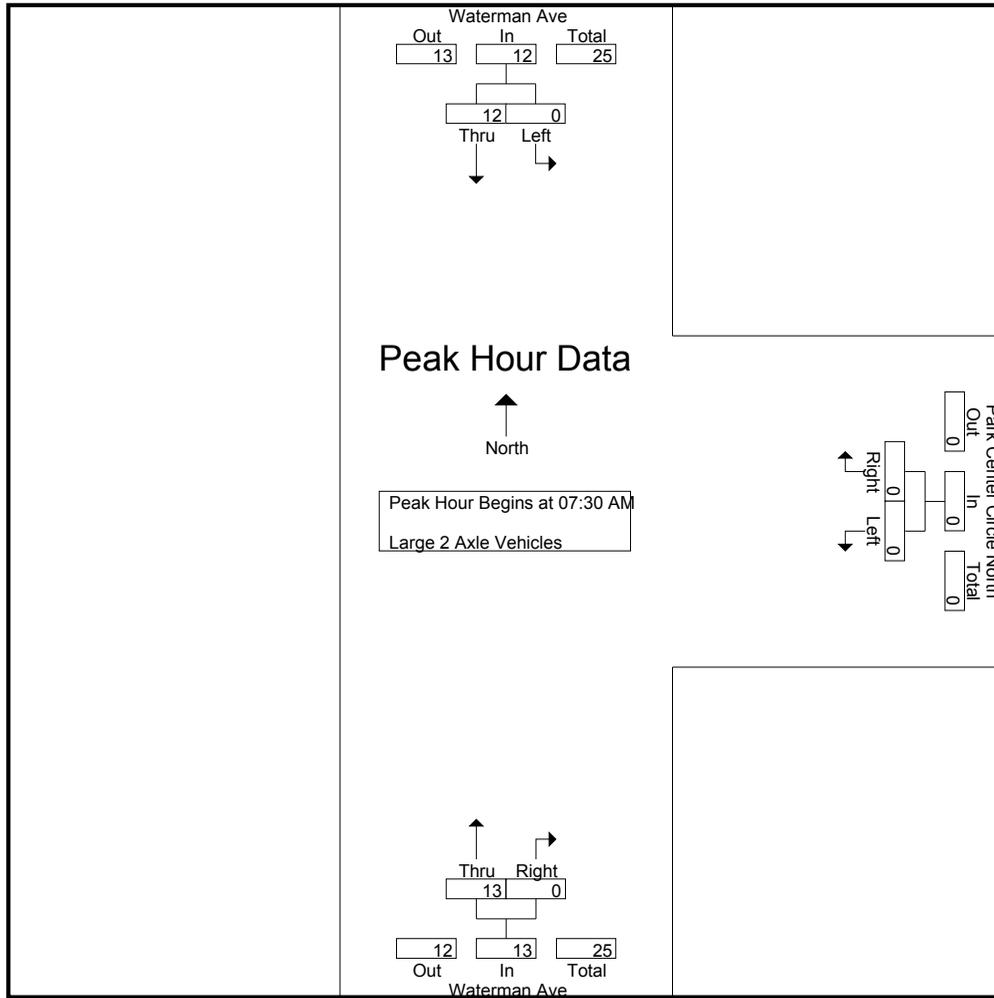
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 4          |
| 07:15 AM    | 0                       | 10   | 10         | 1                                  | 1     | 2          | 1                       | 0     | 1          | 13         |
| 07:30 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 3          |
| 07:45 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 7          |
| Total       | 0                       | 18   | 18         | 1                                  | 1     | 2          | 7                       | 0     | 7          | 27         |
| 08:00 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 4          |
| 08:15 AM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 11         |
| 08:30 AM    | 0                       | 3    | 3          | 0                                  | 1     | 1          | 2                       | 0     | 2          | 6          |
| 08:45 AM    | 0                       | 4    | 4          | 1                                  | 1     | 2          | 3                       | 0     | 3          | 9          |
| Total       | 0                       | 14   | 14         | 1                                  | 2     | 3          | 13                      | 0     | 13         | 30         |
| Grand Total | 0                       | 32   | 32         | 2                                  | 3     | 5          | 20                      | 0     | 20         | 57         |
| Apprch %    | 0                       | 100  |            | 40                                 | 60    |            | 100                     | 0     |            |            |
| Total %     | 0                       | 56.1 | 56.1       | 3.5                                | 5.3   | 8.8        | 35.1                    | 0     | 35.1       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 3          |
| 07:45 AM     | 0                       | 4    | 4          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 7          |
| 08:00 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 4          |
| 08:15 AM     | 0                       | 6    | 6          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 11         |
| Total Volume | 0                       | 12   | 12         | 0                                  | 0     | 0          | 13                      | 0     | 13         | 25         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .500 | .500       | .000                               | .000  | .000       | .650                    | .000  | .650       | .568       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 1    | 1    | 0        | 0    | 0    | 2        | 0    | 2    |
| +15 mins.    | 0        | 4    | 4    | 0        | 0    | 0    | 3        | 0    | 3    |
| +30 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 3        | 0    | 3    |
| +45 mins.    | 0        | 6    | 6    | 0        | 0    | 0    | 5        | 0    | 5    |
| Total Volume | 0        | 12   | 12   | 0        | 0    | 0    | 13       | 0    | 13   |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .500 | .500 | .000     | .000 | .000 | .650     | .000 | .650 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

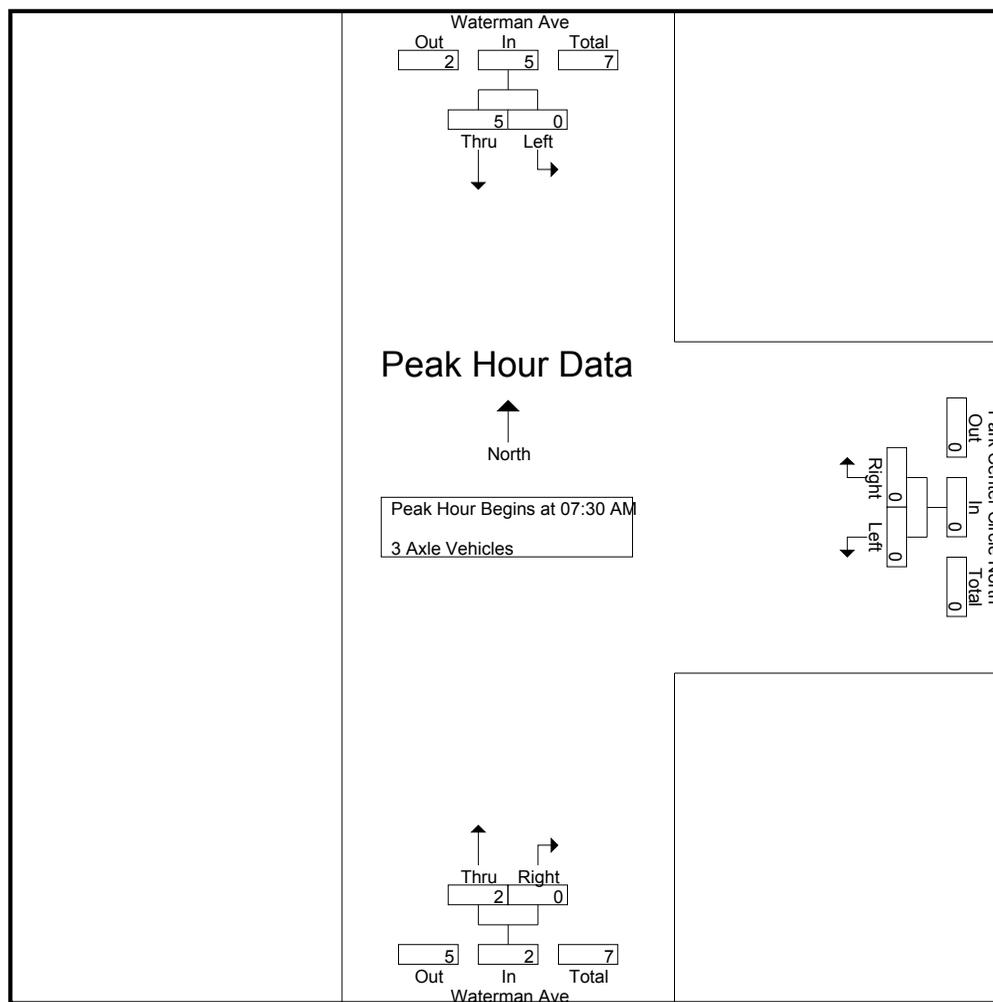
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 3          |
| 07:15 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 07:30 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 2          |
| 07:45 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total       | 0                       | 6    | 6          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 8          |
| 08:00 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 08:15 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 08:30 AM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 08:45 AM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total       | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| Grand Total | 0                       | 9    | 9          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 13         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 69.2 | 69.2       | 0                                  | 0     | 0          | 30.8                    | 0     | 30.8       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 2          |
| 07:45 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 08:00 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 08:15 AM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total Volume | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .625 | .625       | .000                               | .000  | .000       | .500                    | .000  | .500       | .875       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 2    | 2    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 1        | 0    | 1    |
| +30 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 1        | 0    | 1    |
| Total Volume | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .625 | .625 | .000     | .000 | .000 | .500     | .000 | .500 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

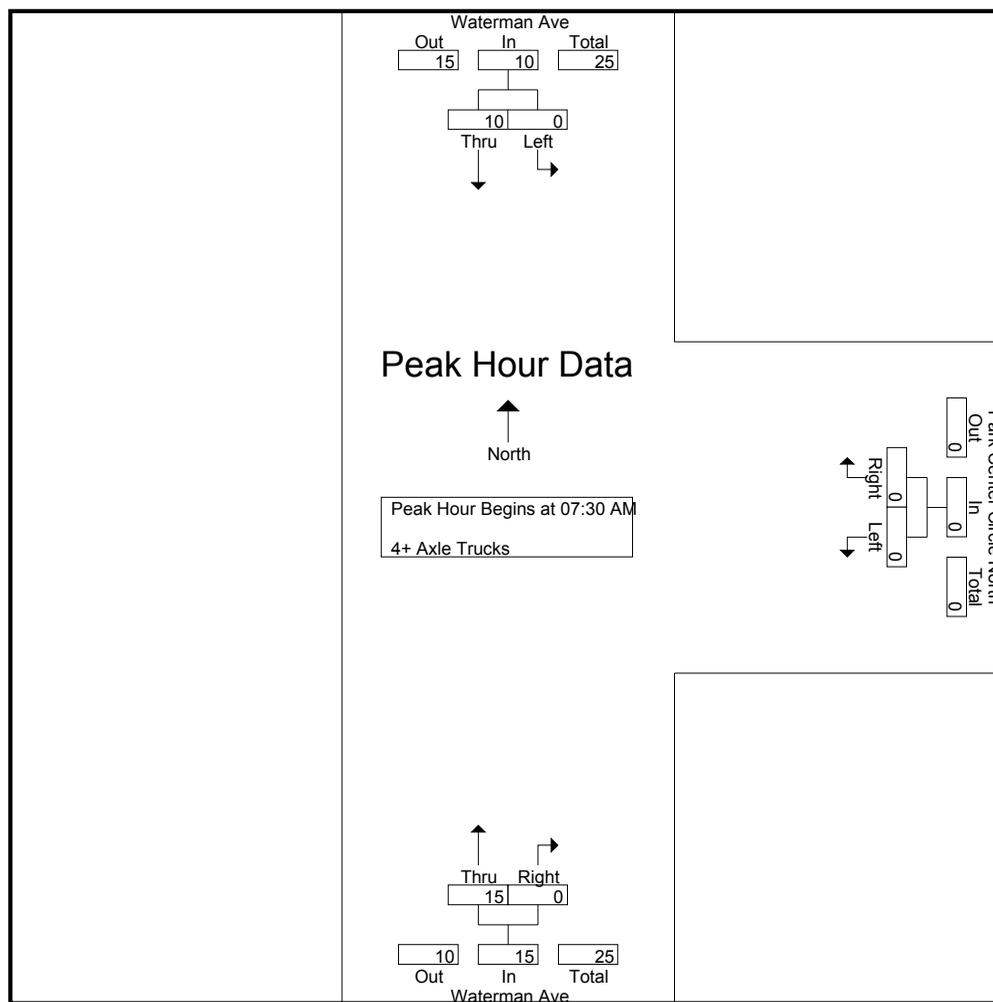
File Name : SBCWAPNAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:00 AM    | 0                       | 4    | 4          | 1                                  | 0     | 1          | 4                       | 0     | 4          | 9          |
| 07:15 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 6                       | 0     | 6          | 10         |
| 07:30 AM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 07:45 AM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 8          |
| Total       | 0                       | 11   | 11         | 1                                  | 0     | 1          | 16                      | 0     | 16         | 28         |
| 08:00 AM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 10         |
| 08:15 AM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 6          |
| 08:30 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 08:45 AM    | 0                       | 4    | 4          | 0                                  | 0     | 0          | 8                       | 0     | 8          | 12         |
| Total       | 0                       | 15   | 15         | 0                                  | 0     | 0          | 22                      | 0     | 22         | 37         |
| Grand Total | 0                       | 26   | 26         | 1                                  | 0     | 1          | 38                      | 0     | 38         | 65         |
| Apprch %    | 0                       | 100  |            | 100                                | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 40   | 40         | 1.5                                | 0     | 1.5        | 58.5                    | 0     | 58.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 07:30 AM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 1          |
| 07:45 AM     | 0                       | 3    | 3          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 8          |
| 08:00 AM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 10         |
| 08:15 AM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 6          |
| Total Volume | 0                       | 10   | 10         | 0                                  | 0     | 0          | 15                      | 0     | 15         | 25         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .500 | .500       | .000                               | .000  | .000       | .750                    | .000  | .750       | .625       |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      | 07:30 AM |      |      | 07:30 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 0    | 0    | 1        | 0    | 1    |
| +15 mins.    | 0        | 3    | 3    | 0        | 0    | 0    | 5        | 0    | 5    |
| +30 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 5        | 0    | 5    |
| +45 mins.    | 0        | 2    | 2    | 0        | 0    | 0    | 4        | 0    | 4    |
| Total Volume | 0        | 10   | 10   | 0        | 0    | 0    | 15       | 0    | 15   |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .500 | .500 | .000     | .000 | .000 | .750     | .000 | .750 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

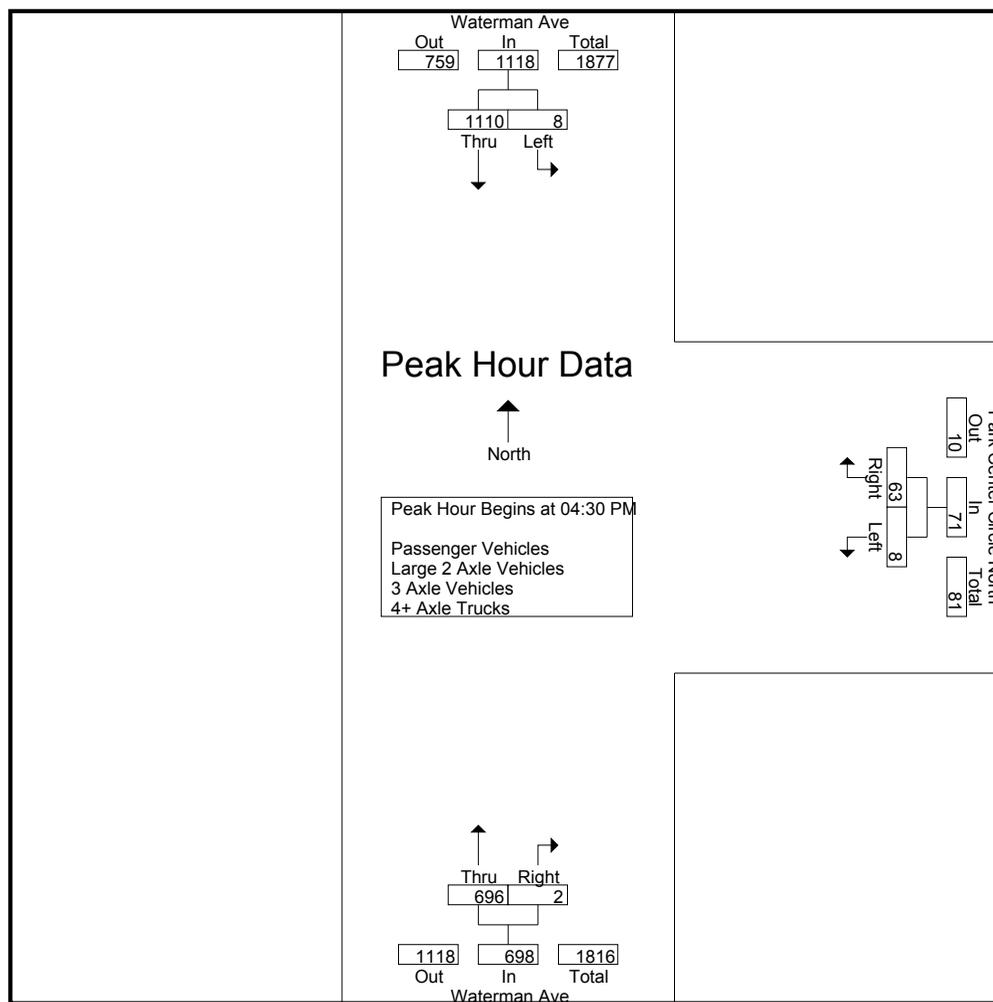
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|                         | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM                | 1                       | 176  | 177        | 4                                  | 7     | 11         | 192                     | 3     | 195        | 383        |
| 04:15 PM                | 2                       | 228  | 230        | 1                                  | 5     | 6          | 163                     | 1     | 164        | 400        |
| 04:30 PM                | 2                       | 283  | 285        | 1                                  | 10    | 11         | 165                     | 0     | 165        | 461        |
| 04:45 PM                | 2                       | 282  | 284        | 1                                  | 9     | 10         | 142                     | 2     | 144        | 438        |
| Total                   | 7                       | 969  | 976        | 7                                  | 31    | 38         | 662                     | 6     | 668        | 1682       |
| 05:00 PM                | 3                       | 258  | 261        | 4                                  | 38    | 42         | 202                     | 0     | 202        | 505        |
| 05:15 PM                | 1                       | 287  | 288        | 2                                  | 6     | 8          | 187                     | 0     | 187        | 483        |
| 05:30 PM                | 0                       | 247  | 247        | 3                                  | 22    | 25         | 182                     | 0     | 182        | 454        |
| 05:45 PM                | 0                       | 250  | 250        | 0                                  | 8     | 8          | 177                     | 0     | 177        | 435        |
| Total                   | 4                       | 1042 | 1046       | 9                                  | 74    | 83         | 748                     | 0     | 748        | 1877       |
| Grand Total             | 11                      | 2011 | 2022       | 16                                 | 105   | 121        | 1410                    | 6     | 1416       | 3559       |
| Apprch %                | 0.5                     | 99.5 |            | 13.2                               | 86.8  |            | 99.6                    | 0.4   |            |            |
| Total %                 | 0.3                     | 56.5 | 56.8       | 0.4                                | 3     | 3.4        | 39.6                    | 0.2   | 39.8       |            |
| Passenger Vehicles      | 9                       | 1940 | 1949       | 16                                 | 104   | 120        | 1362                    | 6     | 1368       | 3437       |
| % Passenger Vehicles    | 81.8                    | 96.5 | 96.4       | 100                                | 99    | 99.2       | 96.6                    | 100   | 96.6       | 96.6       |
| Large 2 Axle Vehicles   | 2                       | 25   | 27         | 0                                  | 1     | 1          | 24                      | 0     | 24         | 52         |
| % Large 2 Axle Vehicles | 18.2                    | 1.2  | 1.3        | 0                                  | 1     | 0.8        | 1.7                     | 0     | 1.7        | 1.5        |
| 3 Axle Vehicles         | 0                       | 8    | 8          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 13         |
| % 3 Axle Vehicles       | 0                       | 0.4  | 0.4        | 0                                  | 0     | 0          | 0.4                     | 0     | 0.4        | 0.4        |
| 4+ Axle Trucks          | 0                       | 38   | 38         | 0                                  | 0     | 0          | 19                      | 0     | 19         | 57         |
| % 4+ Axle Trucks        | 0                       | 1.9  | 1.9        | 0                                  | 0     | 0          | 1.3                     | 0     | 1.3        | 1.6        |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 2                       | 283  | 285        | 1                                  | 10    | 11         | 165                     | 0     | 165        | 461        |
| 04:45 PM     | 2                       | 282  | 284        | 1                                  | 9     | 10         | 142                     | 2     | 144        | 438        |
| 05:00 PM     | 3                       | 258  | 261        | 4                                  | 38    | 42         | 202                     | 0     | 202        | 505        |
| 05:15 PM     | 1                       | 287  | 288        | 2                                  | 6     | 8          | 187                     | 0     | 187        | 483        |
| Total Volume | 8                       | 1110 | 1118       | 8                                  | 63    | 71         | 696                     | 2     | 698        | 1887       |
| % App. Total | 0.7                     | 99.3 |            | 11.3                               | 88.7  |            | 99.7                    | 0.3   |            |            |
| PHF          | .667                    | .967 | .970       | .500                               | .414  | .423       | .861                    | .250  | .864       | .934       |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:45 PM |      |      | 05:00 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 2        | 283  | 285  | 1        | 9    | 10   | 202      | 0    | 202  |
| +15 mins.    | 2        | 282  | 284  | 4        | 38   | 42   | 187      | 0    | 187  |
| +30 mins.    | 3        | 258  | 261  | 2        | 6    | 8    | 182      | 0    | 182  |
| +45 mins.    | 1        | 287  | 288  | 3        | 22   | 25   | 177      | 0    | 177  |
| Total Volume | 8        | 1110 | 1118 | 10       | 75   | 85   | 748      | 0    | 748  |
| % App. Total | 0.7      | 99.3 |      | 11.8     | 88.2 |      | 100      | 0    |      |
| PHF          | .667     | .967 | .970 | .625     | .493 | .506 | .926     | .000 | .926 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

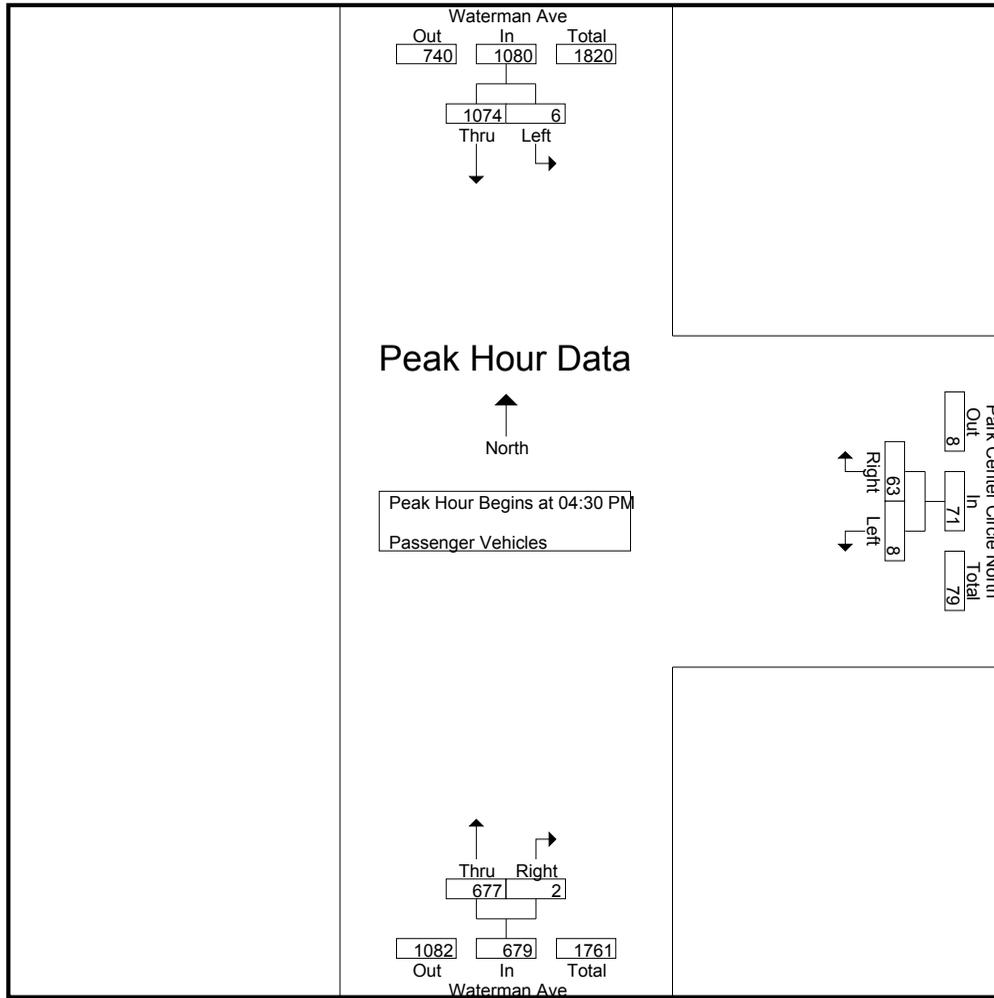
| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 1                       | 169  | 170        | 4                                  | 6     | 10         | 184                     | 3     | 187        | 367        |
| 04:15 PM    | 2                       | 220  | 222        | 1                                  | 5     | 6          | 155                     | 1     | 156        | 384        |
| 04:30 PM    | 1                       | 275  | 276        | 1                                  | 10    | 11         | 157                     | 0     | 157        | 444        |
| 04:45 PM    | 1                       | 270  | 271        | 1                                  | 9     | 10         | 139                     | 2     | 141        | 422        |
| Total       | 5                       | 934  | 939        | 7                                  | 30    | 37         | 635                     | 6     | 641        | 1617       |
| 05:00 PM    | 3                       | 250  | 253        | 4                                  | 38    | 42         | 198                     | 0     | 198        | 493        |
| 05:15 PM    | 1                       | 279  | 280        | 2                                  | 6     | 8          | 183                     | 0     | 183        | 471        |
| 05:30 PM    | 0                       | 236  | 236        | 3                                  | 22    | 25         | 176                     | 0     | 176        | 437        |
| 05:45 PM    | 0                       | 241  | 241        | 0                                  | 8     | 8          | 170                     | 0     | 170        | 419        |
| Total       | 4                       | 1006 | 1010       | 9                                  | 74    | 83         | 727                     | 0     | 727        | 1820       |
| Grand Total | 9                       | 1940 | 1949       | 16                                 | 104   | 120        | 1362                    | 6     | 1368       | 3437       |
| Apprch %    | 0.5                     | 99.5 |            | 13.3                               | 86.7  |            | 99.6                    | 0.4   |            |            |
| Total %     | 0.3                     | 56.4 | 56.7       | 0.5                                | 3     | 3.5        | 39.6                    | 0.2   | 39.8       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 1                       | 275  | 276        | 1                                  | 10    | 11         | 157                     | 0     | 157        | 444        |
| 04:45 PM     | 1                       | 270  | 271        | 1                                  | 9     | 10         | 139                     | 2     | 141        | 422        |
| 05:00 PM     | 3                       | 250  | 253        | 4                                  | 38    | 42         | 198                     | 0     | 198        | 493        |
| 05:15 PM     | 1                       | 279  | 280        | 2                                  | 6     | 8          | 183                     | 0     | 183        | 471        |
| Total Volume | 6                       | 1074 | 1080       | 8                                  | 63    | 71         | 677                     | 2     | 679        | 1830       |
| % App. Total | 0.6                     | 99.4 |            | 11.3                               | 88.7  |            | 99.7                    | 0.3   |            |            |
| PHF          | .500                    | .962 | .964       | .500                               | .414  | .423       | .855                    | .250  | .857       | .928       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 275  | 276  | 1        | 10   | 11   | 157      | 0    | 157  |
| +15 mins.    | 1        | 270  | 271  | 1        | 9    | 10   | 139      | 2    | 141  |
| +30 mins.    | 3        | 250  | 253  | 4        | 38   | 42   | 198      | 0    | 198  |
| +45 mins.    | 1        | 279  | 280  | 2        | 6    | 8    | 183      | 0    | 183  |
| Total Volume | 6        | 1074 | 1080 | 8        | 63   | 71   | 677      | 2    | 679  |
| % App. Total | 0.6      | 99.4 |      | 11.3     | 88.7 |      | 99.7     | 0.3  |      |
| PHF          | .500     | .962 | .964 | .500     | .414 | .423 | .855     | .250 | .857 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

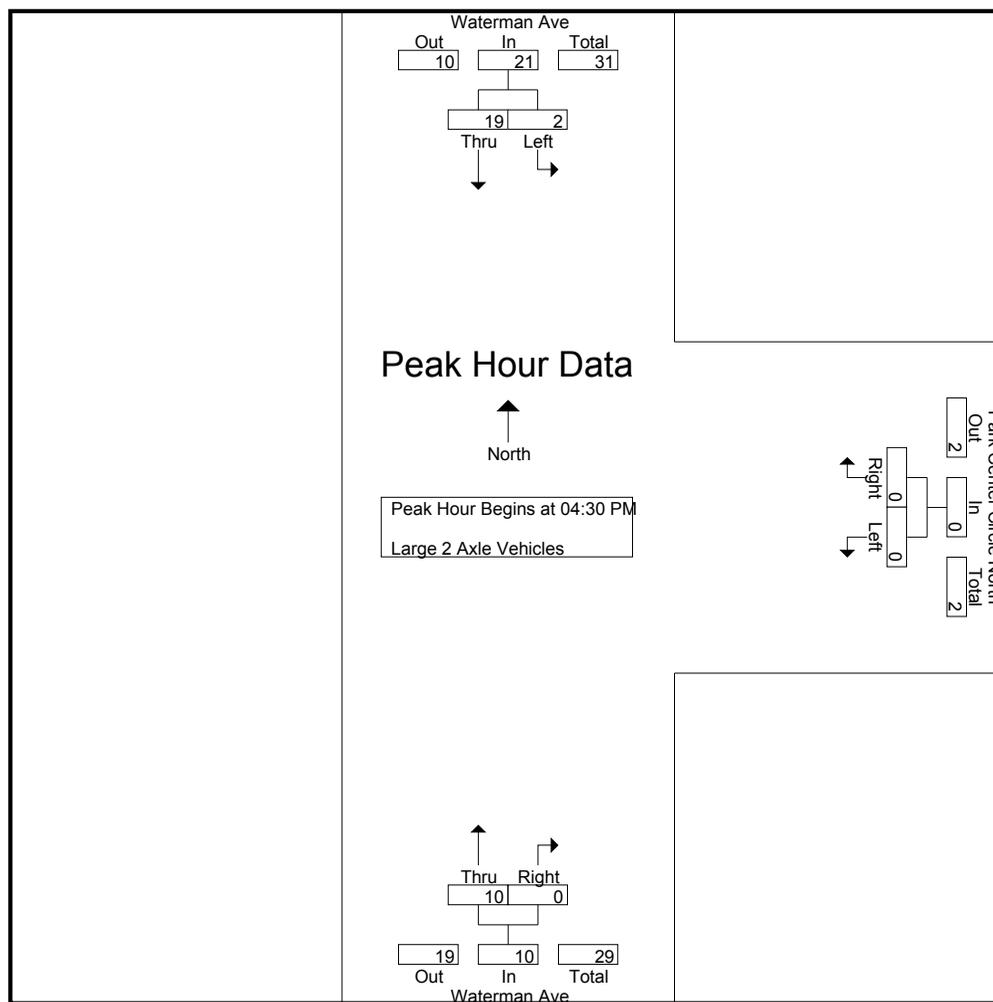
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 1          | 0                                  | 1     | 1          | 4                       | 0     | 4          | 6          |
| 04:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 6          |
| 04:30 PM    | 1                       | 3    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 04:45 PM    | 1                       | 6    | 7          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 8          |
| Total       | 2                       | 11   | 13         | 0                                  | 1     | 1          | 15                      | 0     | 15         | 29         |
| 05:00 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:15 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:30 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 5          |
| 05:45 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| Total       | 0                       | 14   | 14         | 0                                  | 0     | 0          | 9                       | 0     | 9          | 23         |
| Grand Total | 2                       | 25   | 27         | 0                                  | 1     | 1          | 24                      | 0     | 24         | 52         |
| Apprch %    | 7.4                     | 92.6 |            | 0                                  | 100   |            | 100                     | 0     |            |            |
| Total %     | 3.8                     | 48.1 | 51.9       | 0                                  | 1.9   | 1.9        | 46.2                    | 0     | 46.2       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 1                       | 3    | 4          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 9          |
| 04:45 PM     | 1                       | 6    | 7          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 8          |
| 05:00 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:15 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| Total Volume | 2                       | 19   | 21         | 0                                  | 0     | 0          | 10                      | 0     | 10         | 31         |
| % App. Total | 9.5                     | 90.5 |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .500                    | .792 | .750       | .000                               | .000  | .000       | .500                    | .000  | .500       | .861       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 1        | 3    | 4    | 0        | 0    | 0    | 5        | 0    | 5    |
| +15 mins.    | 1        | 6    | 7    | 0        | 0    | 0    | 1        | 0    | 1    |
| +30 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| +45 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| Total Volume | 2        | 19   | 21   | 0        | 0    | 0    | 10       | 0    | 10   |
| % App. Total | 9.5      | 90.5 |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .500     | .792 | .750 | .000     | .000 | .000 | .500     | .000 | .500 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

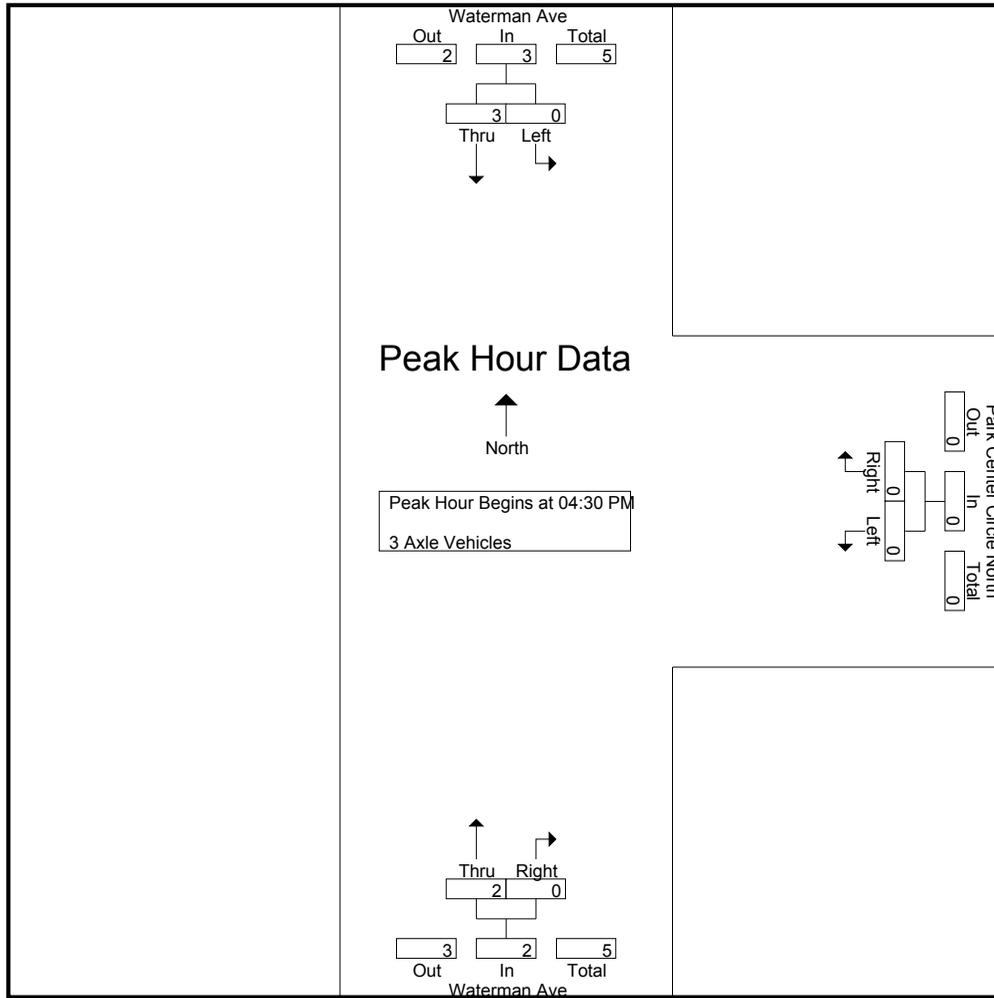
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 04:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| 04:30 PM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 04:45 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total       | 0                       | 3    | 3          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 4          |
| 05:00 PM    | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| 05:30 PM    | 0                       | 2    | 2          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 3          |
| 05:45 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 1                       | 0     | 1          | 2          |
| Total       | 0                       | 5    | 5          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 9          |
| Grand Total | 0                       | 8    | 8          | 0                                  | 0     | 0          | 5                       | 0     | 5          | 13         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 61.5 | 61.5       | 0                                  | 0     | 0          | 38.5                    | 0     | 38.5       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 04:45 PM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 05:00 PM     | 0                       | 0    | 0          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 0          |
| 05:15 PM     | 0                       | 2    | 2          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 4          |
| Total Volume | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .375 | .375       | .000                               | .000  | .000       | .250                    | .000  | .250       | .313       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| +15 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| +30 mins.    | 0        | 0    | 0    | 0        | 0    | 0    | 0        | 0    | 0    |
| +45 mins.    | 0        | 2    | 2    | 0        | 0    | 0    | 2        | 0    | 2    |
| Total Volume | 0        | 3    | 3    | 0        | 0    | 0    | 2        | 0    | 2    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .375 | .375 | .000     | .000 | .000 | .250     | .000 | .250 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle North  
 Weather: Clear

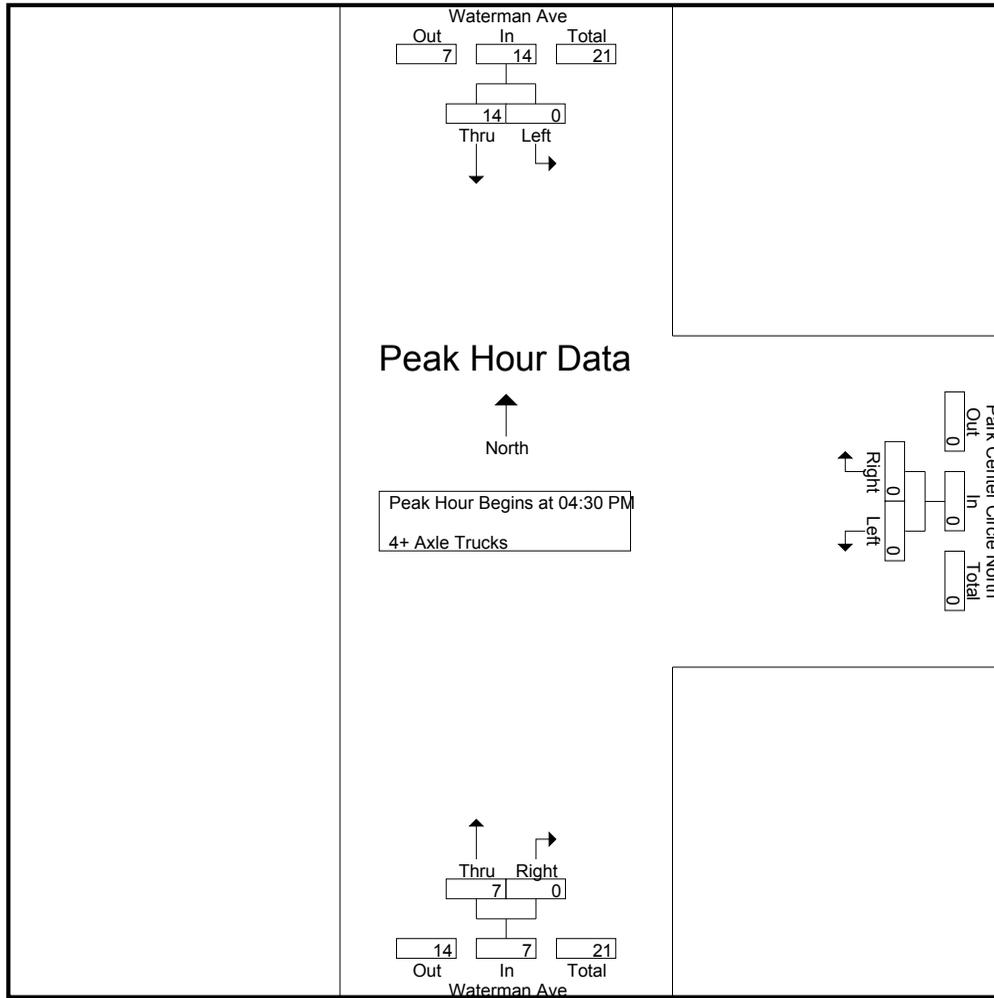
File Name : SBCWAPNPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|-------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|             | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:00 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 9          |
| 04:15 PM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 8          |
| 04:30 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 8          |
| 04:45 PM    | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| Total       | 0                       | 21   | 21         | 0                                  | 0     | 0          | 11                      | 0     | 11         | 32         |
| 05:00 PM    | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| 05:15 PM    | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| 05:30 PM    | 0                       | 7    | 7          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 9          |
| 05:45 PM    | 0                       | 6    | 6          | 0                                  | 0     | 0          | 4                       | 0     | 4          | 10         |
| Total       | 0                       | 17   | 17         | 0                                  | 0     | 0          | 8                       | 0     | 8          | 25         |
| Grand Total | 0                       | 38   | 38         | 0                                  | 0     | 0          | 19                      | 0     | 19         | 57         |
| Apprch %    | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| Total %     | 0                       | 66.7 | 66.7       | 0                                  | 0     | 0          | 33.3                    | 0     | 33.3       |            |

| Start Time   | Waterman Ave Southbound |      |            | Park Center Circle North Westbound |       |            | Waterman Ave Northbound |       |            | Int. Total |
|--------------|-------------------------|------|------------|------------------------------------|-------|------------|-------------------------|-------|------------|------------|
|              | Left                    | Thru | App. Total | Left                               | Right | App. Total | Thru                    | Right | App. Total |            |
| 04:30 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 3                       | 0     | 3          | 8          |
| 04:45 PM     | 0                       | 5    | 5          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 7          |
| 05:00 PM     | 0                       | 3    | 3          | 0                                  | 0     | 0          | 2                       | 0     | 2          | 5          |
| 05:15 PM     | 0                       | 1    | 1          | 0                                  | 0     | 0          | 0                       | 0     | 0          | 1          |
| Total Volume | 0                       | 14   | 14         | 0                                  | 0     | 0          | 7                       | 0     | 7          | 21         |
| % App. Total | 0                       | 100  |            | 0                                  | 0     |            | 100                     | 0     |            |            |
| PHF          | .000                    | .700 | .700       | .000                               | .000  | .000       | .583                    | .000  | .583       | .656       |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      | 04:30 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 5    | 5    | 0        | 0    | 0    | 3        | 0    | 3    |
| +15 mins.    | 0        | 5    | 5    | 0        | 0    | 0    | 2        | 0    | 2    |
| +30 mins.    | 0        | 3    | 3    | 0        | 0    | 0    | 2        | 0    | 2    |
| +45 mins.    | 0        | 1    | 1    | 0        | 0    | 0    | 0        | 0    | 0    |
| Total Volume | 0        | 14   | 14   | 0        | 0    | 0    | 7        | 0    | 7    |
| % App. Total | 0        | 100  |      | 0        | 0    |      | 100      | 0    |      |
| PHF          | .000     | .700 | .700 | .000     | .000 | .000 | .583     | .000 | .583 |

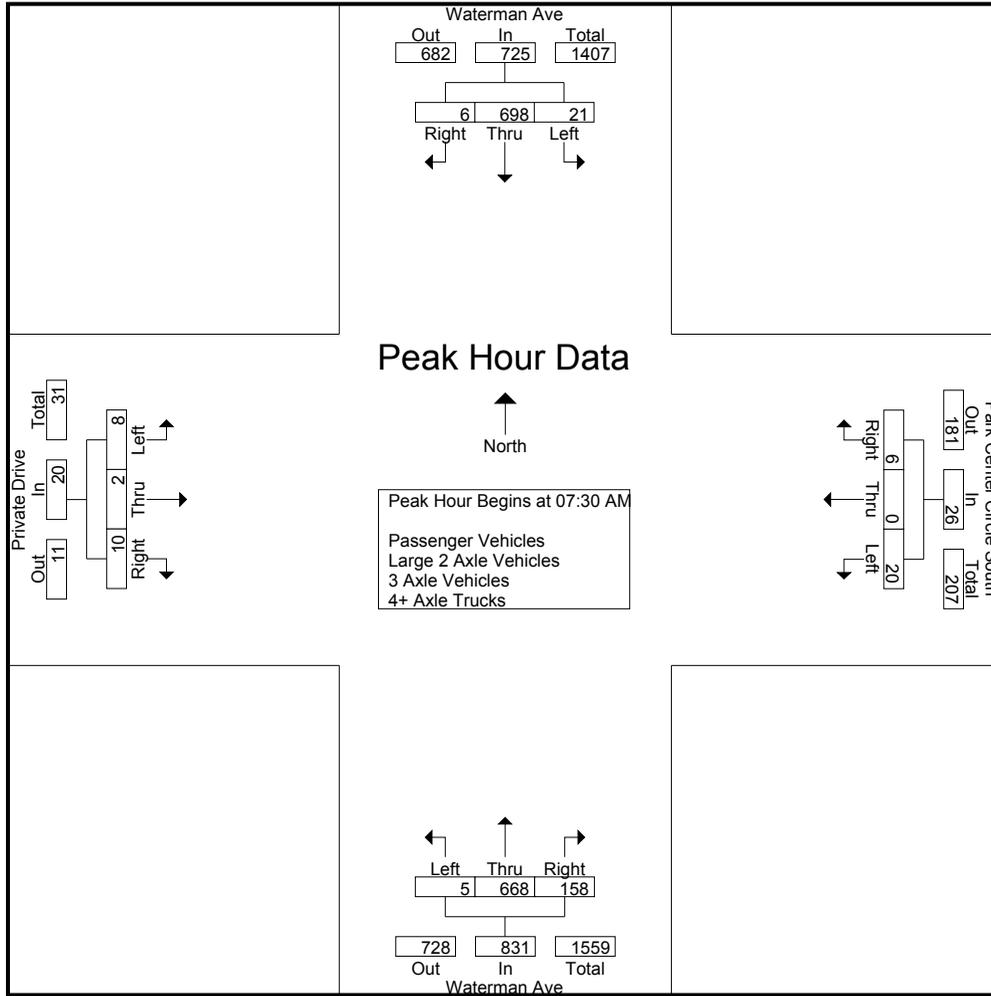
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM                | 6                       | 109  | 4     | 119        | 2                                  | 0    | 3     | 5          | 14                      | 143  | 15    | 172        | 0                       | 0    | 0     | 0          | 296        |
| 07:15 AM                | 3                       | 138  | 0     | 141        | 5                                  | 0    | 1     | 6          | 3                       | 151  | 28    | 182        | 1                       | 0    | 1     | 2          | 331        |
| 07:30 AM                | 5                       | 151  | 1     | 157        | 5                                  | 0    | 0     | 5          | 1                       | 166  | 63    | 230        | 0                       | 0    | 1     | 1          | 393        |
| 07:45 AM                | 9                       | 212  | 2     | 223        | 5                                  | 0    | 1     | 6          | 2                       | 188  | 28    | 218        | 0                       | 0    | 0     | 0          | 447        |
| Total                   | 23                      | 610  | 7     | 640        | 17                                 | 0    | 5     | 22         | 20                      | 648  | 134   | 802        | 1                       | 0    | 2     | 3          | 1467       |
| 08:00 AM                | 5                       | 170  | 3     | 178        | 6                                  | 0    | 2     | 8          | 2                       | 169  | 37    | 208        | 2                       | 2    | 2     | 6          | 400        |
| 08:15 AM                | 2                       | 165  | 0     | 167        | 4                                  | 0    | 3     | 7          | 0                       | 145  | 30    | 175        | 6                       | 0    | 7     | 13         | 362        |
| 08:30 AM                | 4                       | 159  | 0     | 163        | 9                                  | 0    | 2     | 11         | 2                       | 156  | 13    | 171        | 1                       | 0    | 6     | 7          | 352        |
| 08:45 AM                | 6                       | 148  | 2     | 156        | 6                                  | 0    | 2     | 8          | 5                       | 126  | 11    | 142        | 0                       | 0    | 0     | 0          | 306        |
| Total                   | 17                      | 642  | 5     | 664        | 25                                 | 0    | 9     | 34         | 9                       | 596  | 91    | 696        | 9                       | 2    | 15    | 26         | 1420       |
| Grand Total             | 40                      | 1252 | 12    | 1304       | 42                                 | 0    | 14    | 56         | 29                      | 1244 | 225   | 1498       | 10                      | 2    | 17    | 29         | 2887       |
| Apprch %                | 3.1                     | 96   | 0.9   |            | 75                                 | 0    | 25    |            | 1.9                     | 83   | 15    |            | 34.5                    | 6.9  | 58.6  |            |            |
| Total %                 | 1.4                     | 43.4 | 0.4   | 45.2       | 1.5                                | 0    | 0.5   | 1.9        | 1                       | 43.1 | 7.8   | 51.9       | 0.3                     | 0.1  | 0.6   | 1          |            |
| Passenger Vehicles      | 38                      | 1183 | 10    | 1231       | 37                                 | 0    | 13    | 50         | 29                      | 1184 | 218   | 1431       | 10                      | 0    | 16    | 26         | 2738       |
| % Passenger Vehicles    | 95                      | 94.5 | 83.3  | 94.4       | 88.1                               | 0    | 92.9  | 89.3       | 100                     | 95.2 | 96.9  | 95.5       | 100                     | 0    | 94.1  | 89.7       | 94.8       |
| Large 2 Axle Vehicles   | 1                       | 36   | 2     | 39         | 3                                  | 0    | 1     | 4          | 0                       | 20   | 4     | 24         | 0                       | 0    | 1     | 1          | 68         |
| % Large 2 Axle Vehicles | 2.5                     | 2.9  | 16.7  | 3          | 7.1                                | 0    | 7.1   | 7.1        | 0                       | 1.6  | 1.8   | 1.6        | 0                       | 0    | 5.9   | 3.4        | 2.4        |
| 3 Axle Vehicles         | 0                       | 7    | 0     | 7          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 14         |
| % 3 Axle Vehicles       | 0                       | 0.6  | 0     | 0.5        | 2.4                                | 0    | 0     | 1.8        | 0                       | 0.3  | 0     | 0.3        | 0                       | 100  | 0     | 6.9        | 0.5        |
| 4+ Axle Trucks          | 1                       | 26   | 0     | 27         | 1                                  | 0    | 0     | 1          | 0                       | 36   | 3     | 39         | 0                       | 0    | 0     | 0          | 67         |
| % 4+ Axle Trucks        | 2.5                     | 2.1  | 0     | 2.1        | 2.4                                | 0    | 0     | 1.8        | 0                       | 2.9  | 1.3   | 2.6        | 0                       | 0    | 0     | 0          | 2.3        |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |           |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-----------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right     | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |           |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |           |            |                         |      |       |            |            |
| 07:30 AM   | 5                       | 151  | 1     | 157        | 5                                  | 0    | 0     | 5          | 1                       | 166  | <b>63</b> | <b>230</b> | 0                       | 0    | 1     | 1          | 393        |
| 07:45 AM   | 9                       | 212  | 2     | 223        | 5                                  | 0    | 1     | 6          | 2                       | 188  | 28        | 218        | 0                       | 0    | 0     | 0          | 447        |
| 08:00 AM   | 5                       | 170  | 3     | 178        | 6                                  | 0    | 2     | 8          | 2                       | 169  | 37        | 208        | 2                       | 2    | 2     | 6          | 400        |
| 08:15 AM   | 2                       | 165  | 0     | 167        | 4                                  | 0    | 3     | 7          | 0                       | 145  | 30        | 175        | 6                       | 0    | 7     | 13         | 362        |
| Total Volume   | 21                      | 698  | 6     | 725        | 20                                 | 0    | 6     | 26         | 5                       | 668  | 158       | 831        | 8                       | 2    | 10    | 20         | 1602       |
| % App. Total   | 2.9                     | 96.3 | 0.8   |            | 76.9                               | 0    | 23.1  |            | 0.6                     | 80.4 | 19        |            | 40                      | 10   | 50    |            |            |
| PHF  | .583                    | .823 | .500  | .813       | .833                               | .000 | .500  | .813       | .625                    | .888 | .627      | .903       | .333                    | .250 | .357  | .385       | .896       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM |      |      |      | 08:00 AM |      |      |      | 07:15 AM |      |      |      | 07:45 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 9        | 212  | 2    | 223  | 6        | 0    | 2    | 8    | 3        | 151  | 28   | 182  | 0        | 0    | 0    | 0    |
| +15 mins.    | 5        | 170  | 3    | 178  | 4        | 0    | 3    | 7    | 1        | 166  | 63   | 230  | 2        | 2    | 2    | 6    |
| +30 mins.    | 2        | 165  | 0    | 167  | 9        | 0    | 2    | 11   | 2        | 188  | 28   | 218  | 6        | 0    | 7    | 13   |
| +45 mins.    | 4        | 159  | 0    | 163  | 6        | 0    | 2    | 8    | 2        | 169  | 37   | 208  | 1        | 0    | 6    | 7    |
| Total Volume | 20       | 706  | 5    | 731  | 25       | 0    | 9    | 34   | 8        | 674  | 156  | 838  | 9        | 2    | 15   | 26   |
| % App. Total | 2.7      | 96.6 | 0.7  |      | 73.5     | 0    | 26.5 |      | 1        | 80.4 | 18.6 |      | 34.6     | 7.7  | 57.7 |      |
| PHF          | .556     | .833 | .417 | .820 | .694     | .000 | .750 | .773 | .667     | .896 | .619 | .911 | .375     | .250 | .536 | .500 |

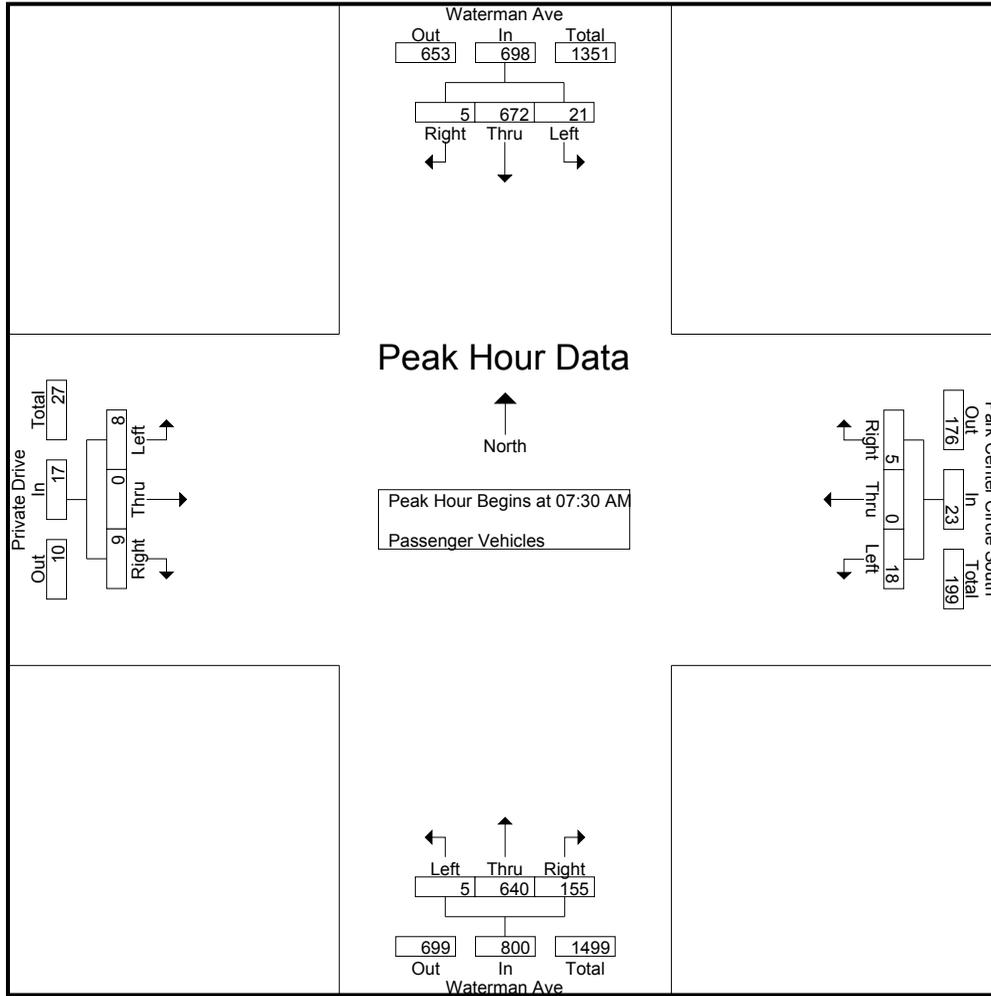
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 5                       | 98   | 4     | 107        | 0                                  | 0    | 3     | 3          | 14                      | 137  | 13    | 164        | 0                       | 0    | 0     | 0          | 274        |
| 07:15 AM    | 3                       | 123  | 0     | 126        | 4                                  | 0    | 1     | 5          | 3                       | 143  | 28    | 174        | 1                       | 0    | 1     | 2          | 307        |
| 07:30 AM    | 5                       | 147  | 1     | 153        | 4                                  | 0    | 0     | 4          | 1                       | 163  | 62    | 226        | 0                       | 0    | 1     | 1          | 384        |
| 07:45 AM    | 9                       | 206  | 1     | 216        | 5                                  | 0    | 1     | 6          | 2                       | 179  | 28    | 209        | 0                       | 0    | 0     | 0          | 431        |
| Total       | 22                      | 574  | 6     | 602        | 13                                 | 0    | 5     | 18         | 20                      | 622  | 131   | 773        | 1                       | 0    | 2     | 3          | 1396       |
| 08:00 AM    | 5                       | 163  | 3     | 171        | 6                                  | 0    | 2     | 8          | 2                       | 162  | 37    | 201        | 2                       | 0    | 1     | 3          | 383        |
| 08:15 AM    | 2                       | 156  | 0     | 158        | 3                                  | 0    | 2     | 5          | 0                       | 136  | 28    | 164        | 6                       | 0    | 7     | 13         | 340        |
| 08:30 AM    | 4                       | 151  | 0     | 155        | 9                                  | 0    | 2     | 11         | 2                       | 148  | 12    | 162        | 1                       | 0    | 6     | 7          | 335        |
| 08:45 AM    | 5                       | 139  | 1     | 145        | 6                                  | 0    | 2     | 8          | 5                       | 116  | 10    | 131        | 0                       | 0    | 0     | 0          | 284        |
| Total       | 16                      | 609  | 4     | 629        | 24                                 | 0    | 8     | 32         | 9                       | 562  | 87    | 658        | 9                       | 0    | 14    | 23         | 1342       |
| Grand Total | 38                      | 1183 | 10    | 1231       | 37                                 | 0    | 13    | 50         | 29                      | 1184 | 218   | 1431       | 10                      | 0    | 16    | 26         | 2738       |
| Apprch %    | 3.1                     | 96.1 | 0.8   |            | 74                                 | 0    | 26    |            | 2                       | 82.7 | 15.2  |            | 38.5                    | 0    | 61.5  |            |            |
| Total %     | 1.4                     | 43.2 | 0.4   | 45         | 1.4                                | 0    | 0.5   | 1.8        | 1.1                     | 43.2 | 8     | 52.3       | 0.4                     | 0    | 0.6   | 0.9        |            |

| Start Time   | Waterman Ave Southbound |            |          |            | Park Center Circle South Westbound |      |          |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |      |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|------------------------------------|------|----------|------------|-------------------------|------------|-----------|------------|-------------------------|------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                               | Thru | Right    | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru | Right    | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |            |          |            |                                    |      |          |            |                         |            |           |            |                         |      |          |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |            |          |            |                                    |      |          |            |                         |            |           |            |                         |      |          |            |            |
| 07:30 AM   | 5                       | 147        | 1        | 153        | 4                                  | 0    | 0        | 4          | 1                       | 163        | <b>62</b> | <b>226</b> | 0                       | 0    | 1        | 1          | 384        |
| 07:45 AM   | <b>9</b>                | <b>206</b> | 1        | <b>216</b> | 5                                  | 0    | 1        | 6          | <b>2</b>                | <b>179</b> | 28        | 209        | 0                       | 0    | 0        | 0          | <b>431</b> |
| 08:00 AM   | 5                       | 163        | <b>3</b> | 171        | <b>6</b>                           | 0    | <b>2</b> | <b>8</b>   | 2                       | 162        | 37        | 201        | 2                       | 0    | 1        | 3          | 383        |
| 08:15 AM   | 2                       | 156        | 0        | 158        | 3                                  | 0    | 2        | 5          | 0                       | 136        | 28        | 164        | <b>6</b>                | 0    | <b>7</b> | <b>13</b>  | 340        |
| Total Volume   | 21                      | 672        | 5        | 698        | 18                                 | 0    | 5        | 23         | 5                       | 640        | 155       | 800        | 8                       | 0    | 9        | 17         | 1538       |
| % App. Total   | 3                       | 96.3       | 0.7      |            | 78.3                               | 0    | 21.7     |            | 0.6                     | 80         | 19.4      |            | 47.1                    | 0    | 52.9     |            |            |
| PHF  | .583                    | .816       | .417     | .808       | .750                               | .000 | .625     | .719       | .625                    | .894       | .625      | .885       | .333                    | .000 | .321     | .327       | .892       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 5        | 147  | 1    | 153  | 4        | 0    | 0    | 4    | 1        | 163  | 62   | 226  | 0        | 0    | 1    | 1    |
| +15 mins.    | 9        | 206  | 1    | 216  | 5        | 0    | 1    | 6    | 2        | 179  | 28   | 209  | 0        | 0    | 0    | 0    |
| +30 mins.    | 5        | 163  | 3    | 171  | 6        | 0    | 2    | 8    | 2        | 162  | 37   | 201  | 2        | 0    | 1    | 3    |
| +45 mins.    | 2        | 156  | 0    | 158  | 3        | 0    | 2    | 5    | 0        | 136  | 28   | 164  | 6        | 0    | 7    | 13   |
| Total Volume | 21       | 672  | 5    | 698  | 18       | 0    | 5    | 23   | 5        | 640  | 155  | 800  | 8        | 0    | 9    | 17   |
| % App. Total | 3        | 96.3 | 0.7  |      | 78.3     | 0    | 21.7 |      | 0.6      | 80   | 19.4 |      | 47.1     | 0    | 52.9 |      |
| PHF          | .583     | .816 | .417 | .808 | .750     | .000 | .625 | .719 | .625     | .894 | .625 | .885 | .333     | .000 | .321 | .327 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

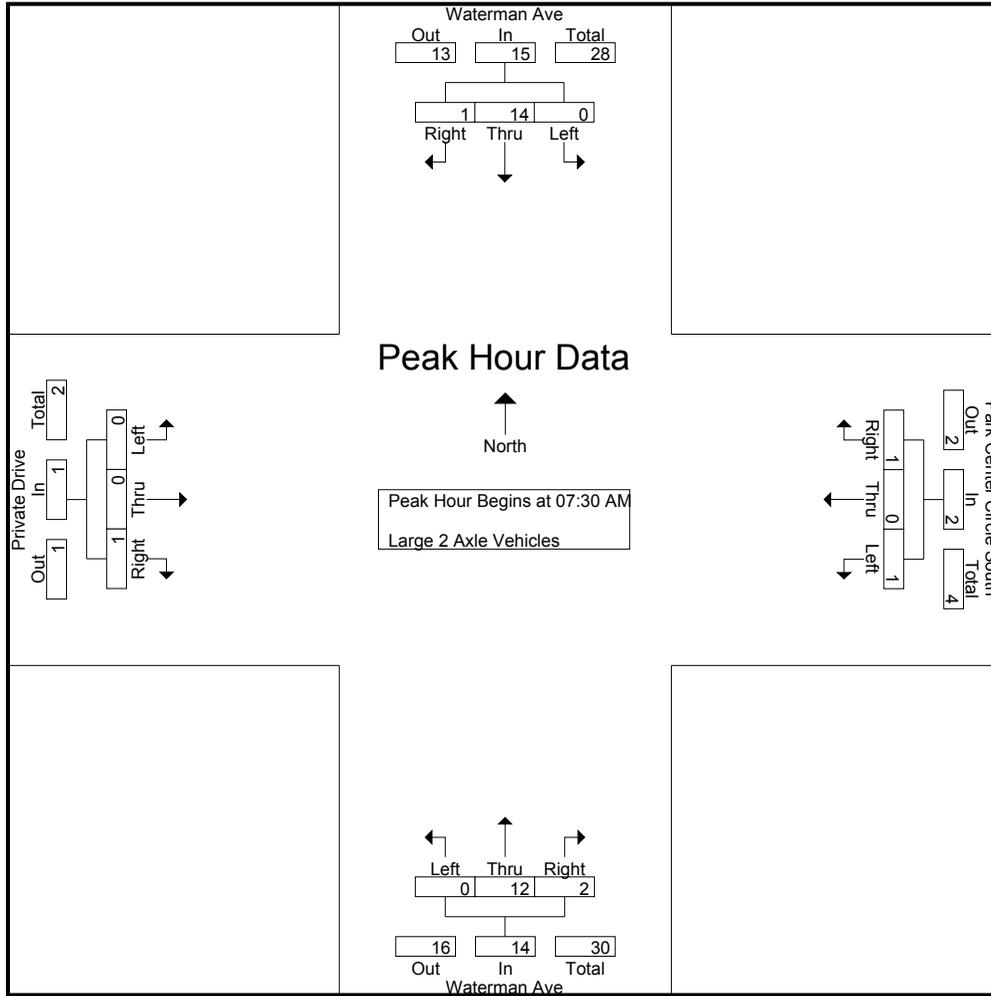
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 5    | 0     | 5          | 2                                  | 0    | 0     | 2          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 8          |
| 07:15 AM    | 0                       | 10   | 0     | 10         | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 13         |
| 07:30 AM    | 0                       | 3    | 0     | 3          | 1                                  | 0    | 0     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 07:45 AM    | 0                       | 3    | 1     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 21   | 1     | 22         | 3                                  | 0    | 0     | 3          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 35         |
| 08:00 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 1     | 1          | 4          |
| 08:15 AM    | 0                       | 7    | 0     | 7          | 0                                  | 0    | 1     | 1          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 14         |
| 08:30 AM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 5          |
| 08:45 AM    | 1                       | 4    | 1     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 1                       | 15   | 1     | 17         | 0                                  | 0    | 1     | 1          | 0                       | 11   | 3     | 14         | 0                       | 0    | 1     | 1          | 33         |
| Grand Total | 1                       | 36   | 2     | 39         | 3                                  | 0    | 1     | 4          | 0                       | 20   | 4     | 24         | 0                       | 0    | 1     | 1          | 68         |
| Apprch %    | 2.6                     | 92.3 | 5.1   |            | 75                                 | 0    | 25    |            | 0                       | 83.3 | 16.7  |            | 0                       | 0    | 100   |            |            |
| Total %     | 1.5                     | 52.9 | 2.9   | 57.4       | 4.4                                | 0    | 1.5   | 5.9        | 0                       | 29.4 | 5.9   | 35.3       | 0                       | 0    | 1.5   | 1.5        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 3    | 0     | 3          | 1                                  | 0    | 0     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 07:45 AM   | 0                       | 3    | 1     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 1     | 1          | 4          |
| 08:15 AM   | 0                       | 7    | 0     | 7          | 0                                  | 0    | 1     | 1          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 14         |
| Total Volume   | 0                       | 14   | 1     | 15         | 1                                  | 0    | 1     | 2          | 0                       | 12   | 2     | 14         | 0                       | 0    | 1     | 1          | 32         |
| % App. Total   | 0                       | 93.3 | 6.7   |            | 50                                 | 0    | 50    |            | 0                       | 85.7 | 14.3  |            | 0                       | 0    | 100   |            |            |
| PHF  | .000                    | .500 | .250  | .536       | .250                               | .000 | .250  | .500       | .000                    | .600 | .500  | .583       | .000                    | .000 | .250  | .250       | .571       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 3    | 0    | 3    | 1        | 0    | 0    | 1    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 1    | 4    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 1    | 1    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 1    | 1    | 0        | 5    | 1    | 6    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 14   | 1    | 15   | 1        | 0    | 1    | 2    | 0        | 12   | 2    | 14   | 0        | 0    | 1    | 1    |
| % App. Total | 0        | 93.3 | 6.7  |      | 50       | 0    | 50   |      | 0        | 85.7 | 14.3 |      | 0        | 0    | 100  |      |
| PHF          | .000     | .500 | .250 | .536 | .250     | .000 | .250 | .500 | .000     | .600 | .500 | .583 | .000     | .000 | .250 | .250 |

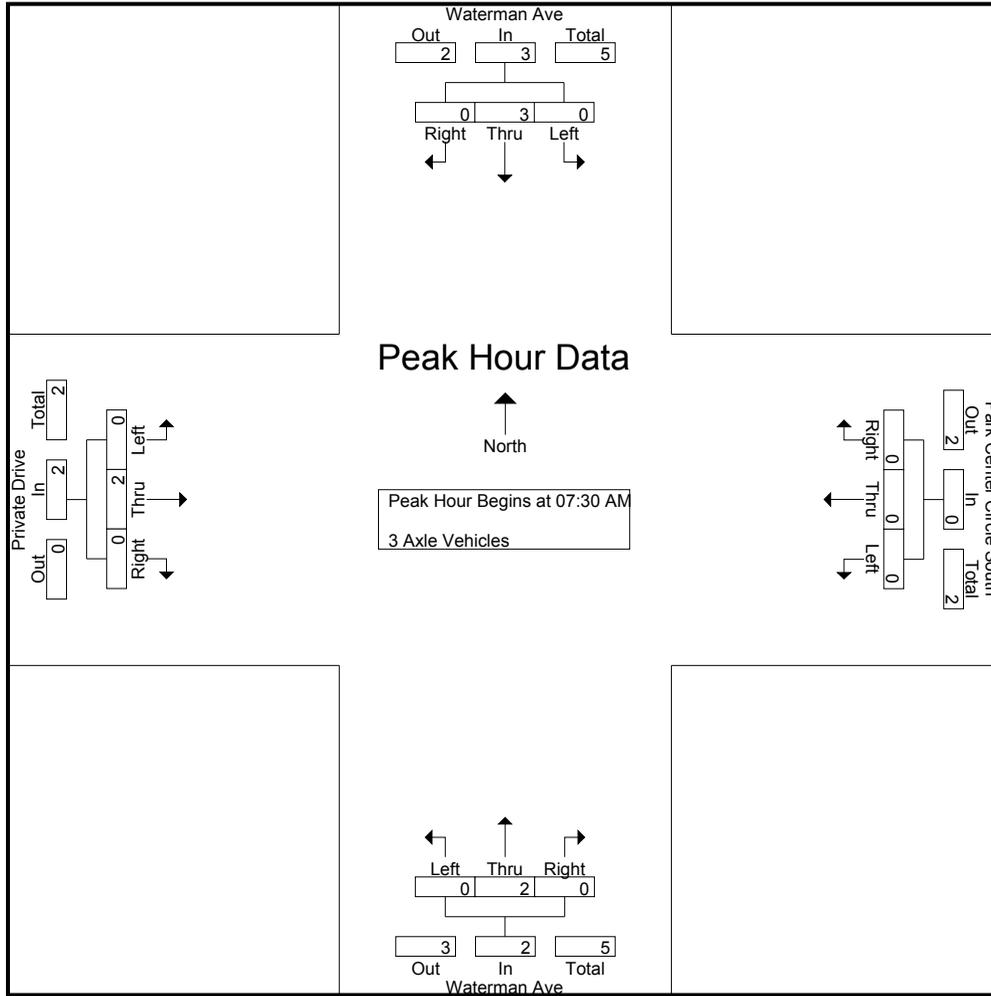
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 07:15 AM    | 0                       | 1    | 0     | 1          | 1                                  | 0    | 0     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 2          |
| 07:30 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| Total       | 0                       | 4    | 0     | 4          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 08:00 AM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 4          |
| 08:15 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 08:30 AM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 08:45 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 2    | 0     | 2          | 6          |
| Grand Total | 0                       | 7    | 0     | 7          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 2    | 0     | 2          | 14         |
| Apprch %    | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 100  | 0     |            |            |
| Total %     | 0                       | 50   | 0     | 50         | 7.1                                | 0    | 0     | 7.1        | 0                       | 28.6 | 0     | 28.6       | 0                       | 14.3 | 0     | 14.3       |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| 08:00 AM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 4          |
| 08:15 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total Volume   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 2    | 0     | 2          | 7          |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 100  | 0     |            |            |
| PHF  | .000                    | .375 | .000  | .375       | .000                               | .000 | .000  | .000       | .000                    | .250 | .000  | .250       | .000                    | .250 | .000  | .250       | .438       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 2    | 0    | 2    |
| % App. Total | 0        | 100  | 0    |      | 0        | 0    | 0    |      | 0        | 100  | 0    |      | 0        | 100  | 0    |      |
| PHF          | .000     | .375 | .000 | .375 | .000     | .000 | .000 | .000 | .000     | .250 | .000 | .250 | .000     | .250 | .000 | .250 |

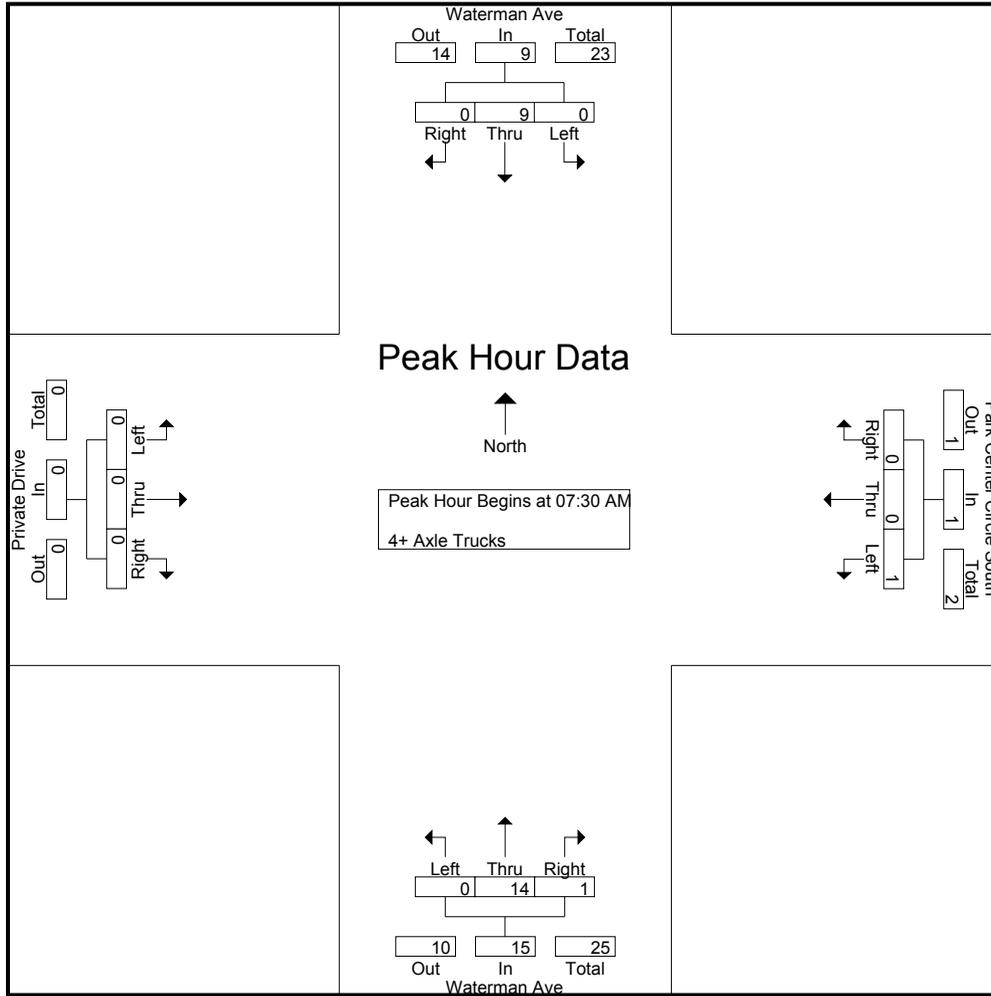
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 1                       | 4    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 2     | 6          | 0                       | 0    | 0     | 0          | 11         |
| 07:15 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 1                       | 11   | 0     | 12         | 0                                  | 0    | 0     | 0          | 0                       | 14   | 2     | 16         | 0                       | 0    | 0     | 0          | 28         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 08:15 AM    | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 08:30 AM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 10         |
| 08:45 AM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 7    | 0     | 7          | 0                       | 0    | 0     | 0          | 12         |
| Total       | 0                       | 15   | 0     | 15         | 1                                  | 0    | 0     | 1          | 0                       | 22   | 1     | 23         | 0                       | 0    | 0     | 0          | 39         |
| Grand Total | 1                       | 26   | 0     | 27         | 1                                  | 0    | 0     | 1          | 0                       | 36   | 3     | 39         | 0                       | 0    | 0     | 0          | 67         |
| Apprch %    | 3.7                     | 96.3 | 0     |            | 100                                | 0    | 0     |            | 0                       | 92.3 | 7.7   |            | 0                       | 0    | 0     |            |            |
| Total %     | 1.5                     | 38.8 | 0     | 40.3       | 1.5                                | 0    | 0     | 1.5        | 0                       | 53.7 | 4.5   | 58.2       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 9          |
| 08:15 AM   | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Total Volume   | 0                       | 9    | 0     | 9          | 1                                  | 0    | 0     | 1          | 0                       | 14   | 1     | 15         | 0                       | 0    | 0     | 0          | 25         |
| % App. Total   | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 93.3 | 6.7   |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .563 | .000  | .563       | .250                               | .000 | .000  | .250       | .000                    | .700 | .250  | .750       | .000                    | .000 | .000  | .000       | .694       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 1        | 0    | 0    | 1    | 0        | 4    | 1    | 5    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 9    | 0    | 9    | 1        | 0    | 0    | 1    | 0        | 14   | 1    | 15   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    |      | 100      | 0    | 0    |      | 0        | 93.3 | 6.7  |      | 0        | 0    | 0    |      |
| PHF          | .000     | .563 | .000 | .563 | .250     | .000 | .000 | .250 | .000     | .700 | .250 | .750 | .000     | .000 | .000 | .000 |

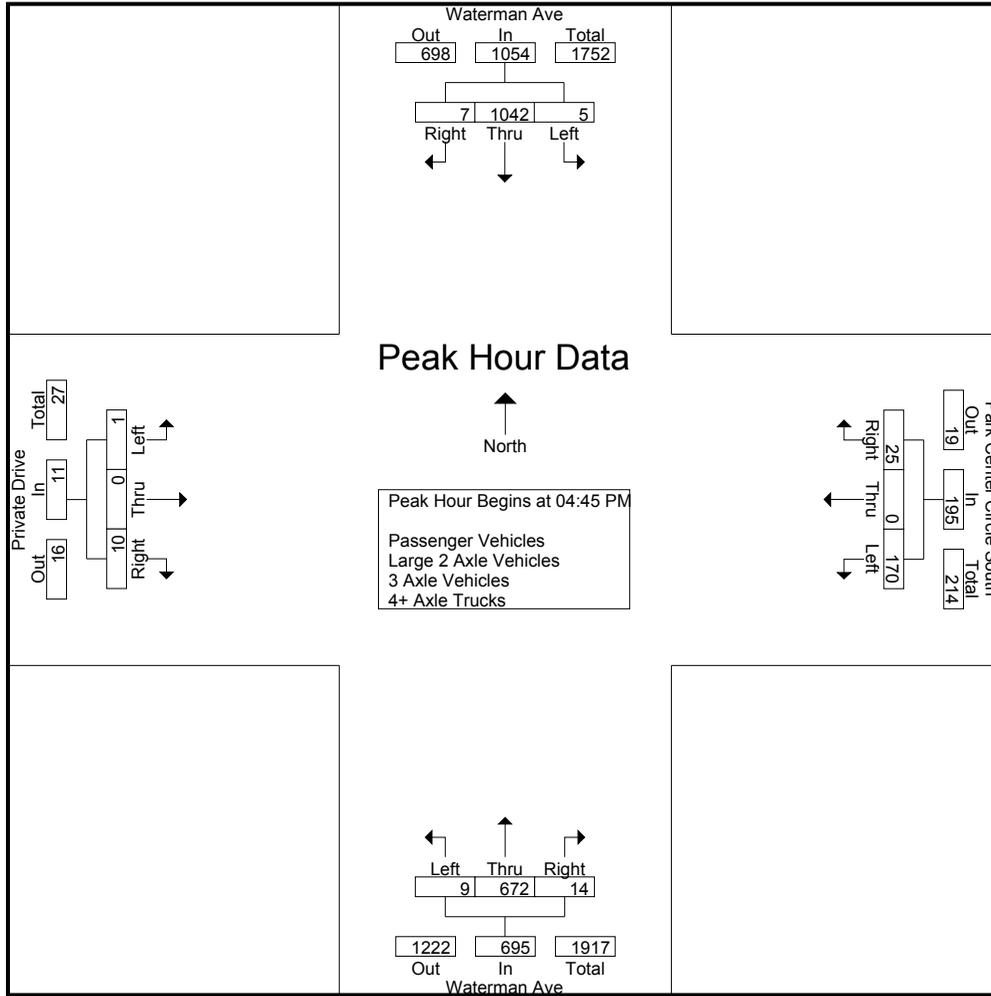
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM                | 1                       | 182  | 3     | 186        | 21                                 | 0    | 5     | 26         | 8                       | 183  | 5     | 196        | 2                       | 1    | 1     | 4          | 412        |
| 04:15 PM                | 2                       | 210  | 4     | 216        | 5                                  | 0    | 4     | 9          | 3                       | 153  | 3     | 159        | 3                       | 0    | 4     | 7          | 391        |
| 04:30 PM                | 5                       | 256  | 4     | 265        | 14                                 | 0    | 4     | 18         | 4                       | 153  | 0     | 157        | 1                       | 0    | 1     | 2          | 442        |
| 04:45 PM                | 2                       | 261  | 2     | 265        | 24                                 | 0    | 2     | 26         | 4                       | 141  | 6     | 151        | 0                       | 0    | 0     | 0          | 442        |
| Total                   | 10                      | 909  | 13    | 932        | 64                                 | 0    | 15    | 79         | 19                      | 630  | 14    | 663        | 6                       | 1    | 6     | 13         | 1687       |
| 05:00 PM                | 1                       | 240  | 2     | 243        | 55                                 | 0    | 12    | 67         | 1                       | 190  | 3     | 194        | 0                       | 0    | 3     | 3          | 507        |
| 05:15 PM                | 2                       | 287  | 2     | 291        | 23                                 | 0    | 5     | 28         | 0                       | 168  | 4     | 172        | 1                       | 0    | 4     | 5          | 496        |
| 05:30 PM                | 0                       | 254  | 1     | 255        | 68                                 | 0    | 6     | 74         | 4                       | 173  | 1     | 178        | 0                       | 0    | 3     | 3          | 510        |
| 05:45 PM                | 1                       | 239  | 2     | 242        | 19                                 | 0    | 1     | 20         | 13                      | 155  | 1     | 169        | 0                       | 0    | 2     | 2          | 433        |
| Total                   | 4                       | 1020 | 7     | 1031       | 165                                | 0    | 24    | 189        | 18                      | 686  | 9     | 713        | 1                       | 0    | 12    | 13         | 1946       |
| Grand Total             | 14                      | 1929 | 20    | 1963       | 229                                | 0    | 39    | 268        | 37                      | 1316 | 23    | 1376       | 7                       | 1    | 18    | 26         | 3633       |
| Apprch %                | 0.7                     | 98.3 | 1     |            | 85.4                               | 0    | 14.6  |            | 2.7                     | 95.6 | 1.7   |            | 26.9                    | 3.8  | 69.2  |            |            |
| Total %                 | 0.4                     | 53.1 | 0.6   | 54         | 6.3                                | 0    | 1.1   | 7.4        | 1                       | 36.2 | 0.6   | 37.9       | 0.2                     | 0    | 0.5   | 0.7        |            |
| Passenger Vehicles      | 13                      | 1860 | 20    | 1893       | 227                                | 0    | 39    | 266        | 37                      | 1266 | 20    | 1323       | 7                       | 0    | 18    | 25         | 3507       |
| % Passenger Vehicles    | 92.9                    | 96.4 | 100   | 96.4       | 99.1                               | 0    | 100   | 99.3       | 100                     | 96.2 | 87    | 96.1       | 100                     | 0    | 100   | 96.2       | 96.5       |
| Large 2 Axle Vehicles   | 0                       | 23   | 0     | 23         | 2                                  | 0    | 0     | 2          | 0                       | 23   | 1     | 24         | 0                       | 1    | 0     | 1          | 50         |
| % Large 2 Axle Vehicles | 0                       | 1.2  | 0     | 1.2        | 0.9                                | 0    | 0     | 0.7        | 0                       | 1.7  | 4.3   | 1.7        | 0                       | 100  | 0     | 3.8        | 1.4        |
| 3 Axle Vehicles         | 1                       | 8    | 0     | 9          | 0                                  | 0    | 0     | 0          | 0                       | 6    | 1     | 7          | 0                       | 0    | 0     | 0          | 16         |
| % 3 Axle Vehicles       | 7.1                     | 0.4  | 0     | 0.5        | 0                                  | 0    | 0     | 0          | 0                       | 0.5  | 4.3   | 0.5        | 0                       | 0    | 0     | 0          | 0.4        |
| 4+ Axle Trucks          | 0                       | 38   | 0     | 38         | 0                                  | 0    | 0     | 0          | 0                       | 21   | 1     | 22         | 0                       | 0    | 0     | 0          | 60         |
| % 4+ Axle Trucks        | 0                       | 2    | 0     | 1.9        | 0                                  | 0    | 0     | 0          | 0                       | 1.6  | 4.3   | 1.6        | 0                       | 0    | 0     | 0          | 1.7        |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 2                       | 261  | 2     | 265        | 24                                 | 0    | 2     | 26         | 4                       | 141  | 6     | 151        | 0                       | 0    | 0     | 0          | 442        |
| 05:00 PM   | 1                       | 240  | 2     | 243        | 55                                 | 0    | 12    | 67         | 1                       | 190  | 3     | 194        | 0                       | 0    | 3     | 3          | 507        |
| 05:15 PM   | 2                       | 287  | 2     | 291        | 23                                 | 0    | 5     | 28         | 0                       | 168  | 4     | 172        | 1                       | 0    | 4     | 5          | 496        |
| 05:30 PM   | 0                       | 254  | 1     | 255        | 68                                 | 0    | 6     | 74         | 4                       | 173  | 1     | 178        | 0                       | 0    | 3     | 3          | 510        |
| Total Volume   | 5                       | 1042 | 7     | 1054       | 170                                | 0    | 25    | 195        | 9                       | 672  | 14    | 695        | 1                       | 0    | 10    | 11         | 1955       |
| % App. Total   | 0.5                     | 98.9 | 0.7   |            | 87.2                               | 0    | 12.8  |            | 1.3                     | 96.7 | 2     |            | 9.1                     | 0    | 90.9  |            |            |
| PHF  | .625                    | .908 | .875  | .905       | .625                               | .000 | .521  | .659       | .563                    | .884 | .583  | .896       | .250                    | .000 | .625  | .550       | .958       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |            |      |            | 04:45 PM  |      |      |           | 05:00 PM  |      |      |      | 04:00 PM |      |      |      |
|--------------|----------|------------|------|------------|-----------|------|------|-----------|-----------|------|------|------|----------|------|------|------|
| +0 mins.     | 5        | 256        | 4    | 265        | 24        | 0    | 2    | 26        | 1         | 190  | 3    | 194  | 2        | 1    | 1    | 4    |
| +15 mins.    | 2        | 261        | 2    | 265        | 55        | 0    | 12   | 67        | 0         | 168  | 4    | 172  | 3        | 0    | 4    | 7    |
| +30 mins.    | 1        | 240        | 2    | 243        | 23        | 0    | 5    | 28        | 4         | 173  | 1    | 178  | 1        | 0    | 1    | 2    |
| +45 mins.    | 2        | <b>287</b> | 2    | <b>291</b> | <b>68</b> | 0    | 6    | <b>74</b> | <b>13</b> | 155  | 1    | 169  | 0        | 0    | 0    | 0    |
| Total Volume | 10       | 1044       | 10   | 1064       | 170       | 0    | 25   | 195       | 18        | 686  | 9    | 713  | 6        | 1    | 6    | 13   |
| % App. Total | 0.9      | 98.1       | 0.9  |            | 87.2      | 0    | 12.8 |           | 2.5       | 96.2 | 1.3  |      | 46.2     | 7.7  | 46.2 |      |
| PHF          | .500     | .909       | .625 | .914       | .625      | .000 | .521 | .659      | .346      | .903 | .563 | .919 | .500     | .250 | .375 | .464 |

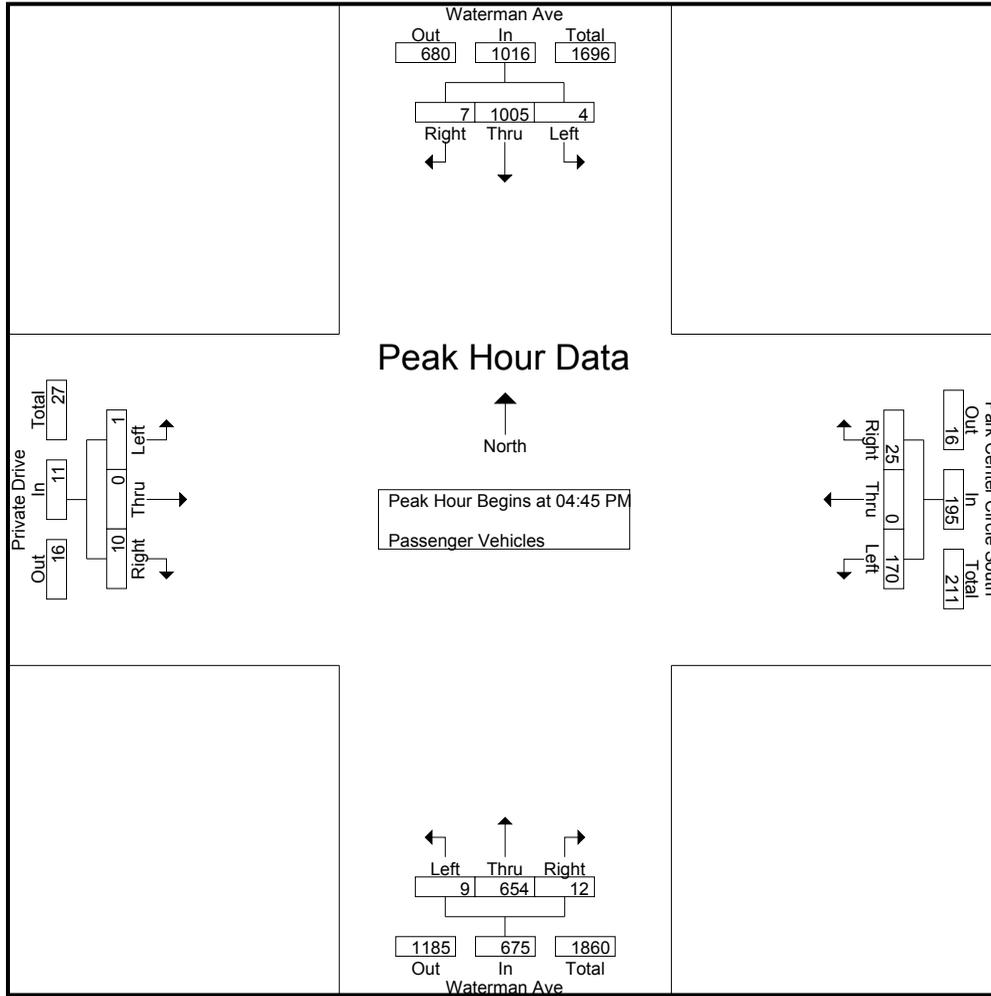
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 1                       | 175  | 3     | 179        | 20                                 | 0    | 5     | 25         | 8                       | 175  | 5     | 188        | 2                       | 0    | 1     | 3          | 395        |
| 04:15 PM    | 2                       | 202  | 4     | 208        | 5                                  | 0    | 4     | 9          | 3                       | 145  | 3     | 151        | 3                       | 0    | 4     | 7          | 375        |
| 04:30 PM    | 5                       | 248  | 4     | 257        | 14                                 | 0    | 4     | 18         | 4                       | 145  | 0     | 149        | 1                       | 0    | 1     | 2          | 426        |
| 04:45 PM    | 1                       | 250  | 2     | 253        | 24                                 | 0    | 2     | 26         | 4                       | 138  | 5     | 147        | 0                       | 0    | 0     | 0          | 426        |
| Total       | 9                       | 875  | 13    | 897        | 63                                 | 0    | 15    | 78         | 19                      | 603  | 13    | 635        | 6                       | 0    | 6     | 12         | 1622       |
| 05:00 PM    | 1                       | 233  | 2     | 236        | 55                                 | 0    | 12    | 67         | 1                       | 185  | 3     | 189        | 0                       | 0    | 3     | 3          | 495        |
| 05:15 PM    | 2                       | 279  | 2     | 283        | 23                                 | 0    | 5     | 28         | 0                       | 164  | 3     | 167        | 1                       | 0    | 4     | 5          | 483        |
| 05:30 PM    | 0                       | 243  | 1     | 244        | 68                                 | 0    | 6     | 74         | 4                       | 167  | 1     | 172        | 0                       | 0    | 3     | 3          | 493        |
| 05:45 PM    | 1                       | 230  | 2     | 233        | 18                                 | 0    | 1     | 19         | 13                      | 147  | 0     | 160        | 0                       | 0    | 2     | 2          | 414        |
| Total       | 4                       | 985  | 7     | 996        | 164                                | 0    | 24    | 188        | 18                      | 663  | 7     | 688        | 1                       | 0    | 12    | 13         | 1885       |
| Grand Total | 13                      | 1860 | 20    | 1893       | 227                                | 0    | 39    | 266        | 37                      | 1266 | 20    | 1323       | 7                       | 0    | 18    | 25         | 3507       |
| Apprch %    | 0.7                     | 98.3 | 1.1   |            | 85.3                               | 0    | 14.7  |            | 2.8                     | 95.7 | 1.5   |            | 28                      | 0    | 72    |            |            |
| Total %     | 0.4                     | 53   | 0.6   | 54         | 6.5                                | 0    | 1.1   | 7.6        | 1.1                     | 36.1 | 0.6   | 37.7       | 0.2                     | 0    | 0.5   | 0.7        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 1                       | 250  | 2     | 253        | 24                                 | 0    | 2     | 26         | 4                       | 138  | 5     | 147        | 0                       | 0    | 0     | 0          | 426        |
| 05:00 PM   | 1                       | 233  | 2     | 236        | 55                                 | 0    | 12    | 67         | 1                       | 185  | 3     | 189        | 0                       | 0    | 3     | 3          | 495        |
| 05:15 PM   | 2                       | 279  | 2     | 283        | 23                                 | 0    | 5     | 28         | 0                       | 164  | 3     | 167        | 1                       | 0    | 4     | 5          | 483        |
| 05:30 PM   | 0                       | 243  | 1     | 244        | 68                                 | 0    | 6     | 74         | 4                       | 167  | 1     | 172        | 0                       | 0    | 3     | 3          | 493        |
| Total Volume   | 4                       | 1005 | 7     | 1016       | 170                                | 0    | 25    | 195        | 9                       | 654  | 12    | 675        | 1                       | 0    | 10    | 11         | 1897       |
| % App. Total   | 0.4                     | 98.9 | 0.7   |            | 87.2                               | 0    | 12.8  |            | 1.3                     | 96.9 | 1.8   |            | 9.1                     | 0    | 90.9  |            |            |
| PHF  | .500                    | .901 | .875  | .898       | .625                               | .000 | .521  | .659       | .563                    | .884 | .600  | .893       | .250                    | .000 | .625  | .550       | .958       |



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 250  | 2    | 253  | 24       | 0    | 2    | 26   | 4        | 138  | 5    | 147  | 0        | 0    | 0    | 0    |
| +15 mins.    | 1        | 233  | 2    | 236  | 55       | 0    | 12   | 67   | 1        | 185  | 3    | 189  | 0        | 0    | 0    | 3    |
| +30 mins.    | 2        | 279  | 2    | 283  | 23       | 0    | 5    | 28   | 0        | 164  | 3    | 167  | 1        | 0    | 4    | 5    |
| +45 mins.    | 0        | 243  | 1    | 244  | 68       | 0    | 6    | 74   | 4        | 167  | 1    | 172  | 0        | 0    | 3    | 3    |
| Total Volume | 4        | 1005 | 7    | 1016 | 170      | 0    | 25   | 195  | 9        | 654  | 12   | 675  | 1        | 0    | 10   | 11   |
| % App. Total | 0.4      | 98.9 | 0.7  |      | 87.2     | 0    | 12.8 |      | 1.3      | 96.9 | 1.8  |      | 9.1      | 0    | 90.9 |      |
| PHF          | .500     | .901 | .875 | .898 | .625     | .000 | .521 | .659 | .563     | .884 | .600 | .893 | .250     | .000 | .625 | .550 |

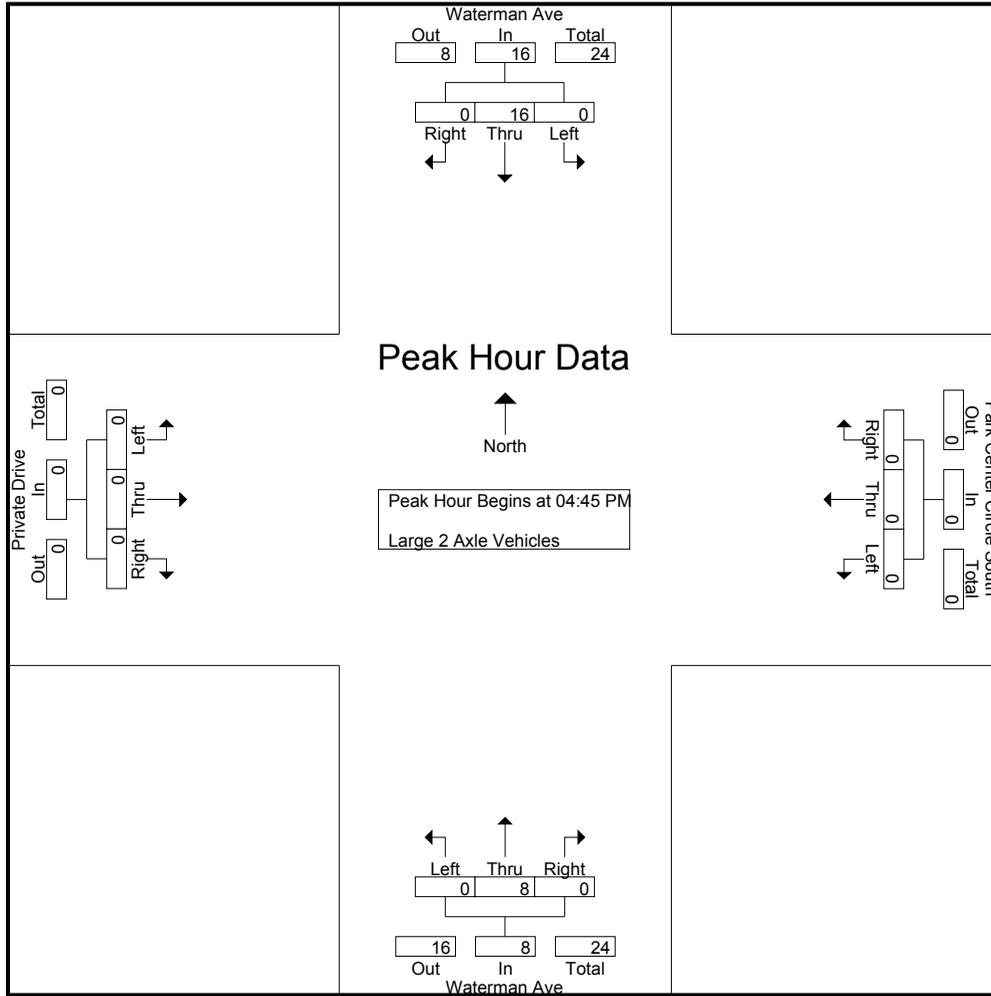
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 0     | 3          | 0                       | 1    | 0     | 1          | 6          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 5          |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 04:45 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 6          |
| Total       | 0                       | 10   | 0     | 10         | 1                                  | 0    | 0     | 1          | 0                       | 13   | 0     | 13         | 0                       | 1    | 0     | 1          | 25         |
| 05:00 PM    | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM    | 0                       | 2    | 0     | 2          | 1                                  | 0    | 0     | 1          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 13   | 0     | 13         | 1                                  | 0    | 0     | 1          | 0                       | 10   | 1     | 11         | 0                       | 0    | 0     | 0          | 25         |
| Grand Total | 0                       | 23   | 0     | 23         | 2                                  | 0    | 0     | 2          | 0                       | 23   | 1     | 24         | 0                       | 1    | 0     | 1          | 50         |
| Apprch %    | 0                       | 100  | 0     |            | 100                                | 0    | 0     |            | 0                       | 95.8 | 4.2   |            | 0                       | 100  | 0     |            |            |
| Total %     | 0                       | 46   | 0     | 46         | 4                                  | 0    | 0     | 4          | 0                       | 46   | 2     | 48         | 0                       | 2    | 0     | 2          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 6          |
| 05:00 PM   | 0                       | 4    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| Total Volume   | 0                       | 16   | 0     | 16         | 0                                  | 0    | 0     | 0          | 0                       | 8    | 0     | 8          | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .800 | .000  | .800       | .000                               | .000 | .000  | .000       | .000                    | .667 | .000  | .667       | .000                    | .000 | .000  | .000       | .857       |



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 16   | 0    | 16   | 0        | 0    | 0    | 0    | 0        | 8    | 0    | 8    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .800 | .000 | .800 | .000     | .000 | .000 | .000 | .000     | .667 | .000 | .667 | .000     | .000 | .000 | .000 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

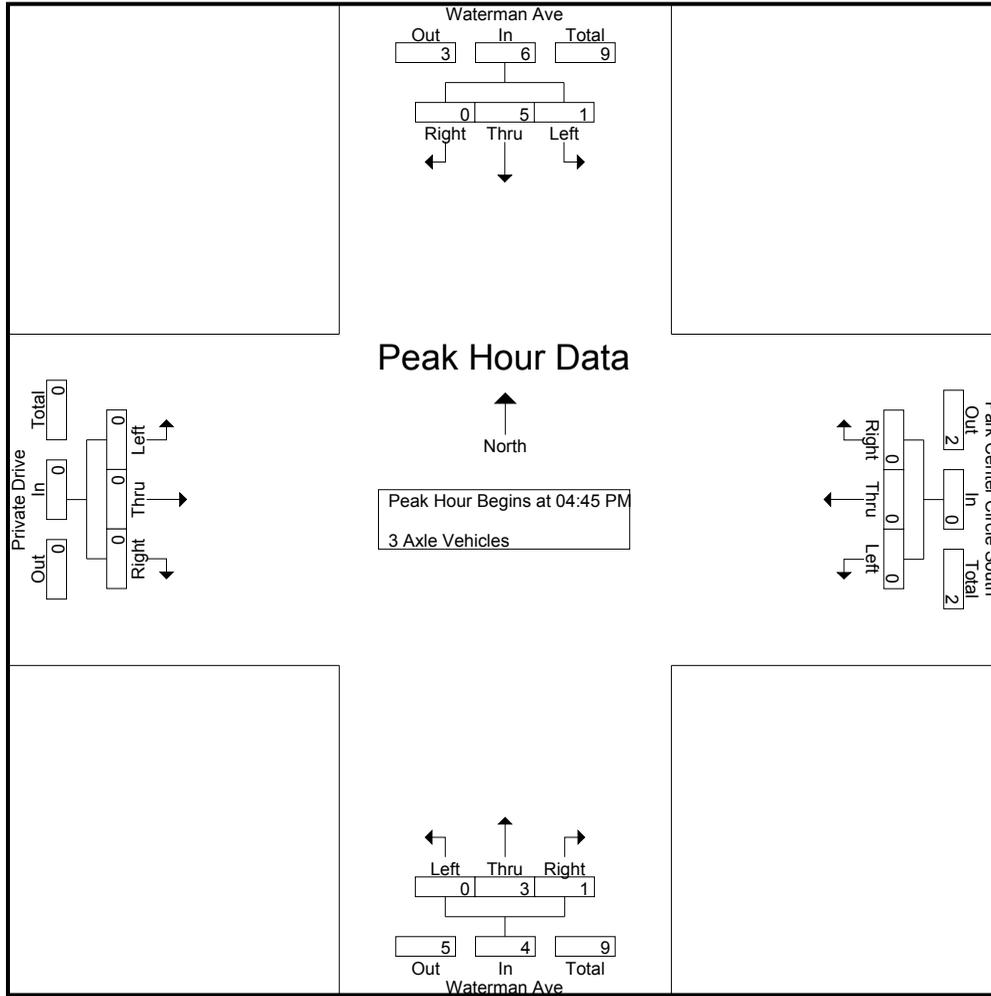
Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 04:45 PM    | 1                       | 1    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 3          |
| Total       | 1                       | 3    | 0     | 4          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| Total       | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| Grand Total | 1                       | 8    | 0     | 9          | 0                                  | 0    | 0     | 0          | 0                       | 6    | 1     | 7          | 0                       | 0    | 0     | 0          | 16         |
| Apprch %    | 11.1                    | 88.9 | 0     |            | 0                                  | 0    | 0     |            | 0                       | 85.7 | 14.3  |            | 0                       | 0    | 0     |            |            |
| Total %     | 6.2                     | 50   | 0     | 56.2       | 0                                  | 0    | 0     | 0          | 0                       | 37.5 | 6.2   | 43.8       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 1                       | 1    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                                  | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| Total Volume   | 1                       | 5    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 1     | 4          | 0                       | 0    | 0     | 0          | 10         |
| % App. Total   | 16.7                    | 83.3 | 0     |            | 0                                  | 0    | 0     |            | 0                       | 75   | 25    |            | 0                       | 0    | 0     |            |            |
| PHF  | .250                    | .625 | .000  | .750       | .000                               | .000 | .000  | .000       | .000                    | .375 | .250  | .500       | .000                    | .000 | .000  | .000       | .625       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 1    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 5    | 0    | 6    | 0        | 0    | 0    | 0    | 0        | 3    | 1    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 16.7     | 83.3 | 0    |      | 0        | 0    | 0    |      | 0        | 75   | 25   |      | 0        | 0    | 0    |      |
| PHF          | .250     | .625 | .000 | .750 | .000     | .000 | .000 | .000 | .000     | .375 | .250 | .500 | .000     | .000 | .000 | .000 |

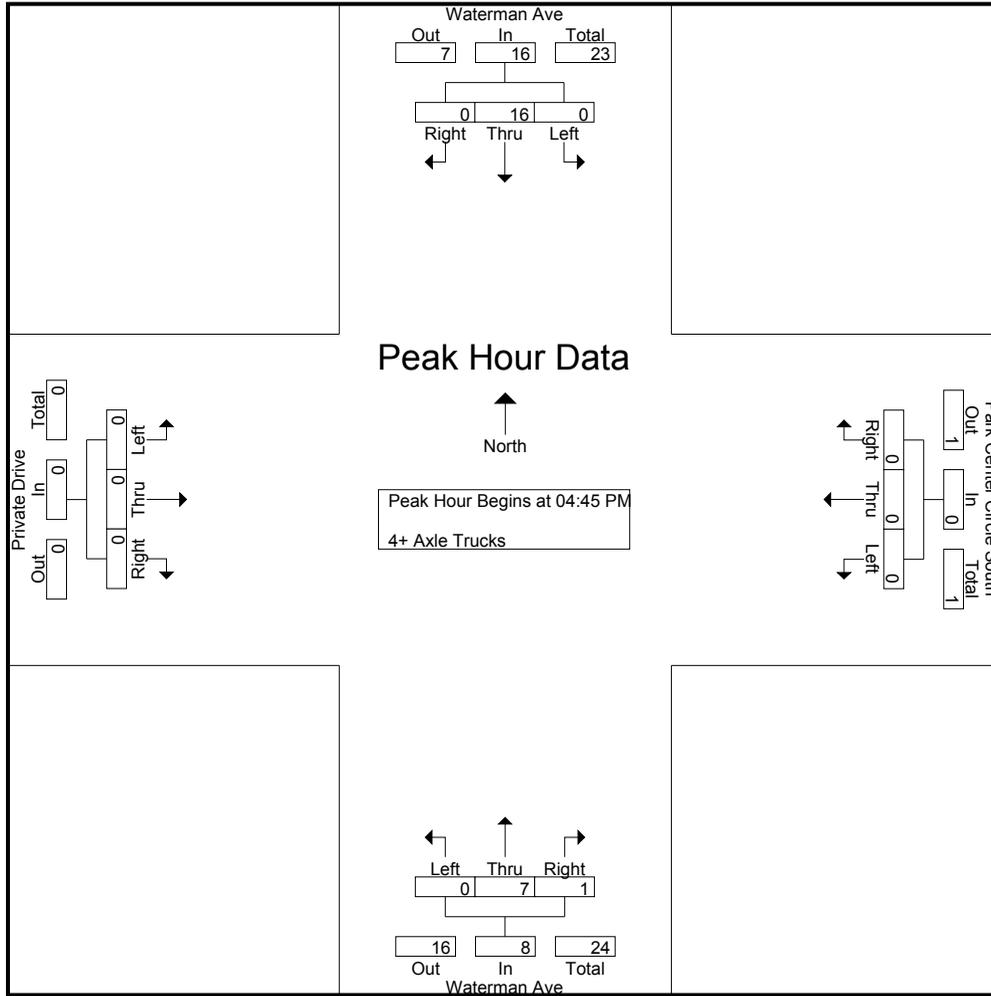
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Park Center Circle South  
 Weather: Clear

File Name : SBCWAPSPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| 04:15 PM    | 0                       | 6    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 9          |
| 04:30 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 04:45 PM    | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 21   | 0     | 21         | 0                                  | 0    | 0     | 0          | 0                       | 12   | 0     | 12         | 0                       | 0    | 0     | 0          | 33         |
| 05:00 PM    | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM    | 0                       | 7    | 0     | 7          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM    | 0                       | 6    | 0     | 6          | 0                                  | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 0                       | 17   | 0     | 17         | 0                                  | 0    | 0     | 0          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 27         |
| Grand Total | 0                       | 38   | 0     | 38         | 0                                  | 0    | 0     | 0          | 0                       | 21   | 1     | 22         | 0                       | 0    | 0     | 0          | 60         |
| Apprch %    | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 95.5 | 4.5   |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 63.3 | 0     | 63.3       | 0                                  | 0    | 0     | 0          | 0                       | 35   | 1.7   | 36.7       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Park Center Circle South Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|------------------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                               | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                                    |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 04:45 PM   | 0                       | 5    | 0     | 5          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| 05:00 PM   | 0                       | 3    | 0     | 3          | 0                                  | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                                  | 0    | 0     | 0          | 0                       | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM   | 0                       | 7    | 0     | 7          | 0                                  | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| Total Volume   | 0                       | 16   | 0     | 16         | 0                                  | 0    | 0     | 0          | 0                       | 7    | 1     | 8          | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                                  | 0    | 0     |            | 0                       | 87.5 | 12.5  |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .571 | .000  | .571       | .000                               | .000 | .000  | .000       | .000                    | .583 | .250  | .667       | .000                    | .000 | .000  | .000       | .667       |



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      | 04:45 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 16   | 0    | 16   | 0        | 0    | 0    | 0    | 0        | 7    | 1    | 8    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 87.5 | 12.5 | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .571 | .000 | .571 | .000     | .000 | .000 | .000 | .000     | .583 | .250 | .667 | .000     | .000 | .000 | .000 |

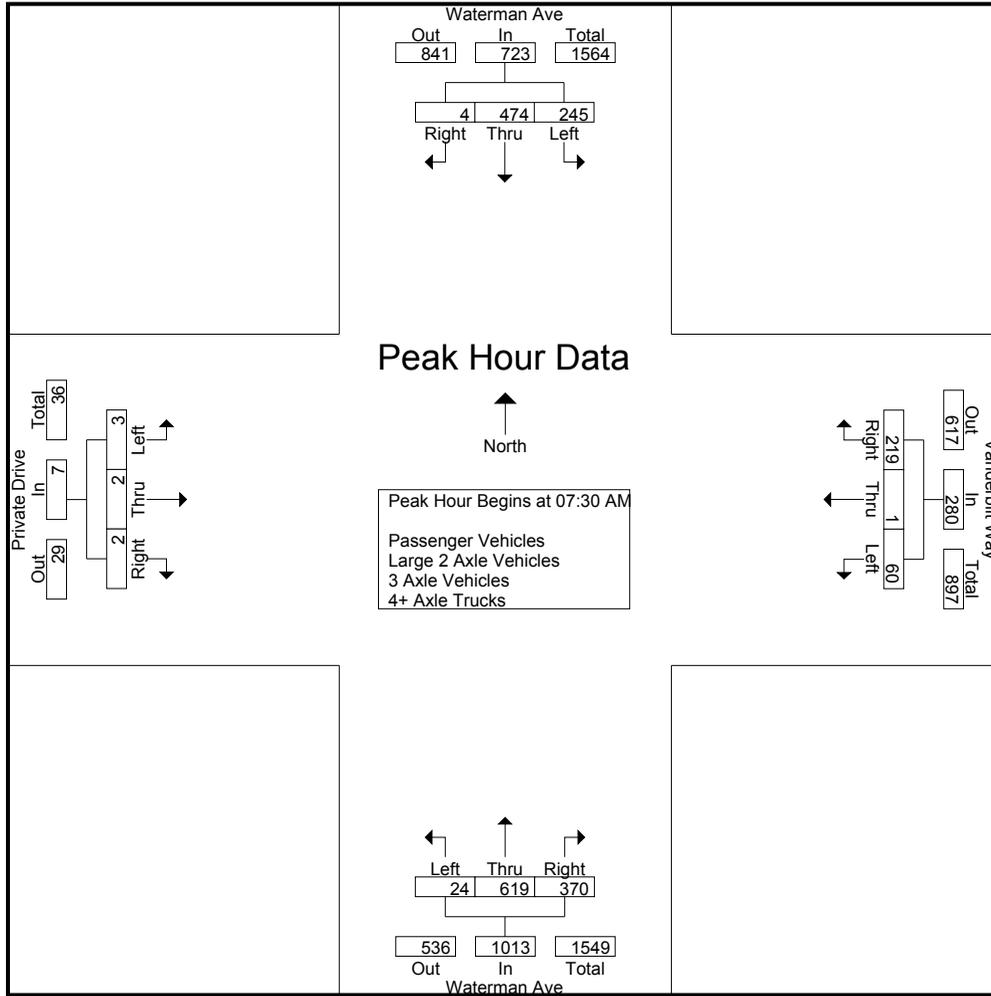
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|                         | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM                | 22                      | 73   | 1     | 96         | 4                        | 0    | 35    | 39         | 1                       | 143  | 61    | 205        | 0                       | 0    | 2     | 2          | 342        |
| 07:15 AM                | 38                      | 120  | 0     | 158        | 6                        | 0    | 50    | 56         | 2                       | 143  | 83    | 228        | 1                       | 0    | 2     | 3          | 445        |
| 07:30 AM                | 55                      | 92   | 0     | 147        | 13                       | 0    | 58    | 71         | 3                       | 160  | 97    | 260        | 1                       | 0    | 1     | 2          | 480        |
| 07:45 AM                | 86                      | 136  | 0     | 222        | 18                       | 0    | 61    | 79         | 9                       | 158  | 103   | 270        | 1                       | 1    | 0     | 2          | 573        |
| Total                   | 201                     | 421  | 1     | 623        | 41                       | 0    | 204   | 245        | 15                      | 604  | 344   | 963        | 3                       | 1    | 5     | 9          | 1840       |
| 08:00 AM                | 69                      | 114  | 2     | 185        | 16                       | 0    | 61    | 77         | 4                       | 151  | 100   | 255        | 1                       | 0    | 0     | 1          | 518        |
| 08:15 AM                | 35                      | 132  | 2     | 169        | 13                       | 1    | 39    | 53         | 8                       | 150  | 70    | 228        | 0                       | 1    | 1     | 2          | 452        |
| 08:30 AM                | 24                      | 141  | 1     | 166        | 9                        | 3    | 31    | 43         | 8                       | 139  | 54    | 201        | 2                       | 0    | 0     | 2          | 412        |
| 08:45 AM                | 41                      | 114  | 1     | 156        | 17                       | 1    | 34    | 52         | 11                      | 115  | 62    | 188        | 1                       | 0    | 0     | 1          | 397        |
| Total                   | 169                     | 501  | 6     | 676        | 55                       | 5    | 165   | 225        | 31                      | 555  | 286   | 872        | 4                       | 1    | 1     | 6          | 1779       |
| Grand Total             | 370                     | 922  | 7     | 1299       | 96                       | 5    | 369   | 470        | 46                      | 1159 | 630   | 1835       | 7                       | 2    | 6     | 15         | 3619       |
| Apprch %                | 28.5                    | 71   | 0.5   |            | 20.4                     | 1.1  | 78.5  |            | 2.5                     | 63.2 | 34.3  |            | 46.7                    | 13.3 | 40    |            |            |
| Total %                 | 10.2                    | 25.5 | 0.2   | 35.9       | 2.7                      | 0.1  | 10.2  | 13         | 1.3                     | 32   | 17.4  | 50.7       | 0.2                     | 0.1  | 0.2   | 0.4        |            |
| Passenger Vehicles      | 366                     | 852  | 7     | 1225       | 95                       | 5    | 365   | 465        | 46                      | 1094 | 625   | 1765       | 7                       | 2    | 6     | 15         | 3470       |
| % Passenger Vehicles    | 98.9                    | 92.4 | 100   | 94.3       | 99                       | 100  | 98.9  | 98.9       | 100                     | 94.4 | 99.2  | 96.2       | 100                     | 100  | 100   | 100        | 95.9       |
| Large 2 Axle Vehicles   | 4                       | 36   | 0     | 40         | 0                        | 0    | 1     | 1          | 0                       | 22   | 2     | 24         | 0                       | 0    | 0     | 0          | 65         |
| % Large 2 Axle Vehicles | 1.1                     | 3.9  | 0     | 3.1        | 0                        | 0    | 0.3   | 0.2        | 0                       | 1.9  | 0.3   | 1.3        | 0                       | 0    | 0     | 0          | 1.8        |
| 3 Axle Vehicles         | 0                       | 7    | 0     | 7          | 1                        | 0    | 1     | 2          | 0                       | 6    | 2     | 8          | 0                       | 0    | 0     | 0          | 17         |
| % 3 Axle Vehicles       | 0                       | 0.8  | 0     | 0.5        | 1                        | 0    | 0.3   | 0.4        | 0                       | 0.5  | 0.3   | 0.4        | 0                       | 0    | 0     | 0          | 0.5        |
| 4+ Axle Trucks          | 0                       | 27   | 0     | 27         | 0                        | 0    | 2     | 2          | 0                       | 37   | 1     | 38         | 0                       | 0    | 0     | 0          | 67         |
| % 4+ Axle Trucks        | 0                       | 2.9  | 0     | 2.1        | 0                        | 0    | 0.5   | 0.4        | 0                       | 3.2  | 0.2   | 2.1        | 0                       | 0    | 0     | 0          | 1.9        |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 55                      | 92   | 0     | 147        | 13                       | 0    | 58    | 71         | 3                       | 160  | 97    | 260        | 1                       | 0    | 1     | 2          | 480        |
| 07:45 AM   | 86                      | 136  | 0     | 222        | 18                       | 0    | 61    | 79         | 9                       | 158  | 103   | 270        | 1                       | 1    | 0     | 2          | 573        |
| 08:00 AM   | 69                      | 114  | 2     | 185        | 16                       | 0    | 61    | 77         | 4                       | 151  | 100   | 255        | 1                       | 0    | 0     | 1          | 518        |
| 08:15 AM   | 35                      | 132  | 2     | 169        | 13                       | 1    | 39    | 53         | 8                       | 150  | 70    | 228        | 0                       | 1    | 1     | 2          | 452        |
| Total Volume   | 245                     | 474  | 4     | 723        | 60                       | 1    | 219   | 280        | 24                      | 619  | 370   | 1013       | 3                       | 2    | 2     | 7          | 2023       |
| % App. Total   | 33.9                    | 65.6 | 0.6   |            | 21.4                     | 0.4  | 78.2  |            | 2.4                     | 61.1 | 36.5  |            | 42.9                    | 28.6 | 28.6  |            |            |
| PHF  | .712                    | .871 | .500  | .814       | .833                     | .250 | .898  | .886       | .667                    | .967 | .898  | .938       | .750                    | .500 | .500  | .875       | .883       |



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:45 AM  |            |          |            | 07:15 AM  |      |           |           | 07:15 AM |            |            |            | 07:00 AM |          |          |          |
|--------------|-----------|------------|----------|------------|-----------|------|-----------|-----------|----------|------------|------------|------------|----------|----------|----------|----------|
| +0 mins.     | <b>86</b> | 136        | 0        | <b>222</b> | 6         | 0    | 50        | 56        | 2        | 143        | 83         | 228        | 0        | 0        | <b>2</b> | 2        |
| +15 mins.    | 69        | 114        | <b>2</b> | 185        | 13        | 0    | 58        | 71        | 3        | <b>160</b> | 97         | 260        | <b>1</b> | 0        | 2        | <b>3</b> |
| +30 mins.    | 35        | 132        | 2        | 169        | <b>18</b> | 0    | <b>61</b> | <b>79</b> | <b>9</b> | 158        | <b>103</b> | <b>270</b> | 1        | 0        | 1        | 2        |
| +45 mins.    | 24        | <b>141</b> | 1        | 166        | 16        | 0    | 61        | 77        | 4        | 151        | 100        | 255        | 1        | <b>1</b> | 0        | 2        |
| Total Volume | 214       | 523        | 5        | 742        | 53        | 0    | 230       | 283       | 18       | 612        | 383        | 1013       | 3        | 1        | 5        | 9        |
| % App. Total | 28.8      | 70.5       | 0.7      |            | 18.7      | 0    | 81.3      |           | 1.8      | 60.4       | 37.8       |            | 33.3     | 11.1     | 55.6     |          |
| PHF          | .622      | .927       | .625     | .836       | .736      | .000 | .943      | .896      | .500     | .956       | .930       | .938       | .750     | .250     | .625     | .750     |

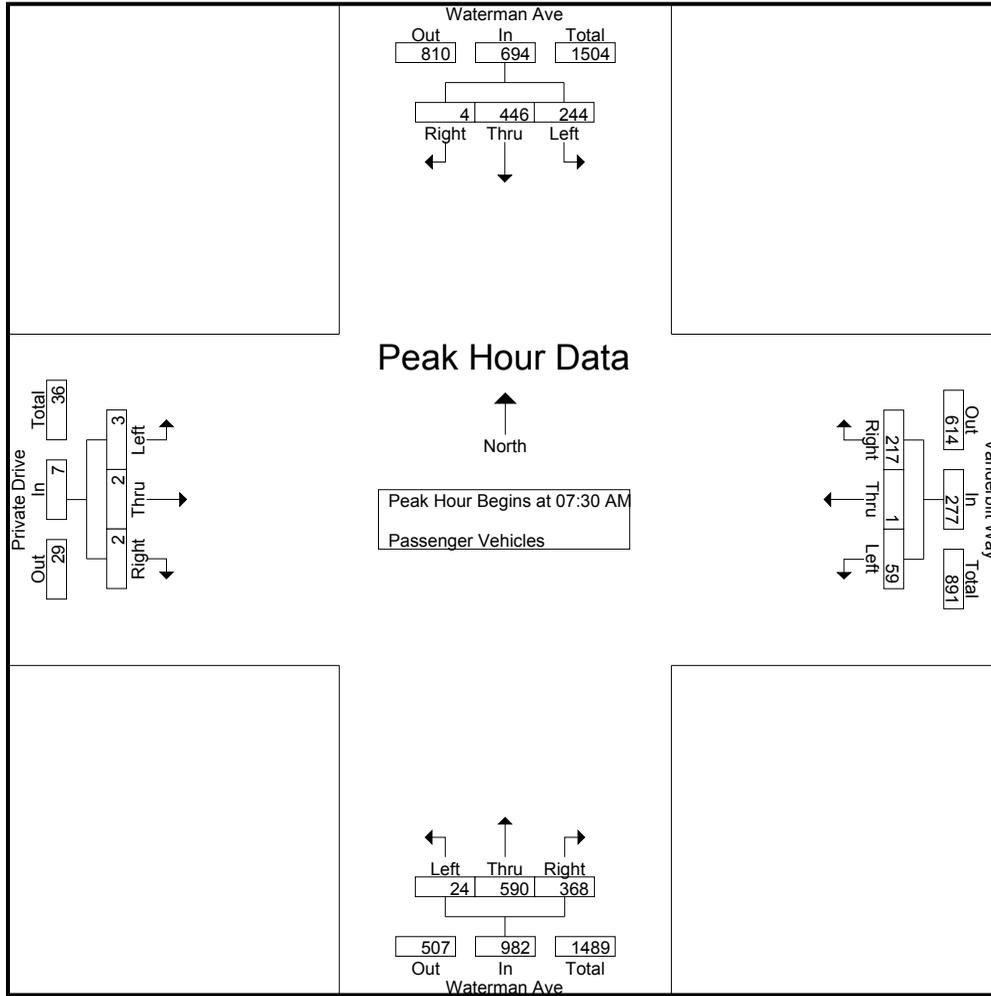
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 22                      | 64   | 1     | 87         | 4                        | 0    | 34    | 38         | 1                       | 135  | 60    | 196        | 0                       | 0    | 2     | 2          | 323        |
| 07:15 AM    | 38                      | 102  | 0     | 140        | 6                        | 0    | 50    | 56         | 2                       | 136  | 83    | 221        | 1                       | 0    | 2     | 3          | 420        |
| 07:30 AM    | 55                      | 88   | 0     | 143        | 12                       | 0    | 58    | 70         | 3                       | 155  | 97    | 255        | 1                       | 0    | 1     | 2          | 470        |
| 07:45 AM    | 86                      | 129  | 0     | 215        | 18                       | 0    | 60    | 78         | 9                       | 152  | 102   | 263        | 1                       | 1    | 0     | 2          | 558        |
| Total       | 201                     | 383  | 1     | 585        | 40                       | 0    | 202   | 242        | 15                      | 578  | 342   | 935        | 3                       | 1    | 5     | 9          | 1771       |
| 08:00 AM    | 68                      | 107  | 2     | 177        | 16                       | 0    | 60    | 76         | 4                       | 145  | 100   | 249        | 1                       | 0    | 0     | 1          | 503        |
| 08:15 AM    | 35                      | 122  | 2     | 159        | 13                       | 1    | 39    | 53         | 8                       | 138  | 69    | 215        | 0                       | 1    | 1     | 2          | 429        |
| 08:30 AM    | 23                      | 134  | 1     | 158        | 9                        | 3    | 30    | 42         | 8                       | 129  | 52    | 189        | 2                       | 0    | 0     | 2          | 391        |
| 08:45 AM    | 39                      | 106  | 1     | 146        | 17                       | 1    | 34    | 52         | 11                      | 104  | 62    | 177        | 1                       | 0    | 0     | 1          | 376        |
| Total       | 165                     | 469  | 6     | 640        | 55                       | 5    | 163   | 223        | 31                      | 516  | 283   | 830        | 4                       | 1    | 1     | 6          | 1699       |
| Grand Total | 366                     | 852  | 7     | 1225       | 95                       | 5    | 365   | 465        | 46                      | 1094 | 625   | 1765       | 7                       | 2    | 6     | 15         | 3470       |
| Apprch %    | 29.9                    | 69.6 | 0.6   |            | 20.4                     | 1.1  | 78.5  |            | 2.6                     | 62   | 35.4  |            | 46.7                    | 13.3 | 40    |            |            |
| Total %     | 10.5                    | 24.6 | 0.2   | 35.3       | 2.7                      | 0.1  | 10.5  | 13.4       | 1.3                     | 31.5 | 18    | 50.9       | 0.2                     | 0.1  | 0.2   | 0.4        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 55                      | 88   | 0     | 143        | 12                       | 0    | 58    | 70         | 3                       | 155  | 97    | 255        | 1                       | 0    | 1     | 2          | 470        |
| 07:45 AM   | 86                      | 129  | 0     | 215        | 18                       | 0    | 60    | 78         | 9                       | 152  | 102   | 263        | 1                       | 1    | 0     | 2          | 558        |
| 08:00 AM   | 68                      | 107  | 2     | 177        | 16                       | 0    | 60    | 76         | 4                       | 145  | 100   | 249        | 1                       | 0    | 0     | 1          | 503        |
| 08:15 AM   | 35                      | 122  | 2     | 159        | 13                       | 1    | 39    | 53         | 8                       | 138  | 69    | 215        | 0                       | 1    | 1     | 2          | 429        |
| Total Volume   | 244                     | 446  | 4     | 694        | 59                       | 1    | 217   | 277        | 24                      | 590  | 368   | 982        | 3                       | 2    | 2     | 7          | 1960       |
| % App. Total   | 35.2                    | 64.3 | 0.6   |            | 21.3                     | 0.4  | 78.3  |            | 2.4                     | 60.1 | 37.5  |            | 42.9                    | 28.6 | 28.6  |            |            |
| PHF  | .709                    | .864 | .500  | .807       | .819                     | .250 | .904  | .888       | .667                    | .952 | .902  | .933       | .750                    | .500 | .500  | .875       | .878       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 55       | 88   | 0    | 143  | 12       | 0    | 58   | 70   | 3        | 155  | 97   | 255  | 1        | 0    | 1    | 2    |
| +15 mins.    | 86       | 129  | 0    | 215  | 18       | 0    | 60   | 78   | 9        | 152  | 102  | 263  | 1        | 1    | 0    | 2    |
| +30 mins.    | 68       | 107  | 2    | 177  | 16       | 0    | 60   | 76   | 4        | 145  | 100  | 249  | 1        | 0    | 0    | 1    |
| +45 mins.    | 35       | 122  | 2    | 159  | 13       | 1    | 39   | 53   | 8        | 138  | 69   | 215  | 0        | 1    | 1    | 2    |
| Total Volume | 244      | 446  | 4    | 694  | 59       | 1    | 217  | 277  | 24       | 590  | 368  | 982  | 3        | 2    | 2    | 7    |
| % App. Total | 35.2     | 64.3 | 0.6  |      | 21.3     | 0.4  | 78.3 |      | 2.4      | 60.1 | 37.5 |      | 42.9     | 28.6 | 28.6 |      |
| PHF          | .709     | .864 | .500 | .807 | .819     | .250 | .904 | .888 | .667     | .952 | .902 | .933 | .750     | .500 | .500 | .875 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

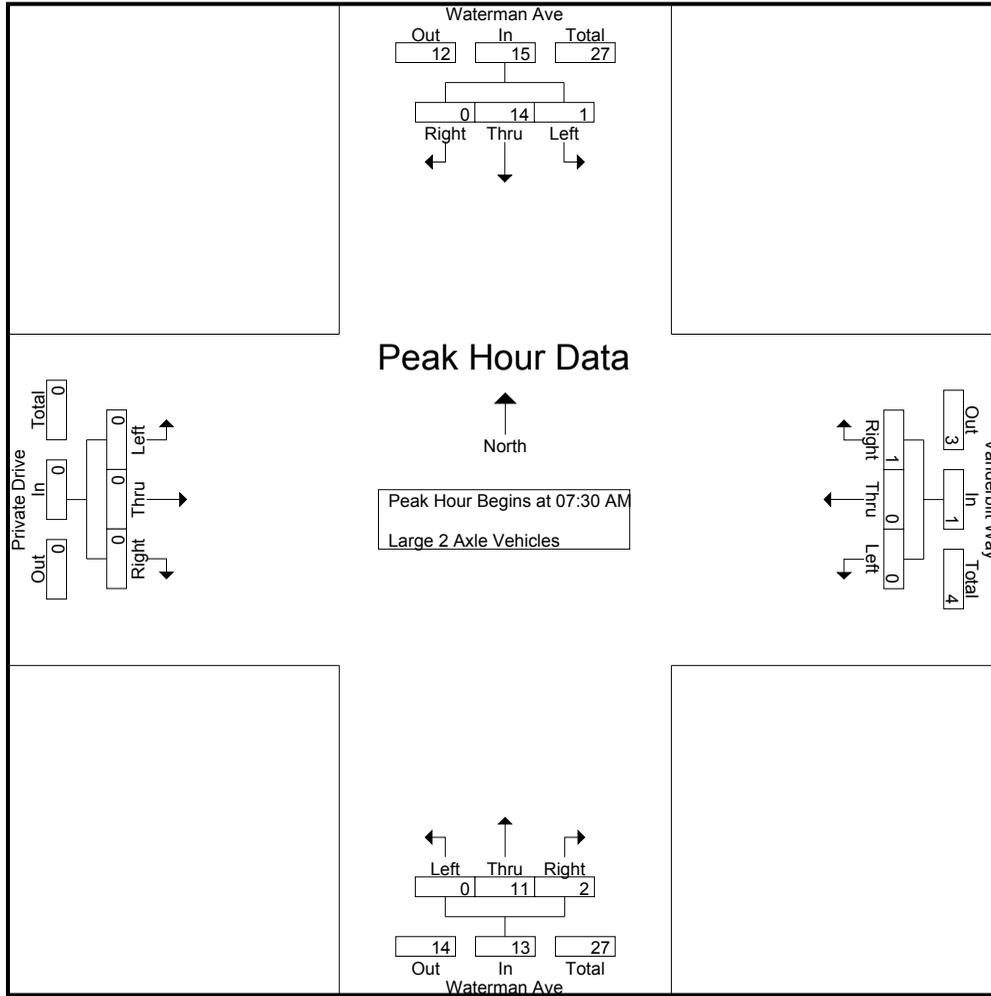
Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 07:15 AM    | 0                       | 11   | 0     | 11         | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 14         |
| 07:30 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 07:45 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 23   | 0     | 23         | 0                        | 0    | 0     | 0          | 0                       | 9    | 1     | 10         | 0                       | 0    | 0     | 0          | 33         |
| 08:00 AM    | 1                       | 1    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 08:15 AM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 13         |
| 08:30 AM    | 1                       | 2    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 6          |
| 08:45 AM    | 2                       | 3    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| Total       | 4                       | 13   | 0     | 17         | 0                        | 0    | 1     | 1          | 0                       | 13   | 1     | 14         | 0                       | 0    | 0     | 0          | 32         |
| Grand Total | 4                       | 36   | 0     | 40         | 0                        | 0    | 1     | 1          | 0                       | 22   | 2     | 24         | 0                       | 0    | 0     | 0          | 65         |
| Apprch %    | 10                      | 90   | 0     |            | 0                        | 0    | 100   |            | 0                       | 91.7 | 8.3   |            | 0                       | 0    | 0     |            |            |
| Total %     | 6.2                     | 55.4 | 0     | 61.5       | 0                        | 0    | 1.5   | 1.5        | 0                       | 33.8 | 3.1   | 36.9       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 07:45 AM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 1                       | 1    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 08:15 AM   | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 5    | 1     | 6          | 0                       | 0    | 0     | 0          | 13         |
| Total Volume   | 1                       | 14   | 0     | 15         | 0                        | 0    | 1     | 1          | 0                       | 11   | 2     | 13         | 0                       | 0    | 0     | 0          | 29         |
| % App. Total   | 6.7                     | 93.3 | 0     |            | 0                        | 0    | 100   |            | 0                       | 84.6 | 15.4  |            | 0                       | 0    | 0     |            |            |
| PHF  | .250                    | .500 | .000  | .536       | .000                     | .000 | .250  | .250       | .000                    | .550 | .500  | .542       | .000                    | .000 | .000  | .000       | .558       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +30 mins.    | 1        | 1    | 0    | 2    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 5    | 1    | 6    | 0        | 0    | 0    | 0    |
| Total Volume | 1        | 14   | 0    | 15   | 0        | 0    | 1    | 1    | 0        | 11   | 2    | 13   | 0        | 0    | 0    | 0    |
| % App. Total | 6.7      | 93.3 | 0    |      | 0        | 0    | 100  |      | 0        | 84.6 | 15.4 |      | 0        | 0    | 0    |      |
| PHF          | .250     | .500 | .000 | .536 | .000     | .000 | .250 | .250 | .000     | .550 | .500 | .542 | .000     | .000 | .000 | .000 |

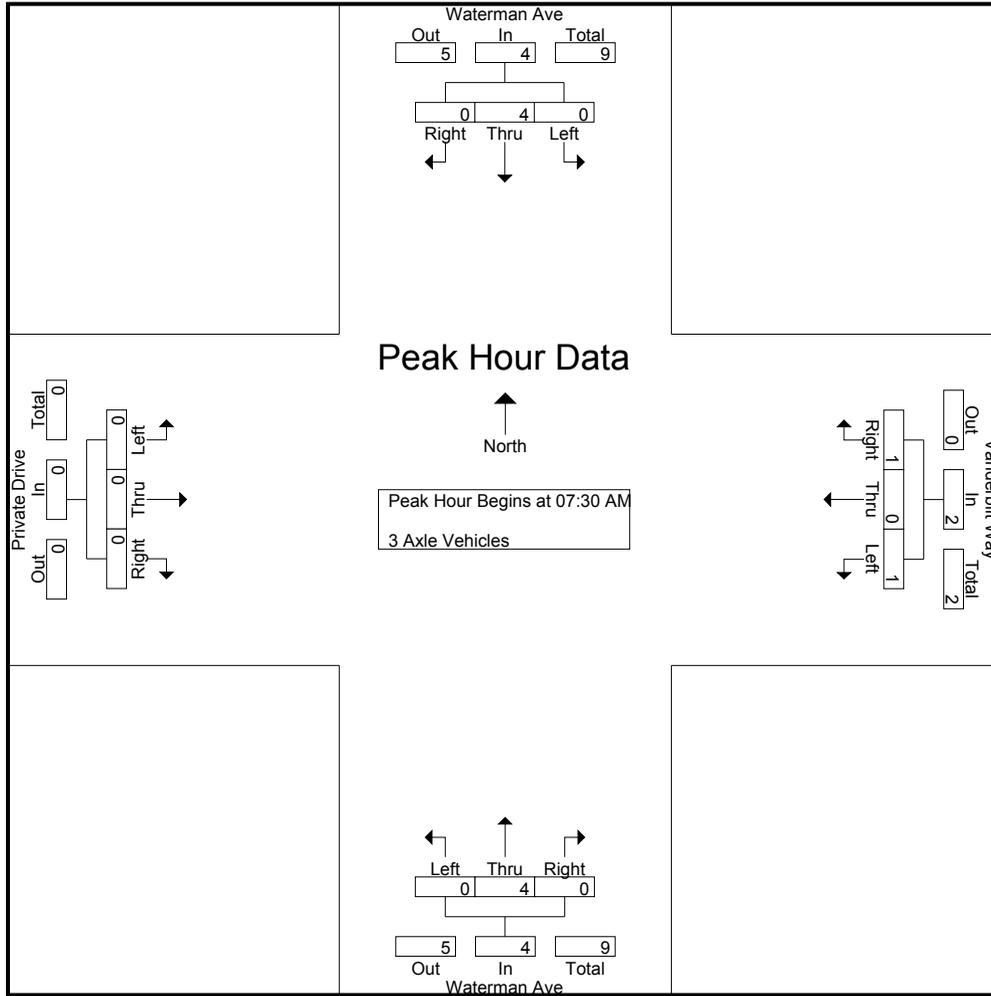
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 3          |
| 07:15 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 07:30 AM    | 0                       | 2    | 0     | 2          | 1                        | 0    | 0     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 07:45 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| Total       | 0                       | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 9          |
| 08:00 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 08:15 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| 08:30 AM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 1     | 2          | 0                       | 0    | 0     | 0          | 3          |
| 08:45 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 1     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Grand Total | 0                       | 7    | 0     | 7          | 1                        | 0    | 1     | 2          | 0                       | 6    | 2     | 8          | 0                       | 0    | 0     | 0          | 17         |
| Apprch %    | 0                       | 100  | 0     |            | 50                       | 0    | 50    |            | 0                       | 75   | 25    |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 41.2 | 0     | 41.2       | 5.9                      | 0    | 5.9   | 11.8       | 0                       | 35.3 | 11.8  | 47.1       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 2    | 0     | 2          | 1                        | 0    | 0     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| 07:45 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 1     | 1          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 1          |
| 08:00 AM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 08:15 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 2          |
| Total Volume   | 0                       | 4    | 0     | 4          | 1                        | 0    | 1     | 2          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| % App. Total   | 0                       | 100  | 0     |            | 50                       | 0    | 50    |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .500 | .000  | .500       | .250                     | .000 | .250  | .500       | .000                    | .500 | .000  | .500       | .000                    | .000 | .000  | .000       | .625       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 2    | 0    | 2    | 1        | 0    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 1    | 1    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 4    | 0    | 4    | 1        | 0    | 1    | 2    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    |      | 50       | 0    | 50   |      | 0        | 100  | 0    |      | 0        | 0    | 0    |      |
| PHF          | .000     | .500 | .000 | .500 | .250     | .000 | .250 | .500 | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 |

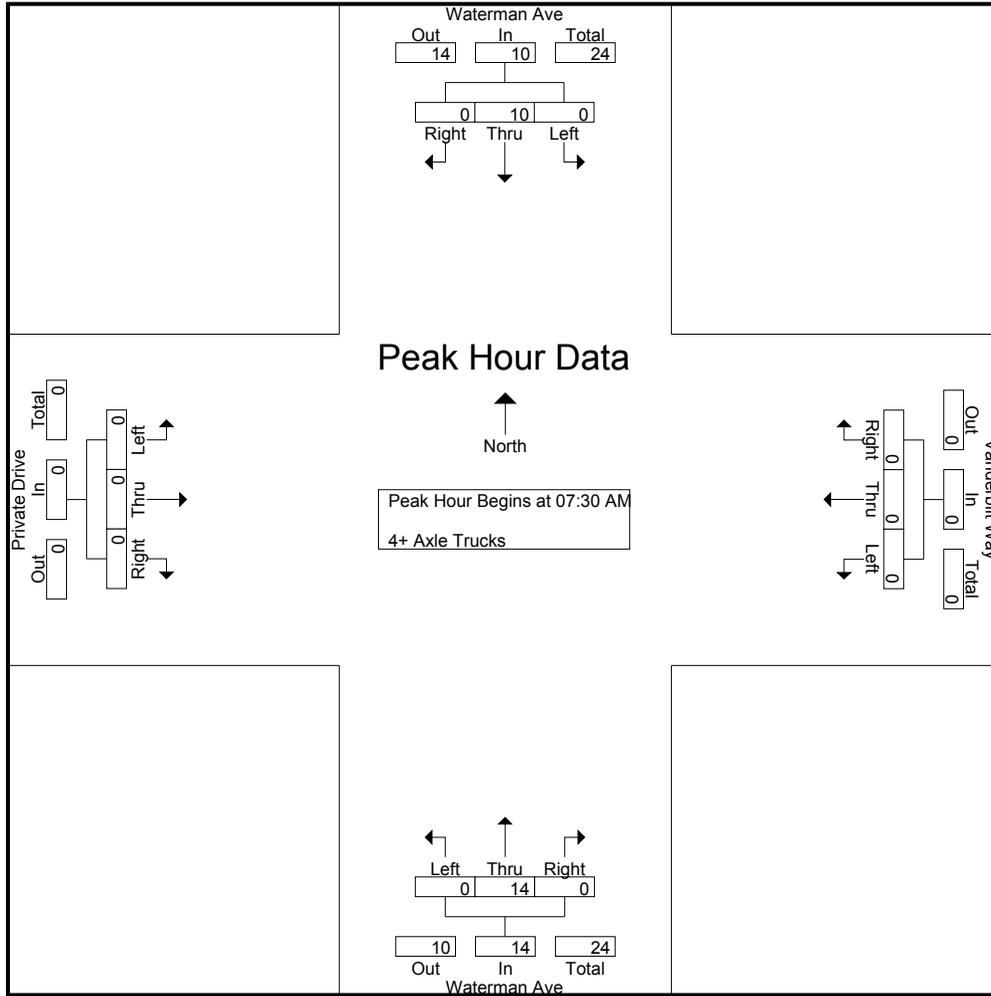
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAAM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 07:00 AM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 1     | 1          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 9          |
| 07:15 AM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| 07:30 AM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 0                       | 11   | 0     | 11         | 0                        | 0    | 1     | 1          | 0                       | 15   | 0     | 15         | 0                       | 0    | 0     | 0          | 27         |
| 08:00 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 08:15 AM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| 08:30 AM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 1     | 1          | 0                       | 6    | 1     | 7          | 0                       | 0    | 0     | 0          | 12         |
| 08:45 AM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 7    | 0     | 7          | 0                       | 0    | 0     | 0          | 12         |
| Total       | 0                       | 16   | 0     | 16         | 0                        | 0    | 1     | 1          | 0                       | 22   | 1     | 23         | 0                       | 0    | 0     | 0          | 40         |
| Grand Total | 0                       | 27   | 0     | 27         | 0                        | 0    | 2     | 2          | 0                       | 37   | 1     | 38         | 0                       | 0    | 0     | 0          | 67         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 100   |            | 0                       | 97.4 | 2.6   |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 40.3 | 0     | 40.3       | 0                        | 0    | 3     | 3          | 0                       | 55.2 | 1.5   | 56.7       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 07:30 AM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| 07:45 AM   | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 7          |
| 08:00 AM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 08:15 AM   | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 5    | 0     | 5          | 0                       | 0    | 0     | 0          | 8          |
| Total Volume   | 0                       | 10   | 0     | 10         | 0                        | 0    | 0     | 0          | 0                       | 14   | 0     | 14         | 0                       | 0    | 0     | 0          | 24         |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .625 | .000  | .625       | .000                     | .000 | .000  | .000       | .000                    | .700 | .000  | .700       | .000                    | .000 | .000  | .000       | .750       |



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      | 07:30 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 10   | 0    | 10   | 0        | 0    | 0    | 0    | 0        | 14   | 0    | 14   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .625 | .000 | .625 | .000     | .000 | .000 | .000 | .000     | .700 | .000 | .700 | .000     | .000 | .000 | .000 |

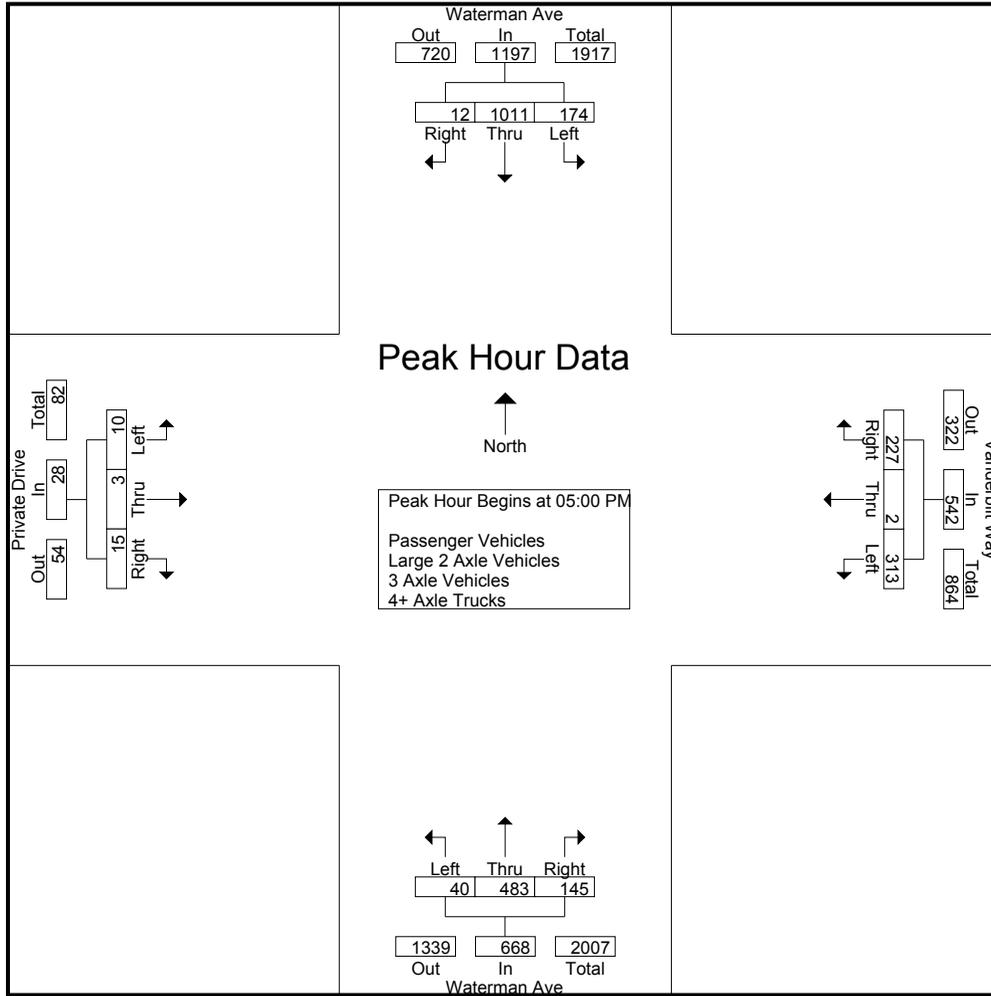
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time              | Waterman Ave Southbound |             |           |             | Vanderbilt Way Westbound |          |            |            | Waterman Ave Northbound |            |            |             | Private Drive Eastbound |          |           |            | Int. Total  |
|-------------------------|-------------------------|-------------|-----------|-------------|--------------------------|----------|------------|------------|-------------------------|------------|------------|-------------|-------------------------|----------|-----------|------------|-------------|
|                         | Left                    | Thru        | Right     | App. Total  | Left                     | Thru     | Right      | App. Total | Left                    | Thru       | Right      | App. Total  | Left                    | Thru     | Right     | App. Total |             |
| 04:00 PM                | 28                      | 179         | 2         | 209         | 44                       | 1        | 50         | 95         | 14                      | 152        | 21         | 187         | 5                       | 1        | 3         | 9          | 500         |
| 04:15 PM                | 24                      | 195         | 2         | 221         | 36                       | 1        | 35         | 72         | 8                       | 123        | 25         | 156         | 1                       | 1        | 6         | 8          | 457         |
| 04:30 PM                | 41                      | 230         | 0         | 271         | 70                       | 2        | 51         | 123        | 12                      | 111        | 23         | 146         | 0                       | 0        | 2         | 2          | 542         |
| 04:45 PM                | 55                      | 217         | 5         | 277         | 50                       | 0        | 42         | 92         | 12                      | 94         | 19         | 125         | 4                       | 0        | 0         | 4          | 498         |
| <b>Total</b>            | <b>148</b>              | <b>821</b>  | <b>9</b>  | <b>978</b>  | <b>200</b>               | <b>4</b> | <b>178</b> | <b>382</b> | <b>46</b>               | <b>480</b> | <b>88</b>  | <b>614</b>  | <b>10</b>               | <b>2</b> | <b>11</b> | <b>23</b>  | <b>1997</b> |
| 05:00 PM                | 42                      | 260         | 3         | 305         | 114                      | 1        | 67         | 182        | 7                       | 119        | 33         | 159         | 4                       | 1        | 6         | 11         | 657         |
| 05:15 PM                | 45                      | 251         | 2         | 298         | 63                       | 0        | 57         | 120        | 11                      | 119        | 25         | 155         | 3                       | 1        | 5         | 9          | 582         |
| 05:30 PM                | 52                      | 273         | 2         | 327         | 76                       | 0        | 52         | 128        | 7                       | 127        | 40         | 174         | 2                       | 0        | 0         | 2          | 631         |
| 05:45 PM                | 35                      | 227         | 5         | 267         | 60                       | 1        | 51         | 112        | 15                      | 118        | 47         | 180         | 1                       | 1        | 4         | 6          | 565         |
| <b>Total</b>            | <b>174</b>              | <b>1011</b> | <b>12</b> | <b>1197</b> | <b>313</b>               | <b>2</b> | <b>227</b> | <b>542</b> | <b>40</b>               | <b>483</b> | <b>145</b> | <b>668</b>  | <b>10</b>               | <b>3</b> | <b>15</b> | <b>28</b>  | <b>2435</b> |
| <b>Grand Total</b>      | <b>322</b>              | <b>1832</b> | <b>21</b> | <b>2175</b> | <b>513</b>               | <b>6</b> | <b>405</b> | <b>924</b> | <b>86</b>               | <b>963</b> | <b>233</b> | <b>1282</b> | <b>20</b>               | <b>5</b> | <b>26</b> | <b>51</b>  | <b>4432</b> |
| Apprch %                | 14.8                    | 84.2        | 1         |             | 55.5                     | 0.6      | 43.8       |            | 6.7                     | 75.1       | 18.2       |             | 39.2                    | 9.8      | 51        |            |             |
| Total %                 | 7.3                     | 41.3        | 0.5       | 49.1        | 11.6                     | 0.1      | 9.1        | 20.8       | 1.9                     | 21.7       | 5.3        | 28.9        | 0.5                     | 0.1      | 0.6       | 1.2        |             |
| Passenger Vehicles      | 319                     | 1766        | 20        | 2105        | 512                      | 6        | 401        | 919        | 86                      | 918        | 230        | 1234        | 20                      | 4        | 26        | 50         | 4308        |
| % Passenger Vehicles    | 99.1                    | 96.4        | 95.2      | 96.8        | 99.8                     | 100      | 99         | 99.5       | 100                     | 95.3       | 98.7       | 96.3        | 100                     | 80       | 100       | 98         | 97.2        |
| Large 2 Axle Vehicles   | 3                       | 22          | 1         | 26          | 1                        | 0        | 4          | 5          | 0                       | 18         | 3          | 21          | 0                       | 1        | 0         | 1          | 53          |
| % Large 2 Axle Vehicles | 0.9                     | 1.2         | 4.8       | 1.2         | 0.2                      | 0        | 1          | 0.5        | 0                       | 1.9        | 1.3        | 1.6         | 0                       | 20       | 0         | 2          | 1.2         |
| 3 Axle Vehicles         | 0                       | 6           | 0         | 6           | 0                        | 0        | 0          | 0          | 0                       | 6          | 0          | 6           | 0                       | 0        | 0         | 0          | 12          |
| % 3 Axle Vehicles       | 0                       | 0.3         | 0         | 0.3         | 0                        | 0        | 0          | 0          | 0                       | 0.6        | 0          | 0.5         | 0                       | 0        | 0         | 0          | 0.3         |
| 4+ Axle Trucks          | 0                       | 38          | 0         | 38          | 0                        | 0        | 0          | 0          | 0                       | 21         | 0          | 21          | 0                       | 0        | 0         | 0          | 59          |
| % 4+ Axle Trucks        | 0                       | 2.1         | 0         | 1.7         | 0                        | 0        | 0          | 0          | 0                       | 2.2        | 0          | 1.6         | 0                       | 0        | 0         | 0          | 1.3         |

| Start Time   | Waterman Ave Southbound |            |          |            | Vanderbilt Way Westbound |          |           |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |          |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|--------------------------|----------|-----------|------------|-------------------------|------------|-----------|------------|-------------------------|----------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                     | Thru     | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru     | Right    | App. Total |            |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| 05:00 PM   | 42                      | 260        | 3        | 305        | <b>114</b>               | <b>1</b> | <b>67</b> | <b>182</b> | 7                       | 119        | 33        | 159        | <b>4</b>                | <b>1</b> | <b>6</b> | <b>11</b>  | <b>657</b> |
| 05:15 PM   | 45                      | 251        | 2        | 298        | 63                       | 0        | 57        | 120        | 11                      | 119        | 25        | 155        | 3                       | 1        | 5        | 9          | 582        |
| 05:30 PM   | <b>52</b>               | <b>273</b> | 2        | <b>327</b> | 76                       | 0        | 52        | 128        | 7                       | <b>127</b> | 40        | 174        | 2                       | 0        | 0        | 2          | 631        |
| 05:45 PM   | 35                      | 227        | <b>5</b> | 267        | 60                       | 1        | 51        | 112        | <b>15</b>               | 118        | <b>47</b> | <b>180</b> | 1                       | 1        | 4        | 6          | 565        |
| Total Volume   | 174                     | 1011       | 12       | 1197       | 313                      | 2        | 227       | 542        | 40                      | 483        | 145       | 668        | 10                      | 3        | 15       | 28         | 2435       |
| % App. Total   | 14.5                    | 84.5       | 1        |            | 57.7                     | 0.4      | 41.9      |            | 6                       | 72.3       | 21.7      |            | 35.7                    | 10.7     | 53.6     |            |            |
| PHF  | .837                    | .926       | .600     | .915       | .686                     | .500     | .847      | .745       | .667                    | .951       | .771      | .928       | .625                    | .750     | .625     | .636       | .927       |



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 55       | 217  | 5    | 277  | 114      | 1    | 67   | 182  | 7        | 119  | 33   | 159  | 4        | 1    | 6    | 11   |
| +15 mins.    | 42       | 260  | 3    | 305  | 63       | 0    | 57   | 120  | 11       | 119  | 25   | 155  | 3        | 1    | 5    | 9    |
| +30 mins.    | 45       | 251  | 2    | 298  | 76       | 0    | 52   | 128  | 7        | 127  | 40   | 174  | 2        | 0    | 0    | 2    |
| +45 mins.    | 52       | 273  | 2    | 327  | 60       | 1    | 51   | 112  | 15       | 118  | 47   | 180  | 1        | 1    | 4    | 6    |
| Total Volume | 194      | 1001 | 12   | 1207 | 313      | 2    | 227  | 542  | 40       | 483  | 145  | 668  | 10       | 3    | 15   | 28   |
| % App. Total | 16.1     | 82.9 | 1    |      | 57.7     | 0.4  | 41.9 |      | 6        | 72.3 | 21.7 |      | 35.7     | 10.7 | 53.6 |      |
| PHF          | .882     | .917 | .600 | .923 | .686     | .500 | .847 | .745 | .667     | .951 | .771 | .928 | .625     | .750 | .625 | .636 |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

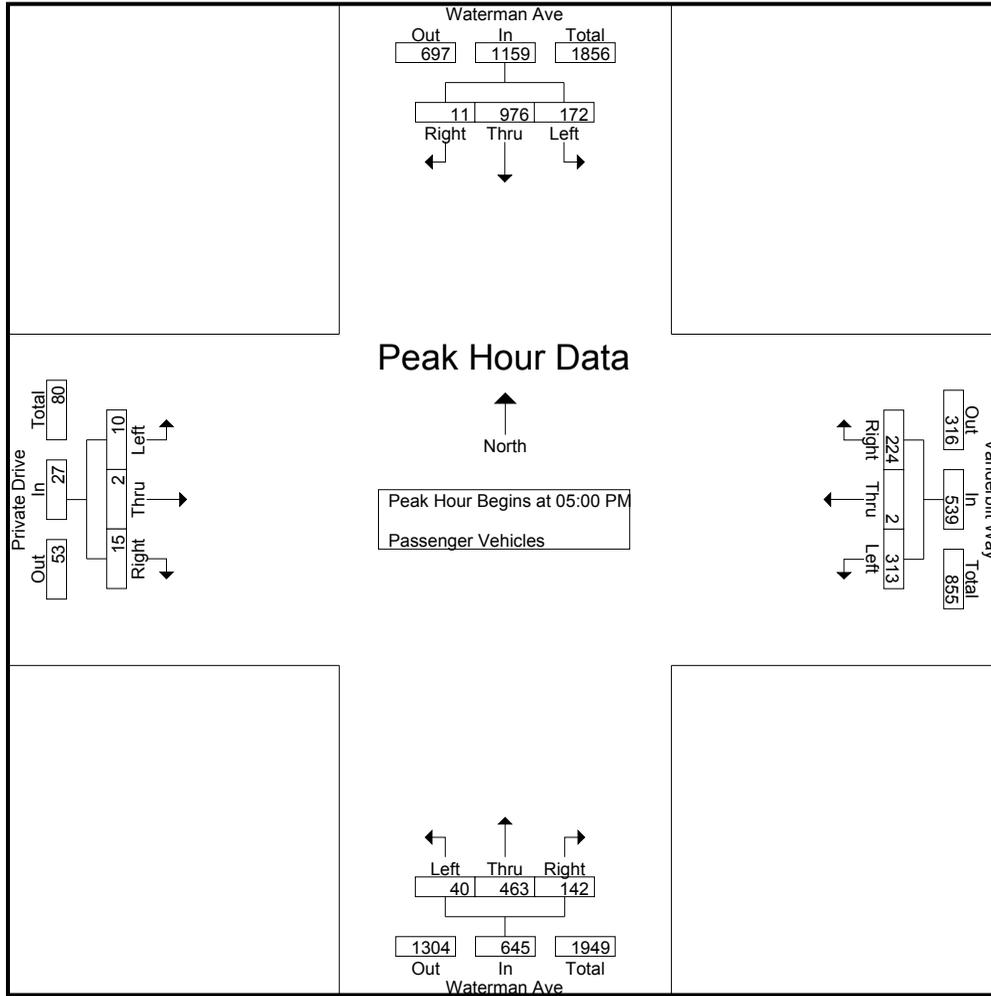
Groups Printed- Passenger Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 28                      | 172  | 2     | 202        | 44                       | 1    | 50    | 95         | 14                      | 144  | 21    | 179        | 5                       | 1    | 3     | 9          | 485        |
| 04:15 PM    | 24                      | 186  | 2     | 212        | 35                       | 1    | 35    | 71         | 8                       | 116  | 25    | 149        | 1                       | 1    | 6     | 8          | 440        |
| 04:30 PM    | 41                      | 222  | 0     | 263        | 70                       | 2    | 50    | 122        | 12                      | 104  | 23    | 139        | 0                       | 0    | 2     | 2          | 526        |
| 04:45 PM    | 54                      | 210  | 5     | 269        | 50                       | 0    | 42    | 92         | 12                      | 91   | 19    | 122        | 4                       | 0    | 0     | 4          | 487        |
| Total       | 147                     | 790  | 9     | 946        | 199                      | 4    | 177   | 380        | 46                      | 455  | 88    | 589        | 10                      | 2    | 11    | 23         | 1938       |
| 05:00 PM    | 41                      | 251  | 3     | 295        | 114                      | 1    | 66    | 181        | 7                       | 115  | 33    | 155        | 4                       | 1    | 6     | 11         | 642        |
| 05:15 PM    | 45                      | 244  | 2     | 291        | 63                       | 0    | 57    | 120        | 11                      | 114  | 23    | 148        | 3                       | 1    | 5     | 9          | 568        |
| 05:30 PM    | 51                      | 264  | 2     | 317        | 76                       | 0    | 51    | 127        | 7                       | 122  | 39    | 168        | 2                       | 0    | 0     | 2          | 614        |
| 05:45 PM    | 35                      | 217  | 4     | 256        | 60                       | 1    | 50    | 111        | 15                      | 112  | 47    | 174        | 1                       | 0    | 4     | 5          | 546        |
| Total       | 172                     | 976  | 11    | 1159       | 313                      | 2    | 224   | 539        | 40                      | 463  | 142   | 645        | 10                      | 2    | 15    | 27         | 2370       |
| Grand Total | 319                     | 1766 | 20    | 2105       | 512                      | 6    | 401   | 919        | 86                      | 918  | 230   | 1234       | 20                      | 4    | 26    | 50         | 4308       |
| Apprch %    | 15.2                    | 83.9 | 1     |            | 55.7                     | 0.7  | 43.6  |            | 7                       | 74.4 | 18.6  |            | 40                      | 8    | 52    |            |            |
| Total %     | 7.4                     | 41   | 0.5   | 48.9       | 11.9                     | 0.1  | 9.3   | 21.3       | 2                       | 21.3 | 5.3   | 28.6       | 0.5                     | 0.1  | 0.6   | 1.2        |            |

| Start Time   | Waterman Ave Southbound |            |          |            | Vanderbilt Way Westbound |          |           |            | Waterman Ave Northbound |            |           |            | Private Drive Eastbound |          |          |            | Int. Total |
|--|-------------------------|------------|----------|------------|--------------------------|----------|-----------|------------|-------------------------|------------|-----------|------------|-------------------------|----------|----------|------------|------------|
|  | Left                    | Thru       | Right    | App. Total | Left                     | Thru     | Right     | App. Total | Left                    | Thru       | Right     | App. Total | Left                    | Thru     | Right    | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |            |          |            |                          |          |           |            |                         |            |           |            |                         |          |          |            |            |
| 05:00 PM   | 41                      | 251        | 3        | 295        | <b>114</b>               | <b>1</b> | <b>66</b> | <b>181</b> | 7                       | 115        | 33        | 155        | <b>4</b>                | <b>1</b> | <b>6</b> | <b>11</b>  | <b>642</b> |
| 05:15 PM   | 45                      | 244        | 2        | 291        | 63                       | 0        | 57        | 120        | 11                      | 114        | 23        | 148        | 3                       | 1        | 5        | 9          | 568        |
| 05:30 PM   | <b>51</b>               | <b>264</b> | 2        | <b>317</b> | 76                       | 0        | 51        | 127        | 7                       | <b>122</b> | 39        | 168        | 2                       | 0        | 0        | 2          | 614        |
| 05:45 PM   | 35                      | 217        | <b>4</b> | 256        | 60                       | 1        | 50        | 111        | <b>15</b>               | 112        | <b>47</b> | <b>174</b> | 1                       | 0        | 4        | 5          | 546        |
| Total Volume   | 172                     | 976        | 11       | 1159       | 313                      | 2        | 224       | 539        | 40                      | 463        | 142       | 645        | 10                      | 2        | 15       | 27         | 2370       |
| % App. Total   | 14.8                    | 84.2       | 0.9      |            | 58.1                     | 0.4      | 41.6      |            | 6.2                     | 71.8       | 22        |            | 37                      | 7.4      | 55.6     |            |            |
| PHF  | .843                    | .924       | .688     | .914       | .686                     | .500     | .848      | .744       | .667                    | .949       | .755      | .927       | .625                    | .500     | .625     | .614       | .923       |

City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM  |            |          |            | 05:00 PM   |          |           |            | 05:00 PM  |            |           |            | 05:00 PM |          |          |           |
|--------------|-----------|------------|----------|------------|------------|----------|-----------|------------|-----------|------------|-----------|------------|----------|----------|----------|-----------|
| +0 mins.     | 41        | 251        | 3        | 295        | <b>114</b> | <b>1</b> | <b>66</b> | <b>181</b> | 7         | 115        | 33        | 155        | <b>4</b> | <b>1</b> | <b>6</b> | <b>11</b> |
| +15 mins.    | 45        | 244        | 2        | 291        | 63         | 0        | 57        | 120        | 11        | 114        | 23        | 148        | 3        | 1        | 5        | 9         |
| +30 mins.    | <b>51</b> | <b>264</b> | 2        | <b>317</b> | 76         | 0        | 51        | 127        | 7         | <b>122</b> | 39        | 168        | 2        | 0        | 0        | 2         |
| +45 mins.    | 35        | 217        | <b>4</b> | 256        | 60         | 1        | 50        | 111        | <b>15</b> | 112        | <b>47</b> | <b>174</b> | 1        | 0        | 4        | 5         |
| Total Volume | 172       | 976        | 11       | 1159       | 313        | 2        | 224       | 539        | 40        | 463        | 142       | 645        | 10       | 2        | 15       | 27        |
| % App. Total | 14.8      | 84.2       | 0.9      |            | 58.1       | 0.4      | 41.6      |            | 6.2       | 71.8       | 22        |            | 37       | 7.4      | 55.6     |           |
| PHF          | .843      | .924       | .688     | .914       | .686       | .500     | .848      | .744       | .667      | .949       | .755      | .927       | .625     | .500     | .625     | .614      |

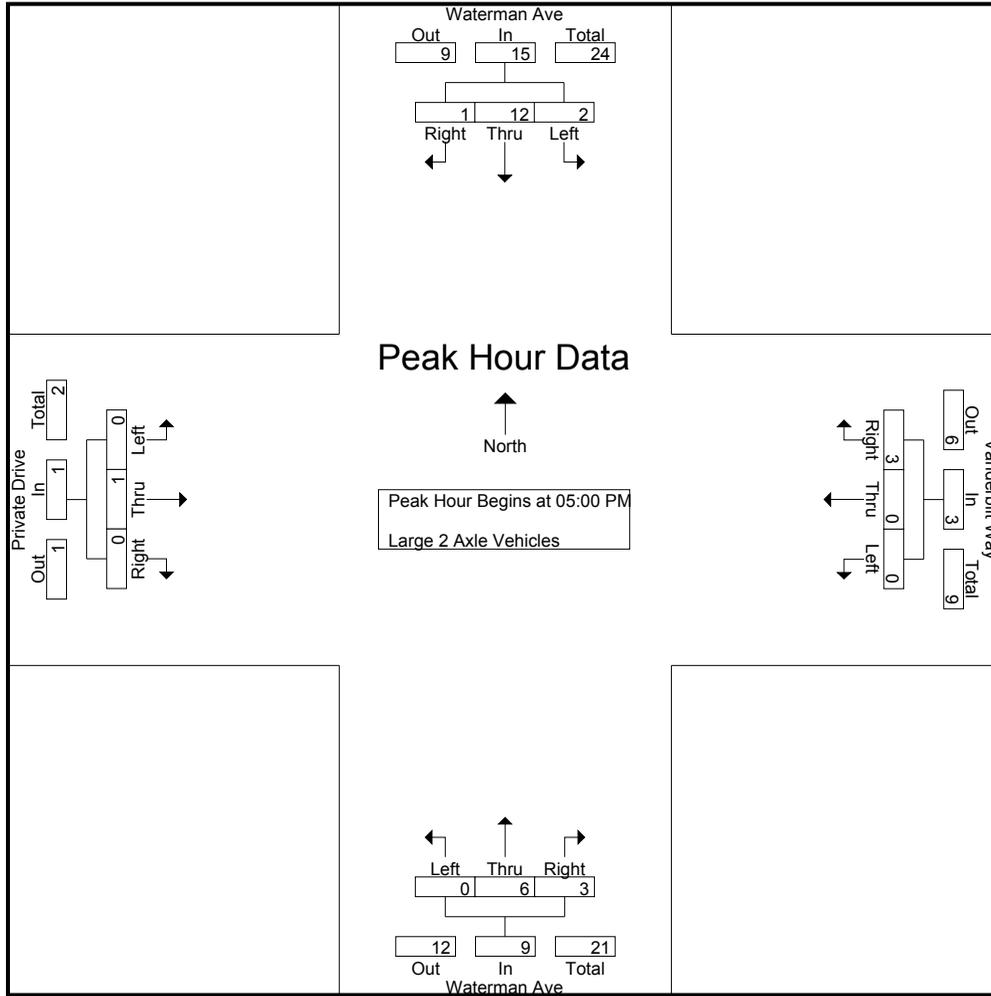
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 1                        | 0    | 0     | 1          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 6          |
| 04:30 PM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 1     | 1          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 7          |
| 04:45 PM    | 1                       | 4    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 7          |
| Total       | 1                       | 10   | 0     | 11         | 1                        | 0    | 1     | 2          | 0                       | 12   | 0     | 12         | 0                       | 0    | 0     | 0          | 25         |
| 05:00 PM    | 1                       | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 05:15 PM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 05:30 PM    | 1                       | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM    | 0                       | 4    | 1     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 1    | 0     | 1          | 8          |
| Total       | 2                       | 12   | 1     | 15         | 0                        | 0    | 3     | 3          | 0                       | 6    | 3     | 9          | 0                       | 1    | 0     | 1          | 28         |
| Grand Total | 3                       | 22   | 1     | 26         | 1                        | 0    | 4     | 5          | 0                       | 18   | 3     | 21         | 0                       | 1    | 0     | 1          | 53         |
| Apprch %    | 11.5                    | 84.6 | 3.8   |            | 20                       | 0    | 80    |            | 0                       | 85.7 | 14.3  |            | 0                       | 100  | 0     |            |            |
| Total %     | 5.7                     | 41.5 | 1.9   | 49.1       | 1.9                      | 0    | 7.5   | 9.4        | 0                       | 34   | 5.7   | 39.6       | 0                       | 1.9  | 0     | 1.9        |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 1                       | 4    | 0     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 7          |
| 05:15 PM   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 2    | 2     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 05:30 PM   | 1                       | 0    | 0     | 1          | 0                        | 0    | 1     | 1          | 0                       | 2    | 1     | 3          | 0                       | 0    | 0     | 0          | 5          |
| 05:45 PM   | 0                       | 4    | 1     | 5          | 0                        | 0    | 1     | 1          | 0                       | 1    | 0     | 1          | 0                       | 1    | 0     | 1          | 8          |
| Total Volume   | 2                       | 12   | 1     | 15         | 0                        | 0    | 3     | 3          | 0                       | 6    | 3     | 9          | 0                       | 1    | 0     | 1          | 28         |
| % App. Total   | 13.3                    | 80   | 6.7   |            | 0                        | 0    | 100   |            | 0                       | 66.7 | 33.3  |            | 0                       | 100  | 0     |            |            |
| PHF  | .500                    | .750 | .250  | .750       | .000                     | .000 | .750  | .750       | .000                    | .750 | .375  | .563       | .000                    | .250 | .000  | .250       | .875       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 4    | 0    | 5    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 2    | 2    | 4    | 0        | 0    | 0    | 0    |
| +30 mins.    | 1        | 0    | 0    | 1    | 0        | 0    | 1    | 1    | 0        | 2    | 1    | 3    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 4    | 1    | 5    | 0        | 0    | 1    | 1    | 0        | 1    | 0    | 1    | 0        | 1    | 0    | 1    |
| Total Volume | 2        | 12   | 1    | 15   | 0        | 0    | 3    | 3    | 0        | 6    | 3    | 9    | 0        | 1    | 0    | 1    |
| % App. Total | 13.3     | 80   | 6.7  |      | 0        | 0    | 100  |      | 0        | 66.7 | 33.3 |      | 0        | 100  | 0    |      |
| PHF          | .500     | .750 | .250 | .750 | .000     | .000 | .750 | .750 | .000     | .750 | .375 | .563 | .000     | .250 | .000 | .250 |

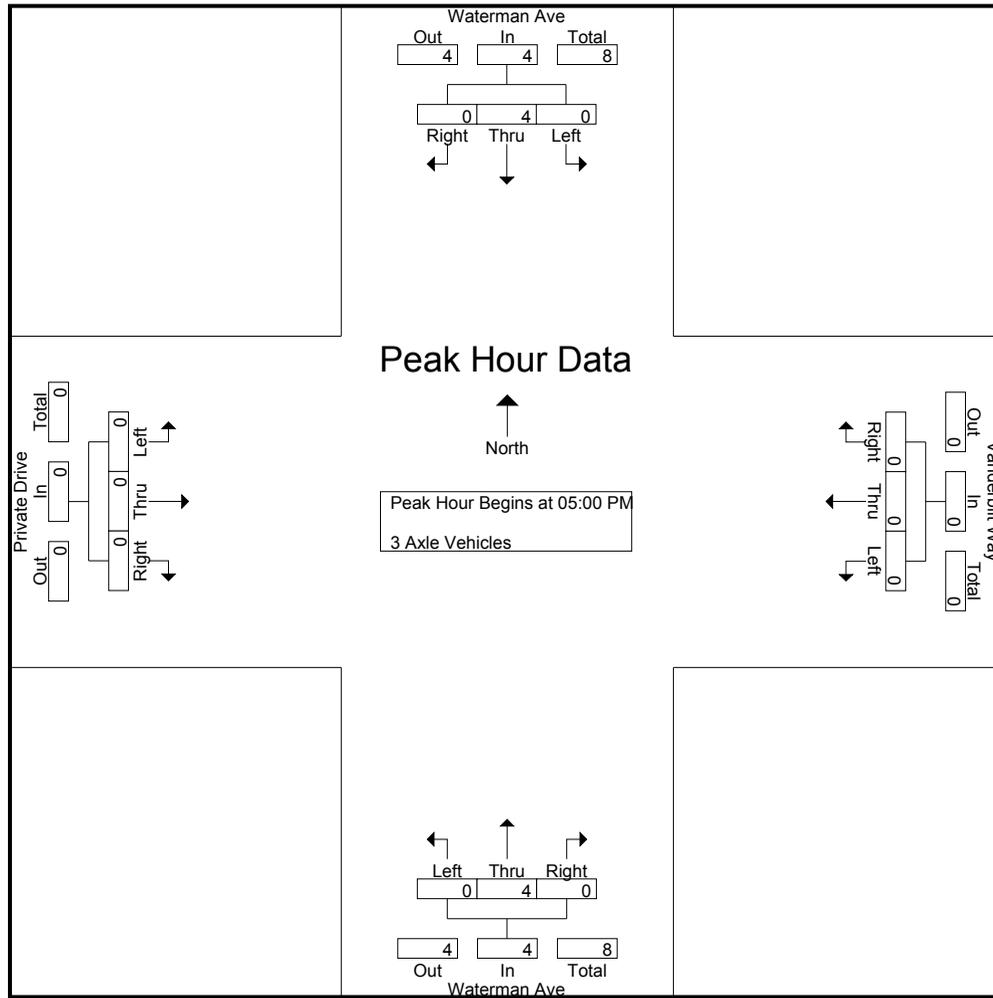
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:15 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 04:30 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 04:45 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| Total       | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:00 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM    | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM    | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| Total       | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| Grand Total | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 6    | 0     | 6          | 0                       | 0    | 0     | 0          | 12         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 50   | 0     | 50         | 0                        | 0    | 0     | 0          | 0                       | 50   | 0     | 50         | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0                       | 0    | 0     | 0          | 0          |
| 05:15 PM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 4          |
| 05:30 PM   | 0                       | 2    | 0     | 2          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 3          |
| 05:45 PM   | 0                       | 0    | 0     | 0          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 1          |
| Total Volume   | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .500 | .000  | .500       | .000                     | .000 | .000  | .000       | .000                    | .500 | .000  | .500       | .000                    | .000 | .000  | .000       | .500       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 | .000     | .500 | .000 | .500 | .000     | .000 | .000 | .000 |

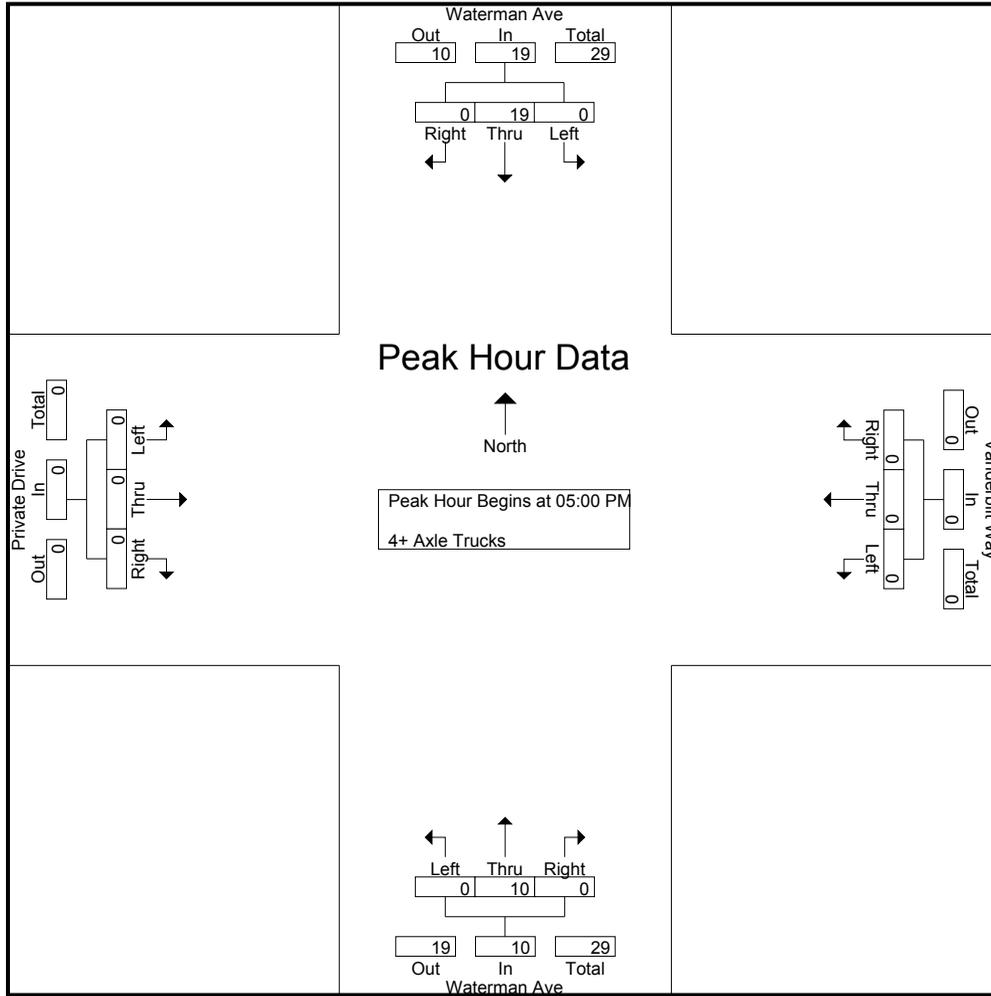
City of San Bernardino  
 N/S: Waterman Ave  
 E/W: Vanderbilt Way  
 Weather: Clear

File Name : SBCWAVAPM  
 Site Code : 07515438  
 Start Date : 8/18/2015  
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time  | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|-------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|             | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| 04:00 PM    | 0                       | 4    | 0     | 4          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 8          |
| 04:15 PM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 04:30 PM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 9          |
| 04:45 PM    | 0                       | 3    | 0     | 3          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 4          |
| Total       | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 11   | 0     | 11         | 0                       | 0    | 0     | 0          | 30         |
| 05:00 PM    | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 05:15 PM    | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM    | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM    | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total       | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 10   | 0     | 10         | 0                       | 0    | 0     | 0          | 29         |
| Grand Total | 0                       | 38   | 0     | 38         | 0                        | 0    | 0     | 0          | 0                       | 21   | 0     | 21         | 0                       | 0    | 0     | 0          | 59         |
| Apprch %    | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| Total %     | 0                       | 64.4 | 0     | 64.4       | 0                        | 0    | 0     | 0          | 0                       | 35.6 | 0     | 35.6       | 0                       | 0    | 0     | 0          |            |

| Start Time   | Waterman Ave Southbound |      |       |            | Vanderbilt Way Westbound |      |       |            | Waterman Ave Northbound |      |       |            | Private Drive Eastbound |      |       |            | Int. Total |
|--|-------------------------|------|-------|------------|--------------------------|------|-------|------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|------------|
|  | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                    | Thru | Right | App. Total | Left                    | Thru | Right | App. Total |            |
| Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                         |      |       |            |                          |      |       |            |                         |      |       |            |                         |      |       |            |            |
| 05:00 PM   | 0                       | 5    | 0     | 5          | 0                        | 0    | 0     | 0          | 0                       | 3    | 0     | 3          | 0                       | 0    | 0     | 0          | 8          |
| 05:15 PM   | 0                       | 1    | 0     | 1          | 0                        | 0    | 0     | 0          | 0                       | 1    | 0     | 1          | 0                       | 0    | 0     | 0          | 2          |
| 05:30 PM   | 0                       | 7    | 0     | 7          | 0                        | 0    | 0     | 0          | 0                       | 2    | 0     | 2          | 0                       | 0    | 0     | 0          | 9          |
| 05:45 PM   | 0                       | 6    | 0     | 6          | 0                        | 0    | 0     | 0          | 0                       | 4    | 0     | 4          | 0                       | 0    | 0     | 0          | 10         |
| Total Volume   | 0                       | 19   | 0     | 19         | 0                        | 0    | 0     | 0          | 0                       | 10   | 0     | 10         | 0                       | 0    | 0     | 0          | 29         |
| % App. Total   | 0                       | 100  | 0     |            | 0                        | 0    | 0     |            | 0                       | 100  | 0     |            | 0                       | 0    | 0     |            |            |
| PHF  | .000                    | .679 | .000  | .679       | .000                     | .000 | .000  | .000       | .000                    | .625 | .000  | .625       | .000                    | .000 | .000  | .000       | .725       |



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      | 05:00 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 0        | 5    | 0    | 5    | 0        | 0    | 0    | 0    | 0        | 3    | 0    | 3    | 0        | 0    | 0    | 0    |
| +15 mins.    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| +30 mins.    | 0        | 7    | 0    | 7    | 0        | 0    | 0    | 0    | 0        | 2    | 0    | 2    | 0        | 0    | 0    | 0    |
| +45 mins.    | 0        | 6    | 0    | 6    | 0        | 0    | 0    | 0    | 0        | 4    | 0    | 4    | 0        | 0    | 0    | 0    |
| Total Volume | 0        | 19   | 0    | 19   | 0        | 0    | 0    | 0    | 0        | 10   | 0    | 10   | 0        | 0    | 0    | 0    |
| % App. Total | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    | 0        | 100  | 0    | 0    | 0        | 0    | 0    | 0    |
| PHF          | .000     | .679 | .000 | .679 | .000     | .000 | .000 | .000 | .000     | .625 | .000 | .625 | .000     | .000 | .000 | .000 |

# Counts Unlimited, Inc

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

PO Box 1178  
 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDWASPC  
 Site Code: 075-15438

## Northbound

| Start Time  | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|-------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 08/18/15    | 0     | 56              | 14          | 1     | 1             | 4             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 82    |
| 01:00       | 2     | 40              | 7           | 0     | 0             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 51    |
| 02:00       | 0     | 34              | 5           | 0     | 0             | 0             | 0             | 0             | 2             | 0             | 0            | 0            | 0            | 41    |
| 03:00       | 2     | 61              | 15          | 0     | 1             | 3             | 0             | 0             | 2             | 0             | 0            | 0            | 0            | 84    |
| 04:00       | 1     | 129             | 35          | 0     | 8             | 3             | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 188   |
| 05:00       | 5     | 155             | 38          | 1     | 16            | 4             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 226   |
| 06:00       | 4     | 278             | 71          | 1     | 18            | 5             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 388   |
| 07:00       | 1     | 453             | 95          | 5     | 20            | 5             | 0             | 8             | 14            | 0             | 0            | 0            | 0            | 601   |
| 08:00       | 4     | 446             | 96          | 8     | 29            | 8             | 0             | 8             | 25            | 0             | 0            | 0            | 0            | 624   |
| 09:00       | 3     | 430             | 111         | 6     | 26            | 8             | 0             | 6             | 19            | 0             | 0            | 0            | 0            | 609   |
| 10:00       | 2     | 450             | 109         | 12    | 30            | 8             | 0             | 10            | 20            | 0             | 0            | 0            | 0            | 641   |
| 11:00       | 5     | 484             | 100         | 6     | 25            | 4             | 0             | 5             | 11            | 0             | 0            | 0            | 0            | 640   |
| 12 PM       | 2     | 607             | 134         | 8     | 28            | 8             | 0             | 9             | 19            | 0             | 0            | 0            | 0            | 815   |
| 13:00       | 4     | 613             | 128         | 9     | 25            | 4             | 0             | 7             | 18            | 0             | 0            | 0            | 0            | 808   |
| 14:00       | 9     | 507             | 119         | 7     | 25            | 6             | 0             | 5             | 12            | 0             | 0            | 0            | 0            | 690   |
| 15:00       | 2     | 510             | 111         | 5     | 26            | 8             | 0             | 6             | 8             | 0             | 1            | 0            | 0            | 677   |
| 16:00       | 6     | 519             | 120         | 5     | 24            | 8             | 0             | 0             | 8             | 0             | 0            | 0            | 0            | 690   |
| 17:00       | 4     | 608             | 100         | 4     | 11            | 5             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 738   |
| 18:00       | 12    | 403             | 65          | 5     | 14            | 9             | 0             | 2             | 16            | 0             | 0            | 0            | 0            | 526   |
| 19:00       | 2     | 269             | 50          | 2     | 15            | 5             | 0             | 0             | 18            | 0             | 0            | 0            | 0            | 361   |
| 20:00       | 1     | 200             | 34          | 2     | 12            | 1             | 0             | 3             | 6             | 0             | 0            | 0            | 0            | 259   |
| 21:00       | 5     | 165             | 26          | 2     | 6             | 6             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 219   |
| 22:00       | 1     | 133             | 20          | 2     | 5             | 0             | 0             | 0             | 9             | 0             | 0            | 0            | 0            | 170   |
| 23:00       | 3     | 78              | 10          | 0     | 1             | 3             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 101   |
| Total       | 80    | 7628            | 1613        | 91    | 366           | 116           | 0             | 74            | 260           | 0             | 1            | 0            | 0            | 10229 |
| Percent     | 0.8%  | 74.6%           | 15.8%       | 0.9%  | 3.6%          | 1.1%          | 0.0%          | 0.7%          | 2.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |
| AM Peak     | 05:00 | 11:00           | 09:00       | 10:00 | 10:00         | 08:00         |               | 10:00         | 08:00         |               |              |              |              | 10:00 |
| Vol.        | 5     | 484             | 111         | 12    | 30            | 8             |               | 10            | 25            |               |              |              |              | 641   |
| PM Peak     | 18:00 | 13:00           | 12:00       | 13:00 | 12:00         | 18:00         |               | 12:00         | 12:00         |               | 15:00        |              |              | 12:00 |
| Vol.        | 12    | 613             | 134         | 9     | 28            | 9             |               | 9             | 19            |               | 1            |              |              | 815   |
| Grand Total | 80    | 7628            | 1613        | 91    | 366           | 116           | 0             | 74            | 260           | 0             | 1            | 0            | 0            | 10229 |
| Percent     | 0.8%  | 74.6%           | 15.8%       | 0.9%  | 3.6%          | 1.1%          | 0.0%          | 0.7%          | 2.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |

# Counts Unlimited, Inc

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 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

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 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDWASPC  
 Site Code: 075-15438

## Southbound

| Start Time         | Bikes    | Cars & Trailers | 2 Axle Long | Buses    | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total      |
|--------------------|----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| 08/18/15           | 0        | 28              | 4           | 1        | 2             | 0             | 0             | 1             | 4             | 0             | 0            | 0            | 0            | 40         |
| 01:00              | 0        | 39              | 9           | 1        | 1             | 0             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 55         |
| 02:00              | 1        | 32              | 6           | 1        | 0             | 2             | 0             | 2             | 8             | 0             | 0            | 0            | 0            | 52         |
| 03:00              | 1        | 25              | 5           | 0        | 2             | 1             | 0             | 2             | 4             | 0             | 0            | 0            | 0            | 40         |
| 04:00              | 3        | 83              | 29          | 0        | 6             | <b>4</b>      | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 134        |
| 05:00              | 1        | 67              | 23          | 3        | 12            | 2             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 114        |
| 06:00              | 3        | 94              | 33          | 2        | 20            | 3             | 0             | 2             | 4             | 0             | 0            | 0            | 0            | 161        |
| 07:00              | 3        | 198             | 72          | 5        | 26            | 3             | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 319        |
| 08:00              | 2        | 268             | 74          | <b>8</b> | 22            | 3             | 0             | <b>4</b>      | 9             | 0             | 0            | 0            | 0            | 390        |
| 09:00              | 0        | 231             | 77          | 2        | 28            | 4             | 0             | 2             | 13            | 0             | 0            | 0            | 0            | 357        |
| 10:00              | 3        | 247             | 87          | 6        | 25            | 4             | 0             | 2             | 12            | 0             | 0            | 0            | 0            | 386        |
| 11:00              | <b>5</b> | <b>275</b>      | <b>100</b>  | 5        | <b>33</b>     | 4             | 0             | 4             | <b>17</b>     | 0             | 0            | 0            | 0            | <b>443</b> |
| 12 PM              | 4        | 292             | 99          | 7        | 27            | 4             | 0             | 4             | 11            | 0             | 0            | 0            | 0            | 448        |
| 13:00              | 6        | 281             | 98          | 6        | 31            | 7             | 0             | 3             | 18            | 0             | 0            | 0            | 0            | 450        |
| 14:00              | 3        | 269             | 80          | 3        | 27            | 3             | 0             | 1             | 14            | 0             | 0            | 0            | 0            | 400        |
| 15:00              | <b>7</b> | 296             | 99          | 3        | <b>39</b>     | 2             | 0             | 3             | 14            | 0             | 0            | 0            | 0            | 463        |
| 16:00              | 2        | 445             | 109         | 3        | 39            | 5             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 622        |
| 17:00              | 7        | <b>537</b>      | <b>132</b>  | <b>9</b> | 32            | <b>12</b>     | 0             | <b>8</b>      | 19            | 0             | 0            | 0            | 0            | <b>756</b> |
| 18:00              | 3        | 383             | 104         | 6        | 30            | 4             | 0             | 2             | <b>20</b>     | 0             | 0            | 0            | 0            | 552        |
| 19:00              | 3        | 205             | 56          | 2        | 20            | 2             | 0             | 1             | 11            | 0             | 0            | 0            | 0            | 300        |
| 20:00              | 3        | 135             | 42          | 2        | 9             | 1             | 0             | 2             | 9             | 0             | 0            | 0            | 0            | 203        |
| 21:00              | 3        | 125             | 24          | 2        | 6             | 2             | 0             | 1             | 4             | 0             | 0            | 0            | 0            | 167        |
| 22:00              | 3        | 94              | 29          | 0        | 9             | 2             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 144        |
| 23:00              | 1        | 55              | 14          | 0        | 2             | 3             | 0             | 3             | 5             | 0             | 0            | 0            | 0            | 83         |
| <b>Total</b>       | 67       | 4704            | 1405        | 77       | 448           | 77            | 0             | 57            | 244           | 0             | 0            | 0            | 0            | 7079       |
| <b>Percent</b>     | 0.9%     | 66.5%           | 19.8%       | 1.1%     | 6.3%          | 1.1%          | 0.0%          | 0.8%          | 3.4%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |
| <b>AM Peak</b>     | 11:00    | 11:00           | 11:00       | 08:00    | 11:00         | 04:00         |               | 08:00         | 11:00         |               |              |              |              | 11:00      |
| <b>Vol.</b>        | 5        | 275             | 100         | 8        | 33            | 4             |               | 4             | 17            |               |              |              |              | 443        |
| <b>PM Peak</b>     | 15:00    | 17:00           | 17:00       | 17:00    | 15:00         | 17:00         |               | 17:00         | 18:00         |               |              |              |              | 17:00      |
| <b>Vol.</b>        | 7        | 537             | 132         | 9        | 39            | 12            |               | 8             | 20            |               |              |              |              | 756        |
| <b>Grand Total</b> | 67       | 4704            | 1405        | 77       | 448           | 77            | 0             | 57            | 244           | 0             | 0            | 0            | 0            | 7079       |
| <b>Percent</b>     | 0.9%     | 66.5%           | 19.8%       | 1.1%     | 6.3%          | 1.1%          | 0.0%          | 0.8%          | 3.4%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |

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 24 Hour Directional Classification Count

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 email: counts@countsunlimited.com

SBDWASPC  
 Site Code: 075-15438

## Northbound, Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 0         | 84              | 18          | 2         | 3             | 4             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 122         |
| 01:00       | 2         | 79              | 16          | 1         | 1             | 1             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 106         |
| 02:00       | 1         | 66              | 11          | 1         | 0             | 2             | 0             | 2             | 10            | 0             | 0            | 0            | 0            | 93          |
| 03:00       | 3         | 86              | 20          | 0         | 3             | 4             | 0             | 2             | 6             | 0             | 0            | 0            | 0            | 124         |
| 04:00       | 4         | 212             | 64          | 0         | 14            | 7             | 0             | 4             | 17            | 0             | 0            | 0            | 0            | 322         |
| 05:00       | 6         | 222             | 61          | 4         | 28            | 6             | 0             | 0             | 13            | 0             | 0            | 0            | 0            | 340         |
| 06:00       | 7         | 372             | 104         | 3         | 38            | 8             | 0             | 3             | 14            | 0             | 0            | 0            | 0            | 549         |
| 07:00       | 4         | 651             | 167         | 10        | 46            | 8             | 0             | 11            | 23            | 0             | 0            | 0            | 0            | 920         |
| 08:00       | 6         | 714             | 170         | 16        | 51            | 11            | 0             | <b>12</b>     | <b>34</b>     | 0             | 0            | 0            | 0            | 1014        |
| 09:00       | 3         | 661             | 188         | 8         | 54            | <b>12</b>     | 0             | 8             | 32            | 0             | 0            | 0            | 0            | 966         |
| 10:00       | 5         | 697             | 196         | <b>18</b> | 55            | 12            | 0             | 12            | 32            | 0             | 0            | 0            | 0            | 1027        |
| 11:00       | <b>10</b> | <b>759</b>      | <b>200</b>  | 11        | <b>58</b>     | 8             | 0             | 9             | 28            | 0             | 0            | 0            | 0            | <b>1083</b> |
| 12 PM       | 6         | 899             | <b>233</b>  | <b>15</b> | 55            | 12            | 0             | <b>13</b>     | 30            | 0             | 0            | 0            | 0            | 1263        |
| 13:00       | 10        | 894             | 226         | 15        | 56            | 11            | 0             | 10            | <b>36</b>     | 0             | 0            | 0            | 0            | 1258        |
| 14:00       | 12        | 776             | 199         | 10        | 52            | 9             | 0             | 6             | 26            | 0             | 0            | 0            | 0            | 1090        |
| 15:00       | 9         | 806             | 210         | 8         | <b>65</b>     | 10            | 0             | 9             | 22            | 0             | <b>1</b>     | 0            | 0            | 1140        |
| 16:00       | 8         | 964             | 229         | 8         | 63            | 13            | 0             | 4             | 23            | 0             | 0            | 0            | 0            | 1312        |
| 17:00       | 11        | <b>1145</b>     | 232         | 13        | 43            | <b>17</b>     | 0             | 8             | 25            | 0             | 0            | 0            | 0            | <b>1494</b> |
| 18:00       | <b>15</b> | 786             | 169         | 11        | 44            | 13            | 0             | 4             | 36            | 0             | 0            | 0            | 0            | 1078        |
| 19:00       | 5         | 474             | 106         | 4         | 35            | 7             | 0             | 1             | 29            | 0             | 0            | 0            | 0            | 661         |
| 20:00       | 4         | 335             | 76          | 4         | 21            | 2             | 0             | 5             | 15            | 0             | 0            | 0            | 0            | 462         |
| 21:00       | 8         | 290             | 50          | 4         | 12            | 8             | 0             | 2             | 12            | 0             | 0            | 0            | 0            | 386         |
| 22:00       | 4         | 227             | 49          | 2         | 14            | 2             | 0             | 2             | 14            | 0             | 0            | 0            | 0            | 314         |
| 23:00       | 4         | 133             | 24          | 0         | 3             | 6             | 0             | 3             | 11            | 0             | 0            | 0            | 0            | 184         |
| Total       | 147       | 12332           | 3018        | 168       | 814           | 193           | 0             | 131           | 504           | 0             | 1            | 0            | 0            | 17308       |
| Percent     | 0.8%      | 71.3%           | 17.4%       | 1.0%      | 4.7%          | 1.1%          | 0.0%          | 0.8%          | 2.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 11:00     | 11:00           | 11:00       | 10:00     | 11:00         | 09:00         |               | 08:00         | 08:00         |               |              |              |              | 11:00       |
| Vol.        | 10        | 759             | 200         | 18        | 58            | 12            |               | 12            | 34            |               |              |              |              | 1083        |
| PM Peak     | 18:00     | 17:00           | 12:00       | 12:00     | 15:00         | 17:00         |               | 12:00         | 13:00         |               | 15:00        |              |              | 17:00       |
| Vol.        | 15        | 1145            | 233         | 15        | 65            | 17            |               | 13            | 36            |               | 1            |              |              | 1494        |
| Grand Total | 147       | 12332           | 3018        | 168       | 814           | 193           | 0             | 131           | 504           | 0             | 1            | 0            | 0            | 17308       |
| Percent     | 0.8%      | 71.3%           | 17.4%       | 1.0%      | 4.7%          | 1.1%          | 0.0%          | 0.8%          | 2.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |

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SBDWANPC  
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## Northbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total      |
|-------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| 08/18/15    | 6         | 46              | 20          | 2         | 3             | 6             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 88         |
| 01:00       | 5         | 40              | 6           | 0         | 3             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 56         |
| 02:00       | 1         | 35              | 8           | 0         | 0             | 1             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 46         |
| 03:00       | 3         | 55              | 24          | 0         | 8             | 4             | 0             | 2             | 2             | 0             | 0            | 0            | 0            | 98         |
| 04:00       | <b>8</b>  | 119             | 46          | 1         | 19            | <b>9</b>      | 0             | 1             | 5             | 0             | 0            | 0            | 0            | 208        |
| 05:00       | 8         | 137             | 54          | 2         | 27            | 7             | 0             | 1             | 6             | 0             | 0            | 0            | 0            | 242        |
| 06:00       | 6         | 261             | 90          | 8         | 49            | 4             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 425        |
| 07:00       | 5         | <b>456</b>      | 127         | 6         | 37            | 5             | 0             | 4             | 8             | 0             | 0            | 0            | 0            | 648        |
| 08:00       | 7         | 374             | 163         | 7         | 46            | 7             | 0             | 4             | 13            | 0             | 0            | 0            | 0            | 621        |
| 09:00       | 7         | 389             | 139         | 8         | <b>59</b>     | 8             | 0             | 8             | 11            | 0             | 0            | 0            | 0            | 629        |
| 10:00       | 1         | 398             | 134         | <b>15</b> | 47            | 6             | 0             | <b>12</b>     | <b>20</b>     | 0             | 0            | 0            | 0            | 633        |
| 11:00       | 7         | 446             | <b>164</b>  | 6         | 50            | 6             | 0             | 9             | 11            | 0             | 0            | 0            | 0            | <b>699</b> |
| 12 PM       | 4         | 540             | <b>217</b>  | 8         | 45            | 10            | 0             | 7             | 14            | 0             | 0            | 0            | 0            | 845        |
| 13:00       | 6         | 541             | 196         | <b>10</b> | 44            | <b>11</b>     | 0             | <b>10</b>     | 13            | 0             | 0            | 0            | 0            | 831        |
| 14:00       | 9         | 448             | 179         | 7         | 52            | 5             | 0             | 7             | 13            | 0             | 0            | 0            | 0            | 720        |
| 15:00       | 3         | 423             | 175         | 8         | <b>60</b>     | 8             | 0             | 8             | 7             | 0             | <b>1</b>     | 0            | 0            | 693        |
| 16:00       | 6         | 458             | 184         | 5         | 51            | 5             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 716        |
| 17:00       | 7         | <b>627</b>      | 196         | 3         | 39            | 7             | 0             | 2             | 3             | 0             | 0            | 0            | 0            | <b>884</b> |
| 18:00       | <b>12</b> | 361             | 122         | 5         | 24            | 8             | 0             | 6             | 13            | 0             | 0            | 0            | 0            | 551        |
| 19:00       | 7         | 235             | 111         | 5         | 28            | 7             | 0             | 1             | <b>17</b>     | 0             | 0            | 0            | 0            | 411        |
| 20:00       | 5         | 174             | 62          | 4         | 14            | 5             | 0             | 3             | 4             | 0             | 0            | 0            | 0            | 271        |
| 21:00       | 4         | 153             | 41          | 1         | 11            | 5             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 222        |
| 22:00       | 4         | 115             | 42          | 2         | 4             | 1             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 174        |
| 23:00       | 6         | 67              | 26          | 0         | 1             | 3             | 0             | 0             | 7             | 0             | 0            | 0            | 0            | 110        |
| Total       | 137       | 6898            | 2526        | 113       | 721           | 139           | 0             | 87            | 199           | 0             | 1            | 0            | 0            | 10821      |
| Percent     | 1.3%      | 63.7%           | 23.3%       | 1.0%      | 6.7%          | 1.3%          | 0.0%          | 0.8%          | 1.8%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |
| AM Peak     | 04:00     | 07:00           | 11:00       | 10:00     | 09:00         | 04:00         |               | 10:00         | 10:00         |               |              |              |              | 11:00      |
| Vol.        | 8         | 456             | 164         | 15        | 59            | 9             |               | 12            | 20            |               |              |              |              | 699        |
| PM Peak     | 18:00     | 17:00           | 12:00       | 13:00     | 15:00         | 13:00         |               | 13:00         | 19:00         |               | 15:00        |              |              | 17:00      |
| Vol.        | 12        | 627             | 217         | 10        | 60            | 11            |               | 10            | 17            |               | 1            |              |              | 884        |
| Grand Total | 137       | 6898            | 2526        | 113       | 721           | 139           | 0             | 87            | 199           | 0             | 1            | 0            | 0            | 10821      |
| Percent     | 1.3%      | 63.7%           | 23.3%       | 1.0%      | 6.7%          | 1.3%          | 0.0%          | 0.8%          | 1.8%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |

# Counts Unlimited, Inc

PO Box 1178  
 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

SBDWANPC  
 Site Code: 075-15438

## Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses    | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 2         | 52              | 11          | 4        | 0             | 2             | 0             | 2             | 5             | 0             | 0            | 0            | 0            | 78          |
| 01:00       | 1         | 63              | 12          | 1        | 1             | 1             | 0             | 0             | 5             | 0             | 0            | 0            | 0            | 84          |
| 02:00       | 2         | 45              | 2           | 1        | 3             | 2             | 0             | 1             | 10            | 0             | 0            | 0            | 0            | 66          |
| 03:00       | 4         | 43              | 11          | 0        | 4             | 4             | 0             | 3             | 4             | 0             | 0            | 0            | 0            | 73          |
| 04:00       | <b>9</b>  | 123             | 38          | 0        | 7             | 6             | 0             | 3             | 8             | 0             | 0            | 0            | 0            | 194         |
| 05:00       | 2         | 115             | 44          | 3        | 11            | 2             | 0             | 1             | 7             | 0             | 0            | 0            | 0            | 185         |
| 06:00       | 5         | 161             | 54          | 2        | 29            | 7             | 0             | 4             | 6             | 0             | 0            | 0            | 0            | 268         |
| 07:00       | 5         | 484             | 144         | <b>7</b> | 39            | 4             | 0             | 4             | 9             | 0             | 0            | 0            | 0            | 696         |
| 08:00       | 6         | <b>528</b>      | 139         | 7        | 40            | 4             | 0             | 4             | 10            | 0             | 0            | 0            | 0            | 738         |
| 09:00       | 4         | 447             | 118         | 6        | <b>50</b>     | 6             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 650         |
| 10:00       | 7         | 455             | 150         | 6        | 38            | <b>9</b>      | 0             | <b>10</b>     | 8             | 0             | 0            | 0            | 0            | 683         |
| 11:00       | 7         | 528             | <b>165</b>  | 7        | 46            | 5             | 0             | 8             | <b>18</b>     | 0             | 0            | 0            | 0            | <b>784</b>  |
| 12 PM       | 7         | 601             | 184         | <b>8</b> | 43            | 11            | 0             | 5             | 12            | 0             | 0            | 0            | 0            | 871         |
| 13:00       | 12        | 571             | 169         | 8        | 46            | 8             | 0             | <b>8</b>      | <b>19</b>     | 0             | 0            | 0            | 0            | 841         |
| 14:00       | 8         | 510             | 139         | 6        | 43            | 6             | 0             | 4             | 15            | 0             | 0            | 0            | 0            | 731         |
| 15:00       | <b>14</b> | 548             | 182         | 6        | <b>57</b>     | 4             | 0             | 6             | 15            | 0             | 0            | 0            | 0            | 832         |
| 16:00       | 6         | 670             | <b>190</b>  | 6        | 43            | <b>13</b>     | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 940         |
| 17:00       | 10        | <b>780</b>      | 172         | 6        | 38            | 8             | 0             | 6             | 12            | 0             | 0            | 0            | 0            | <b>1032</b> |
| 18:00       | 8         | 514             | 133         | 5        | 32            | 10            | 0             | 1             | 13            | 0             | 0            | 0            | 0            | 716         |
| 19:00       | 7         | 304             | 71          | 1        | 19            | 5             | 0             | 2             | 7             | 0             | 0            | 0            | 0            | 416         |
| 20:00       | 2         | 196             | 61          | 3        | 10            | 2             | 0             | 3             | 10            | 0             | 0            | 0            | 0            | 287         |
| 21:00       | 2         | 174             | 38          | 5        | 5             | 1             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 234         |
| 22:00       | 5         | 145             | 36          | 2        | 6             | 4             | 0             | 1             | 8             | 0             | 0            | 0            | 0            | 207         |
| 23:00       | 7         | 85              | 20          | 0        | 2             | 9             | 0             | 3             | 2             | 0             | 0            | 0            | 0            | 128         |
| Total       | 142       | 8142            | 2283        | 100      | 612           | 133           | 0             | 87            | 235           | 0             | 0            | 0            | 0            | 11734       |
| Percent     | 1.2%      | 69.4%           | 19.5%       | 0.9%     | 5.2%          | 1.1%          | 0.0%          | 0.7%          | 2.0%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 04:00     | 08:00           | 11:00       | 07:00    | 09:00         | 10:00         |               | 10:00         | 11:00         |               |              |              |              | 11:00       |
| Vol.        | 9         | 528             | 165         | 7        | 50            | 9             |               | 10            | 18            |               |              |              |              | 784         |
| PM Peak     | 15:00     | 17:00           | 16:00       | 12:00    | 15:00         | 16:00         |               | 13:00         | 13:00         |               |              |              |              | 17:00       |
| Vol.        | 14        | 780             | 190         | 8        | 57            | 13            |               | 8             | 19            |               |              |              |              | 1032        |
| Grand Total | 142       | 8142            | 2283        | 100      | 612           | 133           | 0             | 87            | 235           | 0             | 0            | 0            | 0            | 11734       |
| Percent     | 1.2%      | 69.4%           | 19.5%       | 0.9%     | 5.2%          | 1.1%          | 0.0%          | 0.7%          | 2.0%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |

# Counts Unlimited, Inc

City of San Bernardino  
 Waterman Avenue  
 N/ Park Center Circle North  
 24 Hour Directional Classification Count

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 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDWANPC  
 Site Code: 075-15438

## Northbound, Southbound

| Start Time  | Bikes     | Cars & Trailers | 2 Axle Long | Buses     | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total       |
|-------------|-----------|-----------------|-------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------|
| 08/18/15    | 8         | 98              | 31          | 6         | 3             | 8             | 0             | 2             | 10            | 0             | 0            | 0            | 0            | 166         |
| 01:00       | 6         | 103             | 18          | 1         | 4             | 2             | 0             | 0             | 6             | 0             | 0            | 0            | 0            | 140         |
| 02:00       | 3         | 80              | 10          | 1         | 3             | 3             | 0             | 1             | 11            | 0             | 0            | 0            | 0            | 112         |
| 03:00       | 7         | 98              | 35          | 0         | 12            | 8             | 0             | 5             | 6             | 0             | 0            | 0            | 0            | 171         |
| 04:00       | <b>17</b> | 242             | 84          | 1         | 26            | <b>15</b>     | 0             | 4             | 13            | 0             | 0            | 0            | 0            | 402         |
| 05:00       | 10        | 252             | 98          | 5         | 38            | 9             | 0             | 2             | 13            | 0             | 0            | 0            | 0            | 427         |
| 06:00       | 11        | 422             | 144         | 10        | 78            | 11            | 0             | 6             | 11            | 0             | 0            | 0            | 0            | 693         |
| 07:00       | 10        | 940             | 271         | 13        | 76            | 9             | 0             | 8             | 17            | 0             | 0            | 0            | 0            | 1344        |
| 08:00       | 13        | 902             | 302         | 14        | 86            | 11            | 0             | 8             | 23            | 0             | 0            | 0            | 0            | 1359        |
| 09:00       | 11        | 836             | 257         | 14        | <b>109</b>    | 14            | 0             | 12            | 26            | 0             | 0            | 0            | 0            | 1279        |
| 10:00       | 8         | 853             | 284         | <b>21</b> | 85            | 15            | 0             | <b>22</b>     | 28            | 0             | 0            | 0            | 0            | 1316        |
| 11:00       | 14        | <b>974</b>      | <b>329</b>  | 13        | 96            | 11            | 0             | 17            | <b>29</b>     | 0             | 0            | 0            | 0            | <b>1483</b> |
| 12 PM       | 11        | 1141            | <b>401</b>  | 16        | 88            | <b>21</b>     | 0             | 12            | 26            | 0             | 0            | 0            | 0            | 1716        |
| 13:00       | 18        | 1112            | 365         | <b>18</b> | 90            | 19            | 0             | <b>18</b>     | <b>32</b>     | 0             | 0            | 0            | 0            | 1672        |
| 14:00       | 17        | 958             | 318         | 13        | 95            | 11            | 0             | 11            | 28            | 0             | 0            | 0            | 0            | 1451        |
| 15:00       | 17        | 971             | 357         | 14        | <b>117</b>    | 12            | 0             | 14            | 22            | 0             | <b>1</b>     | 0            | 0            | 1525        |
| 16:00       | 12        | 1128            | 374         | 11        | 94            | 18            | 0             | 3             | 16            | 0             | 0            | 0            | 0            | 1656        |
| 17:00       | 17        | <b>1407</b>     | 368         | 9         | 77            | 15            | 0             | 8             | 15            | 0             | 0            | 0            | 0            | <b>1916</b> |
| 18:00       | <b>20</b> | 875             | 255         | 10        | 56            | 18            | 0             | 7             | 26            | 0             | 0            | 0            | 0            | 1267        |
| 19:00       | 14        | 539             | 182         | 6         | 47            | 12            | 0             | 3             | 24            | 0             | 0            | 0            | 0            | 827         |
| 20:00       | 7         | 370             | 123         | 7         | 24            | 7             | 0             | 6             | 14            | 0             | 0            | 0            | 0            | 558         |
| 21:00       | 6         | 327             | 79          | 6         | 16            | 6             | 0             | 1             | 15            | 0             | 0            | 0            | 0            | 456         |
| 22:00       | 9         | 260             | 78          | 4         | 10            | 5             | 0             | 1             | 14            | 0             | 0            | 0            | 0            | 381         |
| 23:00       | 13        | 152             | 46          | 0         | 3             | 12            | 0             | 3             | 9             | 0             | 0            | 0            | 0            | 238         |
| Total       | 279       | 15040           | 4809        | 213       | 1333          | 272           | 0             | 174           | 434           | 0             | 1            | 0            | 0            | 22555       |
| Percent     | 1.2%      | 66.7%           | 21.3%       | 0.9%      | 5.9%          | 1.2%          | 0.0%          | 0.8%          | 1.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |
| AM Peak     | 04:00     | 11:00           | 11:00       | 10:00     | 09:00         | 04:00         |               | 10:00         | 11:00         |               |              |              |              | 11:00       |
| Vol.        | 17        | 974             | 329         | 21        | 109           | 15            |               | 22            | 29            |               |              |              |              | 1483        |
| PM Peak     | 18:00     | 17:00           | 12:00       | 13:00     | 15:00         | 12:00         |               | 13:00         | 13:00         |               | 15:00        |              |              | 17:00       |
| Vol.        | 20        | 1407            | 401         | 18        | 117           | 21            |               | 18            | 32            |               | 1            |              |              | 1916        |
| Grand Total | 279       | 15040           | 4809        | 213       | 1333          | 272           | 0             | 174           | 434           | 0             | 1            | 0            | 0            | 22555       |
| Percent     | 1.2%      | 66.7%           | 21.3%       | 0.9%      | 5.9%          | 1.2%          | 0.0%          | 0.8%          | 1.9%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |             |



# Counts Unlimited, Inc

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 Park Center Circle North  
 E/ Waterman Avenue  
 24 Hour Directional Classification Count

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 Corona, CA 92878  
 Phone: 951-268-6268  
 email: counts@countsunlimited.com

SBDPCEWA  
 Site Code: 075-15438

## Westbound

| Start Time         | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|--------------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 08/18/15           | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 01:00              | 0     | 2               | 0           | 0     | 0             | 0             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 3     |
| 02:00              | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 03:00              | 0     | 0               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0     |
| 04:00              | 0     | 0               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0     |
| 05:00              | 0     | 1               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 06:00              | 0     | 0               | 0           | 1     | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 07:00              | 0     | 6               | 0           | 0     | 0             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 8     |
| 08:00              | 0     | 10              | 4           | 0     | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 16    |
| 09:00              | 2     | 11              | 4           | 0     | 1             | 5             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 23    |
| 10:00              | 2     | 7               | 1           | 0     | 4             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 15    |
| 11:00              | 2     | 26              | 6           | 0     | 4             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 39    |
| 12 PM              | 4     | 22              | 6           | 1     | 2             | 0             | 0             | 0             | 1             | 0             | 0            | 0            | 0            | 36    |
| 13:00              | 2     | 21              | 2           | 0     | 3             | 3             | 0             | 1             | 0             | 0             | 0            | 0            | 0            | 32    |
| 14:00              | 1     | 16              | 1           | 0     | 2             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 20    |
| 15:00              | 2     | 17              | 5           | 0     | 4             | 5             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 33    |
| 16:00              | 4     | 26              | 3           | 0     | 3             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 36    |
| 17:00              | 4     | 70              | 12          | 0     | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 88    |
| 18:00              | 1     | 7               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 9     |
| 19:00              | 0     | 4               | 2           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 6     |
| 20:00              | 1     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 21:00              | 0     | 2               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2     |
| 22:00              | 0     | 1               | 0           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| 23:00              | 0     | 0               | 1           | 0     | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1     |
| <b>Total</b>       | 25    | 252             | 49          | 2     | 26            | 19            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 376   |
| <b>Percent</b>     | 6.6%  | 67.0%           | 13.0%       | 0.5%  | 6.9%          | 5.1%          | 0.0%          | 0.3%          | 0.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |
| <b>AM Peak</b>     | 09:00 | 11:00           | 11:00       | 06:00 | 10:00         | 09:00         |               |               | 01:00         |               |              |              |              | 11:00 |
| <b>Vol.</b>        | 2     | 26              | 6           | 1     | 4             | 5             |               |               | 1             |               |              |              |              | 39    |
| <b>PM Peak</b>     | 12:00 | 17:00           | 17:00       | 12:00 | 15:00         | 15:00         |               | 13:00         | 12:00         |               |              |              |              | 17:00 |
| <b>Vol.</b>        | 4     | 70              | 12          | 1     | 4             | 5             |               | 1             | 1             |               |              |              |              | 88    |
| <b>Grand Total</b> | 25    | 252             | 49          | 2     | 26            | 19            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 376   |
| <b>Percent</b>     | 6.6%  | 67.0%           | 13.0%       | 0.5%  | 6.9%          | 5.1%          | 0.0%          | 0.3%          | 0.5%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |       |

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SBDPCEWA  
 Site Code: 075-15438

## Eastbound, Westbound

| Start Time  | Bikes    | Cars & Trailers | 2 Axle Long | Buses    | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total      |
|-------------|----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| 08/18/15    | 0        | 3               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 3          |
| 01:00       | 0        | 2               | 0           | 0        | 0             | 0             | 0             | 0             | <b>1</b>      | 0             | 0            | 0            | 0            | 3          |
| 02:00       | 0        | 1               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 1          |
| 03:00       | 0        | 0               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0          |
| 04:00       | 0        | 0               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 0          |
| 05:00       | 0        | 5               | 3           | 0        | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 9          |
| 06:00       | 0        | 11              | 3           | <b>1</b> | 1             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 16         |
| 07:00       | 2        | <b>85</b>       | 11          | 0        | 2             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | <b>102</b> |
| 08:00       | 1        | 70              | 12          | 0        | 3             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 87         |
| 09:00       | <b>4</b> | 38              | <b>13</b>   | 0        | 3             | <b>5</b>      | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 63         |
| 10:00       | 2        | 19              | 3           | 0        | 5             | 2             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 31         |
| 11:00       | 3        | 45              | 7           | 0        | <b>7</b>      | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 63         |
| 12 PM       | <b>6</b> | 42              | 9           | <b>2</b> | 4             | 0             | 0             | 0             | <b>1</b>      | 0             | 0            | 0            | 0            | 64         |
| 13:00       | 3        | 43              | 5           | 0        | 5             | 3             | 0             | <b>1</b>      | 0             | 0             | 0            | 0            | 0            | 60         |
| 14:00       | 1        | 27              | 4           | 0        | 3             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 36         |
| 15:00       | 5        | 32              | 8           | 0        | <b>8</b>      | <b>5</b>      | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 58         |
| 16:00       | 4        | 35              | 4           | 0        | 6             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 49         |
| 17:00       | 4        | <b>78</b>       | <b>12</b>   | 0        | 1             | 1             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | <b>96</b>  |
| 18:00       | 1        | 9               | 2           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 12         |
| 19:00       | 0        | 7               | 4           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 11         |
| 20:00       | 2        | 3               | 1           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 6          |
| 21:00       | 0        | 3               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 3          |
| 22:00       | 0        | 2               | 0           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2          |
| 23:00       | 0        | 0               | 2           | 0        | 0             | 0             | 0             | 0             | 0             | 0             | 0            | 0            | 0            | 2          |
| Total       | 38       | 560             | 103         | 3        | 49            | 21            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 777        |
| Percent     | 4.9%     | 72.1%           | 13.3%       | 0.4%     | 6.3%          | 2.7%          | 0.0%          | 0.1%          | 0.3%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |
| AM Peak     | 09:00    | 07:00           | 09:00       | 06:00    | 11:00         | 09:00         |               |               | 01:00         |               |              |              |              | 07:00      |
| Vol.        | 4        | 85              | 13          | 1        | 7             | 5             |               |               | 1             |               |              |              |              | 102        |
| PM Peak     | 12:00    | 17:00           | 17:00       | 12:00    | 15:00         | 15:00         |               | 13:00         | 12:00         |               |              |              |              | 17:00      |
| Vol.        | 6        | 78              | 12          | 2        | 8             | 5             |               | 1             | 1             |               |              |              |              | 96         |
| Grand Total | 38       | 560             | 103         | 3        | 49            | 21            | 0             | 1             | 2             | 0             | 0            | 0            | 0            | 777        |
| Percent     | 4.9%     | 72.1%           | 13.3%       | 0.4%     | 6.3%          | 2.7%          | 0.0%          | 0.1%          | 0.3%          | 0.0%          | 0.0%         | 0.0%         | 0.0%         |            |

**APPENDIX D**

**Future Growth Increment Calculation Worksheets**

### AVERAGE DAILY TRAFFIC

| INTERSECTION  | MODEL       | MODEL       | EXISTING      | MODEL       | FUTURE                   | OPENING     |
|---|-------------|-------------|---------------|-------------|--------------------------|-------------|
|   | 2008<br>LEG | 2008<br>ADT | 2015<br>ADT   | 2035<br>ADT | 2035<br>ADT <sup>1</sup> | 2017<br>ADT |
| E Street (NS) at:<br>Orange Show Road (EW) -#1                | North       | 8,013       | <b>12,100</b> | 8,827       | 13,300                   | 12,200      |
|   | South       | 7,016       | <b>17,700</b> | 8,946       | 19,500                   | 17,900      |
|   | East        | 14,140      | <b>25,500</b> | 18,286      | 28,600                   | 25,800      |
|   | West        | 19,502      | <b>33,600</b> | 24,225      | 37,100                   | 33,900      |
| Washington Avenue (NS) at:<br>Orange Show Road (EW) -#2       | North       | -           | <b>700</b>    | -           | 800                      | 700         |
|   | South       | 1,607       | <b>300</b>    | 2,271       | 800                      | 300         |
|   | East        | 6,206       | <b>25,000</b> | 8,396       | 27,500                   | 25,300      |
|   | West        | 7,793       | <b>25,300</b> | 10,234      | 27,800                   | 25,600      |
| Project West Driveway (NS) at:<br>Dumas Street (EW) -#3       | North       | -           | -             | -           | -                        | -           |
|   | South       | -           | -             | -           | -                        | -           |
|   | East        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
|   | West        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
| Project East Driveway (NS) at:<br>Dumas Street (EW) -#4       | North       | -           | -             | -           | -                        | -           |
|   | South       | -           | -             | -           | -                        | -           |
|   | East        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
|   | West        | 1,549       | <b>300</b>    | 1,730       | 400                      | 300         |
| Waterman Street (NS) at:<br>Orange Show Road (EW) -#5         | North       | 18,345      | <b>19,700</b> | 24,441      | 24,200                   | 20,200      |
|   | South       | 18,380      | <b>22,800</b> | 24,199      | 27,100                   | 23,200      |
|   | East        | 5,874       | <b>22,500</b> | 6,738       | 24,800                   | 22,700      |
|   | West        | 6,206       | <b>24,500</b> | 8,396       | 27,000                   | 24,700      |
| Waterman Street (NS) at:<br>Dumas Street (EW) -#6             | North       | 18,380      | <b>23,600</b> | 24,199      | 27,900                   | 24,000      |
|   | South       | 19,015      | <b>23,600</b> | 25,036      | 28,100                   | 24,000      |
|   | East        | -           | -             | -           | -                        | -           |
|   | West        | 1,549       | <b>200</b>    | 1,730       | 300                      | 200         |
| Waterman Street (NS) at:<br>Park Center Circle North (EW) -#7 | North       | 19,015      | <b>23,300</b> | 25,036      | 27,800                   | 23,700      |
|   | South       | 19,015      | <b>22,500</b> | 25,036      | 27,000                   | 22,900      |
|   | East        | -           | <b>1,000</b>  | -           | 1,100                    | 1,000       |
|   | West        | -           | -             | -           | -                        | -           |
| Waterman Street (NS) at:<br>Park Center Circle South (EW) -#8 | North       | 19,015      | <b>21,800</b> | 25,036      | 26,300                   | 22,200      |
|   | South       | 17,903      | <b>23,800</b> | 23,467      | 27,900                   | 24,200      |
|   | East        | 814         | <b>2,600</b>  | 2,188       | 3,600                    | 2,700       |
|   | West        | 1,867       | <b>300</b>    | 2,560       | 800                      | 400         |
| Waterman Street (NS) at:<br>Vanderbilt Way (EW) -#9           | North       | 17,903      | <b>24,000</b> | 23,467      | 28,100                   | 24,400      |
|   | South       | 14,178      | <b>25,000</b> | 21,035      | 30,100                   | 25,500      |
|   | East        | 7,623       | <b>10,400</b> | 11,412      | 13,200                   | 10,700      |
|   | West        | -           | <b>1,000</b>  | -           | 1,100                    | 1,000       |

Adjusted for minimum 10% growth over existing average daily traffic volumes for year 2035.

| E Street (NS) at: Orange Show Road (EW) - #1                       |        |       |        |      |  |        |       |        |      |     |
|--|--------|-------|--------|------|--|--------|-------|--------|------|-----|
| MORNING PEAK HOUR  |        |       |        |      | EVENING PEAK HOUR  |        |       |        |      |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |        |       |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |        |       |        |      |     |
|  |        | 51    | 101    | 51   |  |        | 255   | 136    | 142  |     |
|  | 213 ^  | <     | v      | >    |  | 115 ^  | <     | v      | >    |     |
|  | 702 >  |       |        | <    |  | 779 >  |       |        | <    |     |
|  | 325 v  |       |        | v    |  | 295 v  |       |        | v    |     |
|  |        |       | 61     | 66   | 38   |        |       | 449    | 277  | 125 |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |        |       |        |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |        |       |        |      |     |
|  |        |       | 203    | 306  |  |        |       | 533    | 431  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 391 <  | IN =  | 1978 < | 370  |  | 1388 < | IN =  | 3437 < | 864  |     |
|  | 1240 > | OUT = | 1978 > | 791  |  | 1189 > | OUT = | 3437 > | 1046 |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 490    | 165  |  |        |       | 572    | 851  |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |        |       |        |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |        |       |        |      |     |
|  |        | 6     | 23     | 0    |  |        | 3     | 21     | 3    |     |
|  | 8 ^    | <     | v      | >    |  | 5 ^    | <     | v      | >    |     |
|  | 99 >   |       |        | ^    |  | 114 >  |       |        | ^    |     |
|  | 12 v   |       |        | v    |  | 4 v    |       |        | v    |     |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |        |       |        |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0                        |        |       |        |      |     |
|  |        |       | 36     | 22   | 3  |        |       | 8      | 11   | 3   |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |        |       |        |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |        |       |        |      |     |
|  |        | 57    | 124    | 51   |  |        | 258   | 157    | 145  |     |
|  | 221 ^  | <     | v      | >    |  | 120 ^  | <     | v      | >    |     |
|  | 801 >  |       |        | ^    |  | 893 >  |       |        | ^    |     |
|  | 337 v  |       |        | v    |  | 299 v  |       |        | v    |     |
|  |        |       | 97     | 88   | 41   |        |       | 457    | 288  | 128 |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |        |       |        |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |        |       |        |      |     |
|  |        |       | 259    | 696  |  |        |       | 1085   | 952  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 719 <  | IN =  | 3324 < | 572  |  | 2748 < | IN =  | 6032 < | 2018 |     |
|  | 2135 > | OUT = | 3323 > | 1307 |  | 1913 > | OUT = | 6032 > | 1348 |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 601    | 358  |  |        |       | 984    | 1016 |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |        |       |        |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |        |       |        |      |     |
|  |        |       | 22     | 28   |  |        |       | 32     | 44   |     |
|  | 74 <   | IN =  | 179 <  | 65   |  | 114 <  | IN =  | 290 <  | 101  |     |
|  | 73 >   | OUT = | 178 >  | 57   |  | 130 >  | OUT = | 291 >  | 103  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 19     | 19   |  |        |       | 30     | 27   |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |        |       |        |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |        |       |        |      |     |
|  |        |       | 106    | 274  |  |        |       | 312    | 278  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
| PHF FOR TRUCKS: 0.333  |        |       |        |      | PHF FOR TRUCKS: 0.25   |        |       |        |      |     |
|  | 298 <  | IN =  | 1323 < | 239  |  | 798 <  | IN =  | 1761 < | 590  |     |
|  | 836 >  | OUT = | 1322 > | 516  |  | 568 >  | OUT = | 1762 > | 403  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 235    | 142  |  |        |       | 283    | 291  |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |        |       |        |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |        |       |        |      |     |
|  |        |       | 592    | 488  |  |        |       | 1679   | 1164 |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 1086 < | IN =  | 5345 < | 900  |  | 4727 < | IN =  | 9604 < | 3676 |     |
|  | 3460 > | OUT = | 5345 > | 2495 |  | 2697 > | OUT = | 9604 > | 2175 |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 1276   | 393  |  |        |       | 1538   | 1552 |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |        |       |        |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |        |       |        |      |     |
|  |        |       | 72     | 66   |  |        |       | 101    | 101  |     |
|  | 103 <  | IN =  | 340 <  | 88   |  | 167 <  | IN =  | 513 <  | 141  |     |
|  | 118 >  | OUT = | 339 >  | 95   |  | 167 >  | OUT = | 513 >  | 141  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 75     | 62   |  |        |       | 104    | 104  |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |        |       |        |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |        |       |        |      |     |
|  |        |       | 249    | 207  |  |        |       | 495    | 351  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
| PHF FOR TRUCKS: 0.333  |        |       |        |      | PHF FOR TRUCKS: 0.25   |        |       |        |      |     |
|  | 447 <  | IN =  | 2144 < | 371  |  | 1365 < | IN =  | 2817 < | 1065 |     |
|  | 1354 > | OUT = | 2144 > | 980  |  | 797 >  | OUT = | 2817 > | 644  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 510    | 170  |  |        |       | 457    | 461  |     |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |        |       |        |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |        |       |        |      |     |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |        |       |        |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |        |       |        |      |     |
|  |        |       | 143    | -66  |  |        |       | 184    | 74   |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 149 <  |       |        | <    |  | 567 <  |       |        | <    |     |
|  | 518 >  |       |        | >    |  | 229 >  |       |        | >    |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 275    | 28   |  |        |       | 174    | 169  |     |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |        |       |        |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |        |       |        |      |     |
|  |        |       | 140    | 30   |  |        |       | 180    | 70   |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 150 <  | IN =  | 820 <  | 130  |  | 570 <  | IN =  | 1050 < | 470  |     |
|  | 520 >  | OUT = | 920 >  | 460  |  | 230 >  | OUT = | 1050 > | 240  |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 280    | 30   |  |        |       | 170    | 170  |     |
| FUTURE YEAR GROWTH:<br>2 YEARS                                     |        |       |        |      | FUTURE YEAR GROWTH:<br>2 YEARS                                     |        |       |        |      |     |
|  |        |       | 10     | 0    |  |        |       | 10     | 10   |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  | 10 <   |       |        | <    |  | 40 <   |       |        | <    |     |
|  | 40 >   |       |        | >    |  | 20 >   |       |        | >    |     |
|  |        |       | v      | ^    |  |        |       | v      | ^    |     |
|  |        |       | 20     | 0    |  |        |       | 10     | 10   |     |

E Street (NS) at: Orange Show Road (EW) - #1

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 97              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 457             | SOUTH LEG |                    |
|  | THRU             | 88              | IN ...    | 230                |                              | THRU             | 288             | IN ...    | 880                |
|  | RIGHT            | 41              | OUT ...   | 560                |                              | RIGHT            | 128             | OUT ...   | 610                |
| SOUTH BOUND                            | LEFT             | 51              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 145             | NORTH LEG |                    |
|  | THRU             | 124             | IN ...    | 240                |                              | THRU             | 157             | IN ...    | 570                |
|  | RIGHT            | 57              | OUT ...   | 340                |                              | RIGHT            | 258             | OUT ...   | 460                |
| EAST BOUND                             | LEFT             | 221             | WEST LEG  |                    | EAST BOUND                   | LEFT             | 120             | WEST LEG  |                    |
|  | THRU             | 801             | IN ...    | 1,400              |                              | THRU             | 893             | IN ...    | 1,340              |
|  | RIGHT            | 337             | OUT ...   | 550                |                              | RIGHT            | 299             | OUT ...   | 1,530              |
| WEST BOUND                             | LEFT             | 76              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 143             | EAST LEG  |                    |
|  | THRU             | 385             | IN ...    | 500                |                              | THRU             | 776             | IN ...    | 1,000              |
|  | RIGHT            | 27              | OUT ...   | 920                |                              | RIGHT            | 42              | OUT ...   | 1,190              |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 97              | 99                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 457             | 459                   | NORTH LEG                 |
|  | THRU             | 88              | 89                    | RATIO 4.8%                |                           | THRU             | 288             | 292                   | RATIO 8.4%                |
|  | RIGHT            | 41              | 42                    | ADT 12,200                |                           | RIGHT            | 128             | 129                   | ADT 12,200                |
| SOUTH BOUND                            | LEFT             | 51              | 53                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 145             | 148                   | SOUTH LEG                 |
|  | THRU             | 124             | 129                   | RATIO 4.4%                |                           | THRU             | 157             | 159                   | RATIO 8.3%                |
|  | RIGHT            | 57              | 58                    | ADT 17,900                |                           | RIGHT            | 258             | 263                   | ADT 17,900                |
| EAST BOUND                             | LEFT             | 221             | 224                   | EAST LEG                  | EAST BOUND                | LEFT             | 120             | 124                   | EAST LEG                  |
|  | THRU             | 801             | 825                   | RATIO 5.5%                |                           | THRU             | 893             | 913                   | RATIO 8.5%                |
|  | RIGHT            | 337             | 351                   | ADT 25,800                |                           | RIGHT            | 299             | 303                   | ADT 25,800                |
| WEST BOUND                             | LEFT             | 76              | 79                    | WEST LEG                  | WEST BOUND                | LEFT             | 143             | 148                   | WEST LEG                  |
|  | THRU             | 385             | 393                   | RATIO 5.8%                |                           | THRU             | 776             | 808                   | RATIO 8.5%                |
|  | RIGHT            | 27              | 27                    | ADT 33,900                |                           | RIGHT            | 42              | 44                    | ADT 33,900                |

**E Street (NS) at: Orange Show Road (EW) - #1**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 97              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 457             | SOUTH LEG |                   |
|                              | THRU             | 88              | IN ...    | 250               |                              | THRU             | 288             | IN ...    | 1,000             |
|                              | RIGHT            | 41              | OUT ...   | 750               |                              | RIGHT            | 128             | OUT ...   | 730               |
| SOUTH BOUND                  | LEFT             | 51              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 145             | NORTH LEG |                   |
|                              | THRU             | 124             | IN ...    | 330               |                              | THRU             | 157             | IN ...    | 690               |
|                              | RIGHT            | 57              | OUT ...   | 360               |                              | RIGHT            | 258             | OUT ...   | 500               |
| EAST BOUND                   | LEFT             | 221             | WEST LEG  |                   | EAST BOUND                   | LEFT             | 120             | WEST LEG  |                   |
|                              | THRU             | 801             | IN ...    | 1,750             |                              | THRU             | 893             | IN ...    | 1,480             |
|                              | RIGHT            | 337             | OUT ...   | 650               |                              | RIGHT            | 299             | OUT ...   | 1,910             |
| WEST BOUND                   | LEFT             | 76              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 143             | EAST LEG  |                   |
|                              | THRU             | 385             | IN ...    | 590               |                              | THRU             | 776             | IN ...    | 1,310             |
|                              | RIGHT            | 27              | OUT ...   | 1,230             |                              | RIGHT            | 42              | OUT ...   | 1,350             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 97              | 110                  | NORTH LEG                 | NORTH BOUND               | LEFT             | 457             | 533                  | NORTH LEG                 |
|                              | THRU             | 88              | 92                   | RATIO 5.2%                |                           | THRU             | 288             | 318                  | RATIO 9.0%                |
|                              | RIGHT            | 41              | 54                   | ADT 13,300                |                           | RIGHT            | 128             | 152                  | ADT 13,300                |
| SOUTH BOUND                  | LEFT             | 51              | 78                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 145             | 181                  | SOUTH LEG                 |
|                              | THRU             | 124             | 186                  | RATIO 5.2%                |                           | THRU             | 157             | 194                  | RATIO 8.9%                |
|                              | RIGHT            | 57              | 74                   | ADT 19,500                |                           | RIGHT            | 258             | 316                  | ADT 19,500                |
| EAST BOUND                   | LEFT             | 221             | 238                  | EAST LEG                  | EAST BOUND                | LEFT             | 120             | 128                  | EAST LEG                  |
|                              | THRU             | 801             | 1,098                | RATIO 6.4%                |                           | THRU             | 893             | 1,018                | RATIO 9.3%                |
|                              | RIGHT            | 337             | 457                  | ADT 28,600                |                           | RIGHT            | 299             | 338                  | ADT 28,600                |
| WEST BOUND                   | LEFT             | 76              | 107                  | WEST LEG                  | WEST BOUND                | LEFT             | 143             | 197                  | WEST LEG                  |
|                              | THRU             | 385             | 466                  | RATIO 6.6%                |                           | THRU             | 776             | 1,061                | RATIO 9.1%                |
|                              | RIGHT            | 27              | 30                   | ADT 37,100                |                           | RIGHT            | 42              | 54                   | ADT 37,100                |

**Washington Avenue (NS) at: Orange Show Road (EW) - #2**

| MORNING PEAK HOUR   |       |        |     | EVENING PEAK HOUR  |       |        |      |
|---|-------|--------|-----|--|-------|--------|------|
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |       |        |     | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |       |        |      |
|   | 5     | 0      | 6   |  | 9     | 0      | 4    |
| 34 ^  | <     | v      | >   | 27 ^   | <     | v      | >    |
| 759 >   |       |        | <   | 1015 >   |       |        | <    |
| 12 v  |       |        | v   | 10 v   |       |        | v    |
|   | 4     | 0      | 2   |  | 2     | 2      | 1    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |       |        |     | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |       |        |      |
|   |       | 11     | 43  |  |       | 13     | 39   |
| 307 <   | IN =  | 1132 < | 310 | 843 <  | IN =  | 1918 < | 848  |
| 805 >   | OUT = | 1132 > | 767 | 1052 >   | OUT = | 1918 > | 1020 |
|   |       | 15     | 6   |  |       | 16     | 5    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |       |        |     | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |       |        |      |
|   | 5     | 0      | 0   |  | 2     | 0      | 0    |
| 0 ^   | <     | v      | >   | 2 ^  | <     | v      | >    |
| 77 >  |       |        | <   | 105 >  |       |        | <    |
| 0 v   |       |        | v   | 2 v  |       |        | v    |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |       |        |     | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0  |       |        |      |
|   | 2     | 3      | 0   |  | 0     | 0      | 0    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |       |        |     | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |       |        |      |
|   | 10    | 0      | 6   |  | 11    | 0      | 4    |
| 34 ^  | <     | v      | >   | 29 ^   | <     | v      | >    |
| 836 >   |       |        | <   | 1120 >   |       |        | <    |
| 12 v  |       |        | v   | 12 v   |       |        | v    |
|   | 6     | 3      | 2   |  | 2     | 2      | 1    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |       |        |     | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 463 <   | IN =  | 1065 < | 398 | 899 <  | IN =  | 1762 < | 665  |
| 602 >   | OUT = | 1065 > | 484 | 861 >  | OUT = | 1762 > | 763  |
|   |       | 118    | 65  |  |       | 100    | 236  |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |       |        |     | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 45 <  | IN =  | 81 <   | 34  | 67 <   | IN =  | 132 <  | 48   |
| 35 >  | OUT = | 80 >   | 26  | 65 >   | OUT = | 132 >  | 51   |
|   |       | 9      | 12  |  |       | 14     | 19   |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |       |        |     | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 191 <   | IN =  | 432 <  | 163 | 268 <  | IN =  | 526 <  | 198  |
| 240 >   | OUT = | 431 >  | 193 | 257 >  | OUT = | 526 >  | 226  |
|   |       | 48     | 29  |  |       | 32     | 71   |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |       |        |     | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 619 <   | IN =  | 1939 < | 591 | 2246 <   | IN =  | 3812 < | 1819 |
| 1245 >  | OUT = | 1940 > | 966 | 1439 >   | OUT = | 3811 > | 1368 |
|   |       | 355    | 103 |  |       | 197    | 554  |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |       |        |     | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 55 <  | IN =  | 117 <  | 43  | 96 <   | IN =  | 192 <  | 70   |
| 58 >  | OUT = | 117 >  | 41  | 96 >   | OUT = | 192 >  | 70   |
|   |       | 21     | 16  |  |       | 26     | 26   |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |       |        |     | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 254 <   | IN =  | 776 <  | 239 | 653 <  | IN =  | 1115 < | 527  |
| 492 >   | OUT = | 776 >  | 381 | 427 >  | OUT = | 1115 > | 401  |
|   |       | 142    | 44  |  |       | 62     | 162  |
| RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00         |       |        |     | RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00        |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 63 <  |       | <      | 76  | 384 <  |       | <      | 329  |
| 252 >   |       | >      | 188 | 170 >  |       | >      | 174  |
|   |       | 94     | 16  |  |       | 30     | 91   |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                          |       |        |     | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                         |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 60 <  | IN =  | 350 <  | 80  | 380 <  | IN =  | 590 <  | 330  |
| 250 >   | OUT = | 340 >  | 190 | 170 >  | OUT = | 580 >  | 170  |
|   |       | 90     | 20  |  |       | 30     | 90   |
| FUTURE YEAR GROWTH:<br>2 YEARS 2015 TO 2017   |       |        |     | FUTURE YEAR GROWTH:<br>2 YEARS 2015 TO 2017  |       |        |      |
|   |       | 0      | 0   |  |       | 0      | 0    |
| 0 <   |       | <      | 10  | 30 <   |       | <      | 20   |
| 20 >  |       | >      | 10  | 10 >   |       | >      | 10   |
|   |       | 10     | 0   |  |       | 0      | 10   |

Washington Avenue (NS) at: Orange Show Road (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 6               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                    |
|  | THRU             | 3               | IN ...    | 10                 |                              | THRU             | 2               | IN ...    | 20                 |
|  | RIGHT            | 2               | OUT ...   | 30                 |                              | RIGHT            | 1               | OUT ...   | 20                 |
| SOUTH BOUND                            | LEFT             | 6               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 4               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 20                 |                              | THRU             | 0               | IN ...    | 20                 |
|  | RIGHT            | 10              | OUT ...   | 50                 |                              | RIGHT            | 11              | OUT ...   | 50                 |
| EAST BOUND                             | LEFT             | 34              | WEST LEG  |                    | EAST BOUND                   | LEFT             | 29              | WEST LEG  |                    |
|  | THRU             | 836             | IN ...    | 900                |                              | THRU             | 1,120           | IN ...    | 1,170              |
|  | RIGHT            | 12              | OUT ...   | 390                |                              | RIGHT            | 12              | OUT ...   | 980                |
| WEST BOUND                             | LEFT             | 3               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 6               | EAST LEG  |                    |
|  | THRU             | 378             | IN ...    | 400                |                              | THRU             | 934             | IN ...    | 980                |
|  | RIGHT            | 11              | OUT ...   | 860                |                              | RIGHT            | 15              | OUT ...   | 1,140              |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 6               | 6                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 8                     | NORTH LEG                 |
|  | THRU             | 3               | 3                     | RATIO 9.1%                |                           | THRU             | 2               | 8                     | RATIO 10.1%               |
|  | RIGHT            | 2               | 2                     | ADT 700                   |                           | RIGHT            | 1               | 4                     | ADT 700                   |
| SOUTH BOUND                            | LEFT             | 6               | 6                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 4               | 4                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO 13.7%               |                           | THRU             | 0               | 0                     | RATIO 13.3%               |
|  | RIGHT            | 10              | 10                    | ADT 300                   |                           | RIGHT            | 11              | 15                    | ADT 300                   |
| EAST BOUND                             | LEFT             | 34              | 34                    | EAST LEG                  | EAST BOUND                | LEFT             | 29              | 29                    | EAST LEG                  |
|  | THRU             | 836             | 850                   | RATIO 5.0%                |                           | THRU             | 1,120           | 1,130                 | RATIO 8.4%                |
|  | RIGHT            | 12              | 23                    | ADT 25,300                |                           | RIGHT            | 12              | 13                    | ADT 25,300                |
| WEST BOUND                             | LEFT             | 3               | 7                     | WEST LEG                  | WEST BOUND                | LEFT             | 6               | 7                     | WEST LEG                  |
|  | THRU             | 378             | 380                   | RATIO 5.1%                |                           | THRU             | 934             | 957                   | RATIO 8.4%                |
|  | RIGHT            | 11              | 11                    | ADT 25,600                |                           | RIGHT            | 15              | 15                    | ADT 25,600                |

Washington Avenue (NS) at: Orange Show Road (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 6               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                   |
|                              | THRU             | 3               | IN ...    | 20                | NORTH BOUND                  | THRU             | 2               | IN ...    | 80                |
|                              | RIGHT            | 2               | OUT ...   | 90                | NORTH BOUND                  | RIGHT            | 1               | OUT ...   | 40                |
| SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 4               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 20                | SOUTH BOUND                  | THRU             | 0               | IN ...    | 20                |
|                              | RIGHT            | 10              | OUT ...   | 50                | SOUTH BOUND                  | RIGHT            | 11              | OUT ...   | 50                |
| EAST BOUND                   | LEFT             | 34              | WEST LEG  |                   | EAST BOUND                   | LEFT             | 29              | WEST LEG  |                   |
|                              | THRU             | 836             | IN ...    | 1,070             | EAST BOUND                   | THRU             | 1,120           | IN ...    | 1,290             |
|                              | RIGHT            | 12              | OUT ...   | 430               | EAST BOUND                   | RIGHT            | 12              | OUT ...   | 1,230             |
| WEST BOUND                   | LEFT             | 3               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 6               | EAST LEG  |                   |
|                              | THRU             | 378             | IN ...    | 450               | WEST BOUND                   | THRU             | 934             | IN ...    | 1,200             |
|                              | RIGHT            | 11              | OUT ...   | 980               | WEST BOUND                   | RIGHT            | 15              | OUT ...   | 1,260             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 6               | 10                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 40                   | NORTH LEG                 |
|                              | THRU             | 3               | 5                    | RATIO 9.4%                | NORTH BOUND               | THRU             | 2               | 21                   | RATIO 11.3%               |
|                              | RIGHT            | 2               | 4                    | ADT 800                   | NORTH BOUND               | RIGHT            | 1               | 19                   | ADT 800                   |
| SOUTH BOUND                  | LEFT             | 6               | 8                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 4               | 5                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO 13.7%               | SOUTH BOUND               | THRU             | 0               | 0                    | RATIO 15.0%               |
|                              | RIGHT            | 10              | 11                   | ADT 800                   | SOUTH BOUND               | RIGHT            | 11              | 15                   | ADT 800                   |
| EAST BOUND                   | LEFT             | 34              | 38                   | EAST LEG                  | EAST BOUND                | LEFT             | 29              | 32                   | EAST LEG                  |
|                              | THRU             | 836             | 967                  | RATIO 5.2%                | EAST BOUND                | THRU             | 1,120           | 1,236                | RATIO 9.0%                |
|                              | RIGHT            | 12              | 70                   | ADT 27,500                | EAST BOUND                | RIGHT            | 12              | 26                   | ADT 27,500                |
| WEST BOUND                   | LEFT             | 3               | 20                   | WEST LEG                  | WEST BOUND                | LEFT             | 6               | 14                   | WEST LEG                  |
|                              | THRU             | 378             | 408                  | RATIO 5.4%                | WEST BOUND                | THRU             | 934             | 1,175                | RATIO 9.1%                |
|                              | RIGHT            | 11              | 12                   | ADT 27,800                | WEST BOUND                | RIGHT            | 15              | 17                   | ADT 27,800                |

| Project West Access (NS) at: Dumas Street (EW) - #3                                   |       |       |       |      |  |       |       |       |      |    |   |   |    |
|---|-------|-------|-------|------|--|-------|-------|-------|------|----|---|---|----|
| MORNING PEAK HOUR   |       |       |       |      | EVENING PEAK HOUR  |       |       |       |      |    |   |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |       |       |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |       |       |       |      |    |   |   |    |
|   |       |       | 0     | 0    | 0  |       |       |       | 0    | 0  | 0 |   |    |
|   | 0 ^   | <     | v     | >    | ^  | 0     |       | 0 ^   | <    | v  | > | ^ | 0  |
|   | 9 >   |       |       |      | <  | 7     |       | 7 >   |      |    |   | < | 11 |
|   | 0 v   |       |       |      | v  | 0     |       | 0 v   |      |    |   | v | 0  |
|   |       |       | <     | ^    | >  |       |       |       |      | <  | ^ | > |    |
|   |       |       | 0     | 0    | 0  |       |       |       |      | 0  | 0 | 0 |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |       |       |       |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   |       | 7 <   | IN =  | 16 < | 7  |       | 11 <  | IN =  | 18 < | 11 |   |   |    |
|   |       | 9 >   | OUT = | 16 > | 9  |       | 7 >   | OUT = | 18 > | 7  |   |   |    |
|   |       |       | v     | ^    |  |       |       | v     | ^    |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |       |       |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |       |       |       |      |    |   |   |    |
|   |       |       | 0     | 0    | 0  |       |       |       | 0    | 0  | 0 |   |    |
|   | 0 ^   | <     | v     | >    | ^  | 0     |       | 0 ^   | <    | v  | > | ^ | 0  |
|   | 2 >   |       |       |      | <  | 5     |       | 3 >   |      |    |   | < | 5  |
|   | 0 v   |       |       |      | v  | 0     |       | 0 v   |      |    |   | v | 0  |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |       |       |       |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |       |       |       |      |    |   |   |    |
|   |       |       | <     | ^    | >  |       |       |       |      | <  | ^ | > |    |
|   |       |       | 0     | 0    | 0  |       |       |       |      | 0  | 0 | 0 |    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |       |       |       |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |       |       |       |      |    |   |   |    |
|   |       |       | 0     | 0    | 0  |       |       |       | 0    | 0  | 0 |   |    |
|   | 0 ^   | <     | v     | >    | ^  | 0     |       | 0 ^   | <    | v  | > | ^ | 0  |
|   | 11 >  |       |       |      | <  | 12    |       | 10 >  |      |    |   | < | 16 |
|   | 0 v   |       |       |      | v  | 0     |       | 0 v   |      |    |   | v | 0  |
|   |       |       | <     | ^    | >  |       |       |       |      | <  | ^ | > |    |
|   |       |       | 0     | 0    | 0  |       |       |       |      | 0  | 0 | 0 |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |       |       |       |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 146 < | IN =  | 198 < | 146  |  | 124 < | IN =  | 319 < | 124  |    |   |   |    |
|   | 52 >  | OUT = | 198 > | 52   |  | 195 > | OUT = | 319 > | 195  |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |       |       |       |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 10 <  | IN =  | 17 <  | 10   |  | 15 <  | IN =  | 26 <  | 15   |    |   |   |    |
|   | 7 >   | OUT = | 17 >  | 7    |  | 11 >  | OUT = | 26 >  | 11   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |       |       |       |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 59 <  | IN =  | 81 <  | 59   |  | 38 <  | IN =  | 96 <  | 38   |    |   |   |    |
|   | 22 >  | OUT = | 81 >  | 22   |  | 57 >  | OUT = | 96 >  | 57   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |       |       |       |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 142 < | IN =  | 240 < | 142  |  | 209 < | IN =  | 465 < | 209  |    |   |   |    |
|   | 98 >  | OUT = | 240 > | 98   |  | 256 > | OUT = | 465 > | 256  |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |       |       |       |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 7 <   | IN =  | 19 <  | 7    |  | 18 <  | IN =  | 36 <  | 18   |    |   |   |    |
|   | 12 >  | OUT = | 19 >  | 12   |  | 18 >  | OUT = | 36 >  | 18   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |       |       |       |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 56 <  | IN =  | 98 <  | 56   |  | 63 <  | IN =  | 139 < | 63   |    |   |   |    |
|   | 41 >  | OUT = | 98 >  | 41   |  | 76 >  | OUT = | 139 > | 76   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00         |       |       |       |      | RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00        |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | -3 <  |       | <     | -3   |  | 25 <  |       | <     | 25   |    |   |   |    |
|   | 19 >  |       | >     | 19   |  | 19 >  |       | >     | 19   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                          |       |       |       |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                         |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 0 <   | IN =  | 20 <  | 0    |  | 20 <  | IN =  | 40 <  | 20   |    |   |   |    |
|   | 20 >  | OUT = | 20 >  | 20   |  | 20 >  | OUT = | 40 >  | 20   |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS   |       |       |       |      | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS  |       |       |       |      |    |   |   |    |
|   |       |       |       | 0    | 0  |       |       |       | 0    | 0  |   |   |    |
|   | 0 <   |       | <     | 0    |  | 0 <   |       | <     | 0    |    |   |   |    |
|   | 0 >   |       | >     | 0    |  | 0 >   |       | >     | 0    |    |   |   |    |
|   |       | v     | ^     |      |  |       | v     | ^     |      |    |   |   |    |
|   |       |       | 0     | 0    |  |       |       | 0     | 0    |    |   |   |    |

**Project West Access (NS) at: Dumas Street (EW) - #3**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 11              | IN ...    | 10                 |                              | THRU             | 10              | IN ...    | 10                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 12              | IN ...    | 10                 |                              | THRU             | 16              | IN ...    | 20                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 11              | 11                    | RATIO 7.7%                |                           | THRU             | 10              | 10                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 12              | 12                    | RATIO 7.7%                |                           | THRU             | 16              | 20                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |

**Project West Access (NS) at: Dumas Street (EW) - #3**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   |
|                              | THRU             | 11              | IN ...    | 20                |                              | THRU             | 10              | IN ...    | 20                |
|                              | RIGHT            | 0               | OUT ...   | 10                |                              | RIGHT            | 0               | OUT ...   | 30                |
| WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   |
|                              | THRU             | 12              | IN ...    | 10                |                              | THRU             | 16              | IN ...    | 30                |
|                              | RIGHT            | 0               | OUT ...   | 20                |                              | RIGHT            | 0               | OUT ...   | 20                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG                  |
|                              | THRU             | 11              | 20                   | RATIO 8.5%                |                           | THRU             | 10              | 20                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG                  |
|                              | THRU             | 12              | 14                   | RATIO 8.5%                |                           | THRU             | 16              | 30                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |

| Project East Access (NS) at: Dumas Street (EW) - #4                                   |      |       |       |       |  |    |       |       |       |     |   |    |
|---|------|-------|-------|-------|--|----|-------|-------|-------|-----|---|----|
| MORNING PEAK HOUR   |      |       |       |       | EVENING PEAK HOUR  |    |       |       |       |     |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 9 >  |       |       |       | <  | 7  | 7 >   |       |       |     | < | 11 |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |      |       |       |       | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 7 <   | IN =  | 16 <  | 7  |    | 11 <  | IN =  | 18 <  | 11  |   |    |
|   |      | 9 >   | OUT = | 16 >  | 9  |    | 7 >   | OUT = | 18 >  | 7   |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |      |       |       |       | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 2 >  |       |       |       | <  | 5  | 3 >   |       |       |     | < | 5  |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |      |       |       |       | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |      |       |       |       | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
|   | 0 ^  | <     | v     | >     | ^  | 0  | 0 ^   | <     | v     | >   | ^ | 0  |
|   | 11 > |       |       |       | <  | 12 | 10 >  |       |       |     | < | 16 |
|   | 0 v  |       |       |       | v  | 0  | 0 v   |       |       |     | v | 0  |
|   |      |       | 0     | 0     | 0  |    |       |       | 0     | 0   | 0 |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 146 < | IN =  | 198 < | 146  |    | 124 < | IN =  | 319 < | 124 |   |    |
|   |      | 52 >  | OUT = | 198 > | 52   |    | 195 > | OUT = | 319 > | 195 |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |      |       |       |       | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 10 <  | IN =  | 17 <  | 10   |    | 15 <  | IN =  | 26 <  | 15  |   |    |
|   |      | 7 >   | OUT = | 17 >  | 7  |    | 11 >  | OUT = | 26 >  | 11  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |      |       |       |       | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 59 <  | IN =  | 81 <  | 59   |    | 38 <  | IN =  | 96 <  | 38  |   |    |
|   |      | 22 >  | OUT = | 81 >  | 22   |    | 57 >  | OUT = | 96 >  | 57  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 142 < | IN =  | 240 < | 142  |    | 209 < | IN =  | 465 < | 209 |   |    |
|   |      | 98 >  | OUT = | 240 > | 98   |    | 256 > | OUT = | 465 > | 256 |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |      |       |       |       | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 7 <   | IN =  | 19 <  | 7  |    | 18 <  | IN =  | 36 <  | 18  |   |    |
|   |      | 12 >  | OUT = | 19 >  | 12   |    | 18 >  | OUT = | 36 >  | 18  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |      |       |       |       | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 56 <  | IN =  | 98 <  | 56   |    | 63 <  | IN =  | 139 < | 63  |   |    |
|   |      | 41 >  | OUT = | 98 >  | 41   |    | 76 >  | OUT = | 139 > | 76  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00         |      |       |       |       | RAW GROWTH (PCE'S): 2008 TO 2035<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00        |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | -3 <  |       | <     | -3   |    | 25 <  |       | <     | 25  |   |    |
|   |      | 19 >  |       | >     | 19   |    | 19 >  |       | >     | 19  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                          |      |       |       |       | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %                         |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 0 <   | IN =  | 20 <  | 0  |    | 20 <  | IN =  | 40 <  | 20  |   |    |
|   |      | 20 >  | OUT = | 20 >  | 20   |    | 20 >  | OUT = | 40 >  | 20  |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS   |      |       |       |       | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS  |    |       |       |       |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |
|   |      | 0 <   |       | <     | 0  |    | 0 <   |       | <     | 0   |   |    |
|   |      | 0 >   |       | >     | 0  |    | 0 >   |       | >     | 0   |   |    |
|   |      |       | v     | ^     |  |    |       | v     | ^     |     |   |    |
|   |      |       | 0     | 0     |  |    |       | 0     | 0     |     |   |    |

**Project East Access (NS) at: Dumas Street (EW) - #4**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 11              | IN ...    | 10                 |                              | THRU             | 10              | IN ...    | 10                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 12              | IN ...    | 10                 |                              | THRU             | 16              | IN ...    | 20                 |
|  | RIGHT            | 0               | OUT ...   | 10                 |                              | RIGHT            | 0               | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 0               | 0                     | ADT 0                     |                           | RIGHT            | 0               | 0                     | ADT 0                     |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 11              | 11                    | RATIO 7.7%                |                           | THRU             | 10              | 10                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 12              | 12                    | RATIO 7.7%                |                           | THRU             | 16              | 20                    | RATIO 10.0%               |
|  | RIGHT            | 0               | 0                     | ADT 300                   |                           | RIGHT            | 0               | 0                     | ADT 300                   |

Project East Access (NS) at: Dumas Street (EW) - #4

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                   |
|                              | THRU             | 0               | IN ...    | 0                 |                              | THRU             | 0               | IN ...    | 0                 |
|                              | RIGHT            | 0               | OUT ...   | 0                 |                              | RIGHT            | 0               | OUT ...   | 0                 |
| EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                   |
|                              | THRU             | 11              | IN ...    | 20                |                              | THRU             | 10              | IN ...    | 20                |
|                              | RIGHT            | 0               | OUT ...   | 10                |                              | RIGHT            | 0               | OUT ...   | 30                |
| WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                   |
|                              | THRU             | 12              | IN ...    | 10                |                              | THRU             | 16              | IN ...    | 30                |
|                              | RIGHT            | 0               | OUT ...   | 20                |                              | RIGHT            | 0               | OUT ...   | 20                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG                 |
|                              | THRU             | 0               | 0                    | RATIO -                   |                           | THRU             | 0               | 0                    | RATIO -                   |
|                              | RIGHT            | 0               | 0                    | ADT 0                     |                           | RIGHT            | 0               | 0                    | ADT 0                     |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG                  |
|                              | THRU             | 11              | 20                   | RATIO 8.5%                |                           | THRU             | 10              | 20                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG                  |
|                              | THRU             | 12              | 14                   | RATIO 8.5%                |                           | THRU             | 16              | 30                   | RATIO 12.5%               |
|                              | RIGHT            | 0               | 0                    | ADT 400                   |                           | RIGHT            | 0               | 0                    | ADT 400                   |

| Waterman Avenue (NS) at: Orange Show Road (EW) - #5                |     |     |       |      |  |     |   |      |      |       |       |    |
|--|-----|-----|-------|------|--|-----|---|------|------|-------|-------|----|
| MORNING PEAK HOUR  |     |     |       |      | EVENING PEAK HOUR  |     |   |      |      |       |       |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |     |     |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |     |   |      |      |       |       |    |
|  |     |     | 61    | 445  | 38   |     |   |      | 83   | 647   | 97    |    |
|  |     | <   | v     | >    | ^  |     |   | <    | v    | >     | ^     |    |
|  | 137 | ^   |       |      |  |     |   | 115  | ^    |       |       |    |
|  | 342 | >   |       |      |  |     |   | 674  | >    |       |       |    |
|  | 264 | v   |       |      |  |     |   | 197  | v    |       |       |    |
|  |     |     | <     | ^    | >  |     |   | <    | ^    | >     |       |    |
|  |     |     | 58    | 538  | 49   |     |   | 185  | 518  | 99    |       |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |     |     |       |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |     |   |      |      |       |       |    |
|  |     |     |       | 544  | 736  |     |   |      | 827  | 711   |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 322 | <   | IN =  | 2269 | <  | 337 |   | 840  | <    | IN =  | 3398  |    |
|  | 743 | >   | OUT = | 2269 | >  | 429 |   | 986  | >    | OUT = | 3398  |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 782  | 645  |     |   |      | 977  | 802   |       |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |     |     |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |     |   |      |      |       |       |    |
|  |     |     |       | 19   | 67   | 10  |   |      |      | 8     | 45    | 2  |
|  |     | <   | v     | >    | ^  |     |   | <    | v    | >     | ^     |    |
|  | 23  | ^   |       |      |  |     |   | 11   | ^    |       |       |    |
|  | 39  | >   |       |      |  |     |   | 72   | >    |       |       |    |
|  | 6   | v   |       |      |  |     |   | 12   | v    |       |       |    |
|  |     |     | <     | ^    | >  |     |   | <    | ^    | >     |       |    |
| PCE FACTORS BY AXLE:   | 2:  | 1.5 | 3:    | 2.0  | 4+:  | 3.0 | 5 | 55   | 5    | 3     | 31    | 11 |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |     |     |       |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |     |   |      |      |       |       |    |
|  |     |     |       | 80   | 512  | 48  |   |      |      | 91    | 692   | 99 |
|  |     | <   | v     | >    | ^  |     |   | <    | v    | >     | ^     |    |
|  | 160 | ^   |       |      |  |     |   | 126  | ^    |       |       |    |
|  | 381 | >   |       |      |  |     |   | 746  | >    |       |       |    |
|  | 270 | v   |       |      |  |     |   | 209  | v    |       |       |    |
|  |     |     | <     | ^    | >  |     |   | <    | ^    | >     |       |    |
|  |     |     | 63    | 593  | 54   |     |   | 188  | 549  | 110   |       |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |     |     |       |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |     |   |      |      |       |       |    |
|  |     |     |       | 1393 | 1460   |     |   |      | 2520 | 2488  |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 398 | <   | IN =  | 3710 | <  | 319 |   | 665  | <    | IN =  | 6481  |    |
|  | 484 | >   | OUT = | 3710 | >  | 353 |   | 763  | >    | OUT = | 6481  |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 1499 | 1514   |     |   |      | 2357 | 2559  |       |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |     |     |       |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |     |   |      |      |       |       |    |
|  |     |     |       | 43   | 36   |     |   |      | 58   | 81    |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 34  | <   | IN =  | 134  | <  | 30  |   | 48   | <    | IN =  | 241   |    |
|  | 26  | >   | OUT = | 134  | >  | 27  |   | 51   | >    | OUT = | 241   |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 37   | 35   |     |   |      | 46   | 88    |       |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |     |     |       |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |     |   |      |      |       |       |    |
|  |     |     |       | 544  | 567  |     |   |      | 720  | 717   |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
| PHF FOR TRUCKS: 0.333  |     |     |       |      | PHF FOR TRUCKS: 0.25   |     |   |      |      |       |       |    |
|  | 163 | <   | IN =  | 1454 | <  | 131 |   | 198  | <    | IN =  | 1875  |    |
|  | 193 | >   | OUT = | 1454 | >  | 143 |   | 226  | >    | OUT = | 1875  |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 582  | 587  |     |   |      | 671  | 739   |       |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |     |     |       |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |     |   |      |      |       |       |    |
|  |     |     |       | 2548 | 1827   |     |   |      | 3565 | 3968  |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 591 | <   | IN =  | 5742 | <  | 550 |   | 1819 | <    | IN =  | 10468 |    |
|  | 966 | >   | OUT = | 5742 | >  | 628 |   | 1368 | >    | OUT = | 10467 |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 2696 | 1678   |     |   |      | 3308 | 4128  |       |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |     |     |       |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |     |   |      |      |       |       |    |
|  |     |     |       | 69   | 52   |     |   |      | 89   | 89    |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 43  | <   | IN =  | 193  | <  | 40  |   | 70   | <    | IN =  | 303   |    |
|  | 41  | >   | OUT = | 193  | >  | 41  |   | 70   | >    | OUT = | 303   |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 57   | 43   |     |   |      | 76   | 76    |       |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |     |     |       |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |     |   |      |      |       |       |    |
|  |     |     |       | 991  | 712  |     |   |      | 1020 | 1133  |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
| PHF FOR TRUCKS: 0.333  |     |     |       |      | PHF FOR TRUCKS: 0.25   |     |   |      |      |       |       |    |
|  | 239 | <   | IN =  | 2246 | <  | 222 |   | 527  | <    | IN =  | 3007  |    |
|  | 381 | >   | OUT = | 2246 | >  | 252 |   | 401  | >    | OUT = | 3007  |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 1043 | 652  |     |   |      | 945  | 1175  |       |    |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |     |     |       |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |     |   |      |      |       |       |    |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |     |     |       |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |     |   |      |      |       |       |    |
|  |     |     |       | 448  | 145  |     |   |      | 300  | 416   |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 76  | <   |       |      |  |     |   | 329  | <    |       |       |    |
|  | 188 | >   |       |      |  |     |   | 174  | >    |       |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 462  | 65   |     |   |      | 274  | 436   |       |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |     |     |       |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |     |   |      |      |       |       |    |
|  |     |     |       | 450  | 140  |     |   |      | 300  | 420   |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 80  | <   | IN =  | 790  | <  | 90  |   | 330  | <    | IN =  | 1130  |    |
|  | 190 | >   | OUT = | 790  | >  | 110 |   | 170  | >    | OUT = | 1130  |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 460  | 60   |     |   |      | 270  | 440   |       |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |     |     |       |      | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |     |   |      |      |       |       |    |
|  |     |     |       | 30   | 10   |     |   |      | 20   | 30    |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  | 10  | <   |       |      |  |     |   | 20   | <    |       |       |    |
|  | 10  | >   |       |      |  |     |   | 10   | >    |       |       |    |
|  |     |     | v     | ^    |  |     |   | v    | ^    |       |       |    |
|  |     |     |       | 30   | 0  |     |   |      | 20   | 30    |       |    |

Waterman Avenue (NS) at: Orange Show Road (EW) - #5

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 63              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 188             | SOUTH LEG |                    |
|  | THRU             | 593             | IN ...    | 710                |                              | THRU             | 549             | IN ...    | 880                |
|  | RIGHT            | 54              | OUT ...   | 890                |                              | RIGHT            | 110             | OUT ...   | 1,080              |
| SOUTH BOUND                            | LEFT             | 48              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 99              | NORTH LEG |                    |
|  | THRU             | 512             | IN ...    | 670                |                              | THRU             | 692             | IN ...    | 900                |
|  | RIGHT            | 80              | OUT ...   | 830                |                              | RIGHT            | 91              | OUT ...   | 790                |
| EAST BOUND                             | LEFT             | 160             | WEST LEG  |                    | EAST BOUND                   | LEFT             | 126             | WEST LEG  |                    |
|  | THRU             | 381             | IN ...    | 820                |                              | THRU             | 746             | IN ...    | 1,090              |
|  | RIGHT            | 270             | OUT ...   | 410                |                              | RIGHT            | 209             | OUT ...   | 980                |
| WEST BOUND                             | LEFT             | 75              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 156             | EAST LEG  |                    |
|  | THRU             | 256             | IN ...    | 410                |                              | THRU             | 679             | IN ...    | 940                |
|  | RIGHT            | 67              | OUT ...   | 490                |                              | RIGHT            | 85              | OUT ...   | 970                |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 63              | 63                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 188             | 194                   | NORTH LEG                 |
|  | THRU             | 593             | 596                   | RATIO 7.4%                |                           | THRU             | 549             | 574                   | RATIO 8.4%                |
|  | RIGHT            | 54              | 54                    | ADT 20,200                |                           | RIGHT            | 110             | 114                   | ADT 20,200                |
| SOUTH BOUND                            | LEFT             | 48              | 50                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 99              | 102                   | SOUTH LEG                 |
|  | THRU             | 512             | 538                   | RATIO 6.9%                |                           | THRU             | 692             | 708                   | RATIO 8.5%                |
|  | RIGHT            | 80              | 84                    | ADT 23,200                |                           | RIGHT            | 91              | 92                    | ADT 23,200                |
| EAST BOUND                             | LEFT             | 160             | 164                   | EAST LEG                  | EAST BOUND                | LEFT             | 126             | 128                   | EAST LEG                  |
|  | THRU             | 381             | 386                   | RATIO 4.0%                |                           | THRU             | 746             | 754                   | RATIO 8.4%                |
|  | RIGHT            | 270             | 274                   | ADT 22,700                |                           | RIGHT            | 209             | 211                   | ADT 22,700                |
| WEST BOUND                             | LEFT             | 75              | 78                    | WEST LEG                  | WEST BOUND                | LEFT             | 156             | 161                   | WEST LEG                  |
|  | THRU             | 256             | 264                   | RATIO 5.0%                |                           | THRU             | 679             | 694                   | RATIO 8.4%                |
|  | RIGHT            | 67              | 70                    | ADT 24,700                |                           | RIGHT            | 85              | 88                    | ADT 24,700                |

Waterman Avenue (NS) at: Orange Show Road (EW) - #5

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 63              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 188             | SOUTH LEG |                   |
|                              | THRU             | 593             | IN ...    | 750               |                              | THRU             | 549             | IN ...    | 1,180             |
|                              | RIGHT            | 54              | OUT ...   | 1,200             |                              | RIGHT            | 110             | OUT ...   | 1,260             |
| SOUTH BOUND                  | LEFT             | 48              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 99              | NORTH LEG |                   |
|                              | THRU             | 512             | IN ...    | 970               |                              | THRU             | 692             | IN ...    | 1,100             |
|                              | RIGHT            | 80              | OUT ...   | 920               |                              | RIGHT            | 91              | OUT ...   | 1,070             |
| EAST BOUND                   | LEFT             | 160             | WEST LEG  |                   | EAST BOUND                   | LEFT             | 126             | WEST LEG  |                   |
|                              | THRU             | 381             | IN ...    | 950               |                              | THRU             | 746             | IN ...    | 1,210             |
|                              | RIGHT            | 270             | OUT ...   | 460               |                              | RIGHT            | 209             | OUT ...   | 1,200             |
| WEST BOUND                   | LEFT             | 75              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 156             | EAST LEG  |                   |
|                              | THRU             | 256             | IN ...    | 470               |                              | THRU             | 679             | IN ...    | 1,080             |
|                              | RIGHT            | 67              | OUT ...   | 560               |                              | RIGHT            | 85              | OUT ...   | 1,040             |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 63              | 70                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 188             | 261                  | NORTH LEG                 |
|                              | THRU             | 593             | 637                  | RATIO 7.8%                |                           | THRU             | 549             | 794                  | RATIO 9.0%                |
|                              | RIGHT            | 54              | 54                   | ADT 24,200                |                           | RIGHT            | 110             | 126                  | ADT 24,200                |
| SOUTH BOUND                  | LEFT             | 48              | 71                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 99              | 115                  | SOUTH LEG                 |
|                              | THRU             | 512             | 787                  | RATIO 7.2%                |                           | THRU             | 692             | 857                  | RATIO 9.0%                |
|                              | RIGHT            | 80              | 111                  | ADT 27,100                |                           | RIGHT            | 91              | 128                  | ADT 27,100                |
| EAST BOUND                   | LEFT             | 160             | 196                  | EAST LEG                  | EAST BOUND                | LEFT             | 126             | 170                  | EAST LEG                  |
|                              | THRU             | 381             | 435                  | RATIO 4.2%                |                           | THRU             | 746             | 799                  | RATIO 8.6%                |
|                              | RIGHT            | 270             | 319                  | ADT 24,800                |                           | RIGHT            | 209             | 239                  | ADT 24,800                |
| WEST BOUND                   | LEFT             | 75              | 94                   | WEST LEG                  | WEST BOUND                | LEFT             | 156             | 164                  | WEST LEG                  |
|                              | THRU             | 256             | 290                  | RATIO 5.3%                |                           | THRU             | 679             | 811                  | RATIO 8.9%                |
|                              | RIGHT            | 67              | 87                   | ADT 27,000                |                           | RIGHT            | 85              | 106                  | ADT 27,000                |



**Waterman Avenue (NS) at: Dumas Street (EW) - #6**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 3               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG |                    |
|  | THRU             | 716             | IN ...    | 730                |                              | THRU             | 869             | IN ...    | 900                |
|  | RIGHT            | 0               | OUT ...   | 880                |                              | RIGHT            | 0               | OUT ...   | 1,120              |
| SOUTH BOUND                            | LEFT             | 0               | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG |                    |
|  | THRU             | 838             | IN ...    | 880                |                              | THRU             | 1,085           | IN ...    | 1,120              |
|  | RIGHT            | 8               | OUT ...   | 730                |                              | RIGHT            | 5               | OUT ...   | 900                |
| EAST BOUND                             | LEFT             | 5               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 5               | WEST LEG  |                    |
|  | THRU             | 0               | IN ...    | 10                 |                              | THRU             | 0               | IN ...    | 10                 |
|  | RIGHT            | 6               | OUT ...   | 10                 |                              | RIGHT            | 7               | OUT ...   | 10                 |
| WEST BOUND                             | LEFT             | 0               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 0               | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 3               | 3                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 2               | 3                     | NORTH LEG                 |
|  | THRU             | 716             | 726                   | RATIO 6.7%                |                           | THRU             | 869             | 896                   | RATIO 8.4%                |
|  | RIGHT            | 0               | 0                     | ADT 24,000                |                           | RIGHT            | 0               | 0                     | ADT 24,000                |
| SOUTH BOUND                            | LEFT             | 0               | 0                     | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 0               | 0                     | SOUTH LEG                 |
|  | THRU             | 838             | 874                   | RATIO 6.7%                |                           | THRU             | 1,085           | 1,114                 | RATIO 8.4%                |
|  | RIGHT            | 8               | 8                     | ADT 24,000                |                           | RIGHT            | 5               | 7                     | ADT 24,000                |
| EAST BOUND                             | LEFT             | 5               | 5                     | EAST LEG                  | EAST BOUND                | LEFT             | 5               | 5                     | EAST LEG                  |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 6               | 6                     | ADT 0                     |                           | RIGHT            | 7               | 7                     | ADT 0                     |
| WEST BOUND                             | LEFT             | 0               | 0                     | WEST LEG                  | WEST BOUND                | LEFT             | 0               | 0                     | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 11.0%               |                           | THRU             | 0               | 0                     | RATIO 11.0%               |
|  | RIGHT            | 0               | 0                     | ADT 200                   |                           | RIGHT            | 0               | 0                     | ADT 200                   |

**Waterman Avenue (NS) at: Dumas Street (EW) - #6**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                                |                   |                              |                  |                 |                                |                   |
|------------------------------|------------------|-----------------|--------------------------------|-------------------|------------------------------|------------------|-----------------|--------------------------------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                                |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |                                |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH                       | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH                       | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 3               | SOUTH LEG<br>IN ...<br>OUT ... | 850<br>1,110      | NORTH BOUND                  | LEFT             | 2               | SOUTH LEG<br>IN ...<br>OUT ... | 1,120<br>1,380    |
|                              | THRU             | 716             |                                |                   |                              | THRU             | 869             |                                |                   |
|                              | RIGHT            | 0               |                                |                   |                              | RIGHT            | 0               |                                |                   |
| SOUTH BOUND                  | LEFT             | 0               | NORTH LEG<br>IN ...<br>OUT ... | 1,190<br>770      | SOUTH BOUND                  | LEFT             | 0               | NORTH LEG<br>IN ...<br>OUT ... | 1,290<br>1,200    |
|                              | THRU             | 838             |                                |                   |                              | THRU             | 1,085           |                                |                   |
|                              | RIGHT            | 8               |                                |                   |                              | RIGHT            | 5               |                                |                   |
| EAST BOUND                   | LEFT             | 5               | WEST LEG<br>IN ...<br>OUT ...  | 20<br>10          | EAST BOUND                   | LEFT             | 5               | WEST LEG<br>IN ...<br>OUT ...  | 20<br>20          |
|                              | THRU             | 0               |                                |                   |                              | THRU             | 0               |                                |                   |
|                              | RIGHT            | 6               |                                |                   |                              | RIGHT            | 7               |                                |                   |
| WEST BOUND                   | LEFT             | 0               | EAST LEG<br>IN ...<br>OUT ...  | 0<br>0            | WEST BOUND                   | LEFT             | 0               | EAST LEG<br>IN ...<br>OUT ...  | 0<br>0<br>0       |
|                              | THRU             | 0               |                                |                   |                              | THRU             | 0               |                                |                   |
|                              | RIGHT            | 0               |                                |                   |                              | RIGHT            | 0               |                                |                   |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                                       |                           |                  |                 |                      |                                       |
|------------------------------|------------------|-----------------|----------------------|---------------------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                                       | EVENING PEAK HOUR RESULTS |                  |                 |                      |                                       |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP             | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP             |
| NORTH BOUND                  | LEFT             | 3               | 4                    | NORTH LEG<br>RATIO 6.7%<br>ADT 27,900 | NORTH BOUND               | LEFT             | 2               | 6                    | NORTH LEG<br>RATIO 9.3%<br>ADT 27,900 |
|                              | THRU             | 716             | 763                  |                                       |                           | THRU             | 869             | 1,191                |                                       |
|                              | RIGHT            | 0               | 0                    |                                       |                           | RIGHT            | 0               | 0                    |                                       |
| SOUTH BOUND                  | LEFT             | 0               | 0                    | SOUTH LEG<br>RATIO 6.7%<br>ADT 28,100 | SOUTH BOUND               | LEFT             | 0               | 0                    | SOUTH LEG<br>RATIO 9.2%<br>ADT 28,100 |
|                              | THRU             | 838             | 1,099                |                                       |                           | THRU             | 1,085           | 1,367                |                                       |
|                              | RIGHT            | 8               | 9                    |                                       |                           | RIGHT            | 5               | 14                   |                                       |
| EAST BOUND                   | LEFT             | 5               | 7                    | EAST LEG<br>RATIO -<br>ADT 0          | EAST BOUND                | LEFT             | 5               | 9                    | EAST LEG<br>RATIO -<br>ADT 0          |
|                              | THRU             | 0               | 0                    |                                       |                           | THRU             | 0               | 0                    |                                       |
|                              | RIGHT            | 6               | 11                   |                                       |                           | RIGHT            | 7               | 13                   |                                       |
| WEST BOUND                   | LEFT             | 0               | 0                    | WEST LEG<br>RATIO 10.5%<br>ADT 300    | WEST BOUND                | LEFT             | 0               | 0                    | WEST LEG<br>RATIO 13.8%<br>ADT 300    |
|                              | THRU             | 0               | 0                    |                                       |                           | THRU             | 0               | 0                    |                                       |
|                              | RIGHT            | 0               | 0                    |                                       |                           | RIGHT            | 0               | 0                    |                                       |

| Waterman Avenue (NS) at: Park Circle North (EW) - #7               |                       |       |      |      |  |                      |       |      |      |    |   |    |
|--|-----------------------|-------|------|------|--|----------------------|-------|------|------|----|---|----|
| MORNING PEAK HOUR  |                       |       |      |      | EVENING PEAK HOUR  |                      |       |      |      |    |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |                       |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |                      |       |      |      |    |   |    |
|  |                       | 0     | 691  | 77   |  |                      | 0     | 1074 | 6    |    |   |    |
|  | 0 ^                   | <     | v    | >    | ^  | 6                    | 0 ^   | <    | v    | >  | ^ | 63 |
|  | 0 >                   |       |      | <    | 0  | 0                    | 0 >   |      |      | <  | 0 | 0  |
|  | 0 v                   |       |      | v    | 1  | 0 v                  |       |      | v    | 8  |   |    |
|  |                       | <     | ^    | >    |  |                      | <     | ^    | >    |    |   |    |
|  |                       | 0     | 642  | 27   |  |                      | 0     | 677  | 2    |    |   |    |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |                       |       |      |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |                      |       |      |      |    |   |    |
|  |                       |       | 768  | 648  |  |                      |       | 1080 | 740  |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 1444 | <    | 7  | 0 <                  | IN =  | 1830 | <    | 71 |   |    |
|  | 0 >                   | OUT = | 1444 | >    | 104  | 0 >                  | OUT = | 1830 | >    | 8  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 692  | 669  |  |                      |       | 1082 | 679  |    |   |    |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |                       |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |                      |       |      |      |    |   |    |
|  |                       | 0     | 58   | 0    |  |                      | 0     | 77   | 3    |    |   |    |
|  | 0 ^                   | <     | v    | >    | ^  | 0                    | 0 ^   | <    | v    | >  | ^ | 0  |
|  | 0 >                   |       |      | <    | 0  | 0 >                  |       |      | <    | 0  | 0 | 0  |
|  | 0 v                   |       |      | v    | 0  | 0 v                  |       |      | v    | 0  | 0 | 0  |
|  |                       | <     | ^    | >    |  |                      | <     | ^    | >    |    |   |    |
|  |                       | 0     | 69   | 0    |  |                      | 0     | 40   | 0    |    |   |    |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |                       |       |      |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0                        |                      |       |      |      |    |   |    |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |                       |       |      |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |                      |       |      |      |    |   |    |
|  |                       | 0     | 749  | 77   |  |                      | 0     | 1151 | 9    |    |   |    |
|  | 0 ^                   | <     | v    | >    | ^  | 6                    | 0 ^   | <    | v    | >  | ^ | 63 |
|  | 0 >                   |       |      | <    | 0  | 0 >                  |       |      | <    | 0  | 0 | 0  |
|  | 0 v                   |       |      | v    | 1  | 0 v                  |       |      | v    | 8  |   |    |
|  |                       | <     | ^    | >    |  |                      | <     | ^    | >    |    |   |    |
|  |                       | 0     | 711  | 27   |  |                      | 0     | 717  | 2    |    |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |                       |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |                      |       |      |      |    |   |    |
|  |                       |       | 1485 | 1599 |  |                      |       | 2445 | 2569 |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 3084 | <    | 0  | 0 <                  | IN =  | 5014 | <    | 0  |   |    |
|  | 0 >                   | OUT = | 3084 | >    | 0  | 0 >                  | OUT = | 5014 | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 1485 | 1599 |  |                      |       | 2445 | 2569 |    |   |    |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |                       |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |                      |       |      |      |    |   |    |
|  |                       |       | 37   | 38   |  |                      |       | 47   | 93   |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 75   | <    | 0  | 0 <                  | IN =  | 140  | <    | 0  |   |    |
|  | 0 >                   | OUT = | 75   | >    | 0  | 0 >                  | OUT = | 140  | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 37   | 38   |  |                      |       | 47   | 93   |    |   |    |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |                       |       |      |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |                      |       |      |      |    |   |    |
|  |                       |       | 577  | 620  |  |                      |       | 696  | 743  |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | PHF FOR TRUCKS: 0.333 |       |      |      |  | PHF FOR TRUCKS: 0.25 |       |      |      |    |   |    |
|  | 0 <                   | IN =  | 1197 | <    | 0  | 0 <                  | IN =  | 1439 | <    | 0  |   |    |
|  | 0 >                   | OUT = | 1197 | >    | 0  | 0 >                  | OUT = | 1439 | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 577  | 620  |  |                      |       | 696  | 743  |    |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |                       |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |                      |       |      |      |    |   |    |
|  |                       |       | 2399 | 2028 |  |                      |       | 3818 | 3802 |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 4427 | <    | 0  | 0 <                  | IN =  | 7620 | <    | 0  |   |    |
|  | 0 >                   | OUT = | 4427 | >    | 0  | 0 >                  | OUT = | 7620 | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 2399 | 2028 |  |                      |       | 3818 | 3802 |    |   |    |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |                       |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |                      |       |      |      |    |   |    |
|  |                       |       | 64   | 44   |  |                      |       | 79   | 79   |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 108  | <    | 0  | 0 <                  | IN =  | 158  | <    | 0  |   |    |
|  | 0 >                   | OUT = | 108  | >    | 0  | 0 >                  | OUT = | 158  | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 64   | 44   |  |                      |       | 79   | 79   |    |   |    |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |                       |       |      |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |                      |       |      |      |    |   |    |
|  |                       |       | 933  | 785  |  |                      |       | 1089 | 1084 |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | PHF FOR TRUCKS: 0.333 |       |      |      |  | PHF FOR TRUCKS: 0.25 |       |      |      |    |   |    |
|  | 0 <                   | IN =  | 1718 | <    | 0  | 0 <                  | IN =  | 2173 | <    | 0  |   |    |
|  | 0 >                   | OUT = | 1718 | >    | 0  | 0 >                  | OUT = | 2173 | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 933  | 785  |  |                      |       | 1089 | 1084 |    |   |    |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |                       |       |      |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |                      |       |      |      |    |   |    |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |                       |       |      |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |                      |       |      |      |    |   |    |
|  |                       |       | 356  | 165  |  |                      |       | 392  | 342  |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   |       |      | <    | 0  | 0 <                  |       |      | <    | 0  |   |    |
|  | 0 >                   |       |      | >    | 0  | 0 >                  |       |      | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 356  | 165  |  |                      |       | 392  | 342  |    |   |    |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |                       |       |      |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |                      |       |      |      |    |   |    |
|  |                       |       | 360  | 170  |  |                      |       | 390  | 340  |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   | IN =  | 530  | <    | 0  | 0 <                  | IN =  | 740  | <    | 10 |   |    |
|  | 0 >                   | OUT = | 540  | >    | 10   | 0 >                  | OUT = | 730  | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 360  | 170  |  |                      |       | 390  | 340  |    |   |    |
| FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |                       |       |      |      | FUTURE YEAR GROWTH: 2015 TO 2017<br>2 YEARS                        |                      |       |      |      |    |   |    |
|  |                       |       | 30   | 10   |  |                      |       | 30   | 30   |    |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  | 0 <                   |       |      | <    | 0  | 0 <                  |       |      | <    | 0  |   |    |
|  | 0 >                   |       |      | >    | 0  | 0 >                  |       |      | >    | 0  |   |    |
|  |                       | v     | ^    |      |  |                      | v     | ^    |      |    |   |    |
|  |                       |       | 30   | 10   |  |                      |       | 30   | 30   |    |   |    |

**Waterman Avenue (NS) at: Park Circle North (EW) - #7**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 0               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG |                    |
|  | THRU             | 711             | IN ...    | 750                |                              | THRU             | 717             | IN ...    | 750                |
|  | RIGHT            | 27              | OUT ...   | 780                |                              | RIGHT            | 2               | OUT ...   | 1,190              |
| SOUTH BOUND                            | LEFT             | 77              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 9               | NORTH LEG |                    |
|  | THRU             | 749             | IN ...    | 860                |                              | THRU             | 1,151           | IN ...    | 1,190              |
|  | RIGHT            | 0               | OUT ...   | 730                |                              | RIGHT            | 0               | OUT ...   | 810                |
| EAST BOUND                             | LEFT             | 0               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 0               | WEST LEG  |                    |
|  | THRU             | 0               | IN ...    | 0                  |                              | THRU             | 0               | IN ...    | 0                  |
|  | RIGHT            | 0               | OUT ...   | 0                  |                              | RIGHT            | 0               | OUT ...   | 0                  |
| WEST BOUND                             | LEFT             | 1               | EAST LEG  |                    | WEST BOUND                   | LEFT             | 8               | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 10                 |                              | THRU             | 0               | IN ...    | 70                 |
|  | RIGHT            | 6               | OUT ...   | 100                |                              | RIGHT            | 63              | OUT ...   | 10                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 0               | 0                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 0               | 0                     | NORTH LEG                 |
|  | THRU             | 711             | 721                   | RATIO 6.7%                |                           | THRU             | 717             | 748                   | RATIO 8.5%                |
|  | RIGHT            | 27              | 27                    | ADT 23,700                |                           | RIGHT            | 2               | 2                     | ADT 23,700                |
| SOUTH BOUND                            | LEFT             | 77              | 78                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 9               | 9                     | SOUTH LEG                 |
|  | THRU             | 749             | 779                   | RATIO 6.7%                |                           | THRU             | 1,151           | 1,182                 | RATIO 8.5%                |
|  | RIGHT            | 0               | 0                     | ADT 22,900                |                           | RIGHT            | 0               | 0                     | ADT 22,900                |
| EAST BOUND                             | LEFT             | 0               | 0                     | EAST LEG                  | EAST BOUND                | LEFT             | 0               | 0                     | EAST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 11.5%               |                           | THRU             | 0               | 0                     | RATIO 8.6%                |
|  | RIGHT            | 0               | 0                     | ADT 1,000                 |                           | RIGHT            | 0               | 0                     | ADT 1,000                 |
| WEST BOUND                             | LEFT             | 1               | 1                     | WEST LEG                  | WEST BOUND                | LEFT             | 8               | 9                     | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO -                   |                           | THRU             | 0               | 0                     | RATIO -                   |
|  | RIGHT            | 6               | 9                     | ADT 0                     |                           | RIGHT            | 63              | 66                    | ADT 0                     |

**Waterman Avenue (NS) at: Park Circle North (EW) - #7**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                                |                   |                              |                  |                 |                                |                   |
|------------------------------|------------------|-----------------|--------------------------------|-------------------|------------------------------|------------------|-----------------|--------------------------------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                                |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |                                |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH                       | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH                       | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 0               | SOUTH LEG<br>IN ...<br>OUT ... | 870<br>1,020      | NORTH BOUND                  | LEFT             | 0               | SOUTH LEG<br>IN ...<br>OUT ... | 970<br>1,450      |
|                              | THRU             | 711             |                                |                   |                              | THRU             | 717             |                                |                   |
|                              | RIGHT            | 27              |                                |                   |                              | RIGHT            | 2               |                                |                   |
| SOUTH BOUND                  | LEFT             | 77              | NORTH LEG<br>IN ...<br>OUT ... | 1,100<br>850      | SOUTH BOUND                  | LEFT             | 9               | NORTH LEG<br>IN ...<br>OUT ... | 1,450<br>1,030    |
|                              | THRU             | 749             |                                |                   |                              | THRU             | 1,151           |                                |                   |
|                              | RIGHT            | 0               |                                |                   |                              | RIGHT            | 0               |                                |                   |
| EAST BOUND                   | LEFT             | 0               | WEST LEG<br>IN ...<br>OUT ...  | 0<br>0            | EAST BOUND                   | LEFT             | 0               | WEST LEG<br>IN ...<br>OUT ...  | 0<br>0            |
|                              | THRU             | 0               |                                |                   |                              | THRU             | 0               |                                |                   |
|                              | RIGHT            | 0               |                                |                   |                              | RIGHT            | 0               |                                |                   |
| WEST BOUND                   | LEFT             | 1               | EAST LEG<br>IN ...<br>OUT ...  | 10<br>110         | WEST BOUND                   | LEFT             | 8               | EAST LEG<br>IN ...<br>OUT ...  | 80<br>10          |
|                              | THRU             | 0               |                                |                   |                              | THRU             | 0               |                                |                   |
|                              | RIGHT            | 6               |                                |                   |                              | RIGHT            | 63              |                                |                   |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                                       |                           |                  |                 |                      |                                       |
|------------------------------|------------------|-----------------|----------------------|---------------------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                                       | EVENING PEAK HOUR RESULTS |                  |                 |                      |                                       |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP             | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP             |
| NORTH BOUND                  | LEFT             | 0               | 0                    | NORTH LEG<br>RATIO 7.0%<br>ADT 27,800 | NORTH BOUND               | LEFT             | 0               | 0                    | NORTH LEG<br>RATIO 8.9%<br>ADT 27,800 |
|                              | THRU             | 711             | 841                  |                                       |                           | THRU             | 717             | 960                  |                                       |
|                              | RIGHT            | 27              | 30                   |                                       |                           | RIGHT            | 2               | 2                    |                                       |
| SOUTH BOUND                  | LEFT             | 77              | 83                   | SOUTH LEG<br>RATIO 7.0%<br>ADT 27,000 | SOUTH BOUND               | LEFT             | 9               | 10                   | SOUTH LEG<br>RATIO 8.9%<br>ADT 27,000 |
|                              | THRU             | 749             | 1,019                |                                       |                           | THRU             | 1,151           | 1,441                |                                       |
|                              | RIGHT            | 0               | 0                    |                                       |                           | RIGHT            | 0               | 0                    |                                       |
| EAST BOUND                   | LEFT             | 0               | 0                    | EAST LEG<br>RATIO 11.2%<br>ADT 1,100  | EAST BOUND                | LEFT             | 0               | 0                    | EAST LEG<br>RATIO 8.4%<br>ADT 1,100   |
|                              | THRU             | 0               | 0                    |                                       |                           | THRU             | 0               | 0                    |                                       |
|                              | RIGHT            | 0               | 0                    |                                       |                           | RIGHT            | 0               | 0                    |                                       |
| WEST BOUND                   | LEFT             | 1               | 1                    | WEST LEG<br>RATIO -<br>ADT 0          | WEST BOUND                | LEFT             | 8               | 10                   | WEST LEG<br>RATIO -<br>ADT 0          |
|                              | THRU             | 0               | 0                    |                                       |                           | THRU             | 0               | 0                    |                                       |
|                              | RIGHT            | 6               | 9                    |                                       |                           | RIGHT            | 63              | 70                   |                                       |

| Waterman Avenue (NS) at: Park Center Circle South (EW) - #8                           |     |   |       |      |      |  |     |     |      |       |      |      |     |     |
|---|-----|---|-------|------|------|--|-----|-----|------|-------|------|------|-----|-----|
| MORNING PEAK HOUR   |     |   |       |      |      | EVENING PEAK HOUR  |     |     |      |       |      |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                          |     |   |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015                         |     |     |      |       |      |      |     |     |
|   |     |   | 5     | 672  | 21   |  |     |     | 7    | 1005  | 4    |      |     |     |
|   | 8   | ^ | <     | v    | >    | ^  |     |     | 1    | ^     | <    |      |     |     |
|   | 0   | > |       |      | <    | 0  |     |     | 0    | >     | <    |      |     |     |
|   | 9   | v |       |      | v    | 18   |     |     | 10   | v     | >    |      |     |     |
|   |     |   |       | 5    | 640  | 155  |     |     |      | 9     | 654  | 12   |     |     |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015  |     |   |       |      |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                                       |     |     |      |       |      |      |     |     |
|   |     |   |       | 698  | 653  |  |     |     | 1016 | 680   |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 10  | < | IN =  | 1538 | <    | 23   |     | 16  | <    | IN =  | 1897 | <    | 195 |     |
|   | 17  | > | OUT = | 1538 | >    | 176  |     | 11  | >    | OUT = | 1897 | >    | 16  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 699  | 800  |  |     |     | 1185 | 675   |      |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                        |     |   |       |      |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):                       |     |     |      |       |      |      |     |     |
|   |     |   |       | 2    | 54   | 0  |     |     |      | 0     | 82   | 2    |     |     |
|   |     |   |       | <    | v    | >  | ^   |     |      | <     | v    | >    | ^   |     |
|   | 0   | ^ |       |      |      | ^  |     |     | 0    | ^     |      |      | ^   |     |
|   | 4   | > |       |      | <    | 0  |     |     | 0    | >     |      | <    | 0   |     |
|   | 2   | v |       |      | v    | 5  |     |     | 0    | v     |      | v    | 0   |     |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0   |     |   |       |      |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0  |     |     |      |       |      |      |     |     |
|   |     |   |       | 0    | 64   | 6  |     |     |      | 0     | 39   | 5    |     |     |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                    |     |   |       |      |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015                   |     |     |      |       |      |      |     |     |
|   |     |   |       | 7    | 726  | 21   |     |     |      | 7     | 1087 | 6    |     |     |
|   | 8   | ^ | <     | v    | >    | ^  |     |     | 1    | ^     | <    | v    | >   | ^   |
|   | 4   | > |       |      | <    | 0  |     |     | 0    | >     |      | <    | 0   |     |
|   | 11  | v |       |      | v    | 23   |     |     | 10   | v     |      | v    | 170 |     |
|   |     |   |       | 5    | 704  | 161  |     |     |      | 9     | 693  | 17   |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                       |     |   |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                                      |     |     |      |       |      |      |     |     |
|   |     |   |       | 1485 | 1599 |  |     |     | 2445 | 2569  |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 285 | < | IN =  | 3194 | <    | 15   |     | 189 | <    | IN =  | 5201 | <    | 71  |     |
|   | 73  | > | OUT = | 3193 | >    | 88   |     | 433 | >    | OUT = | 5201 | >    | 74  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 1221 | 1621 |  |     |     | 2369 | 2252  |      |      |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                            |     |   |       |      |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008                           |     |     |      |       |      |      |     |     |
|   |     |   |       | 37   | 38   |  |     |     | 47   | 93    |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 2   | < | IN =  | 81   | <    | 3  |     | 2   | <    | IN =  | 151  | <    | 5   |     |
|   | 1   | > | OUT = | 83   | >    | 8  |     | 2   | >    | OUT = | 151  | >    | 13  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 35   | 40   |  |     |     | 43   | 97    |      |      |     |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333 |     |   |       |      |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25 |     |     |      |       |      |      |     |     |
|   |     |   |       | 577  | 620  |  |     |     | 696  | 743   |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 109 | < | IN =  | 1241 | <    | 7  |     | 53  | <    | IN =  | 1494 | <    | 21  |     |
|   | 28  | > | OUT = | 1241 | >    | 36   |     | 122 | >    | OUT = | 1494 | >    | 24  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 476  | 629  |  |     |     | 674  | 655   |      |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035   |     |   |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035  |     |     |      |       |      |      |     |     |
|   |     |   |       | 2399 | 2028 |  |     |     | 3818 | 3802  |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 315 | < | IN =  | 4661 | <    | 71   |     | 311 | <    | IN =  | 7827 | <    | 303 |     |
|   | 113 | > | OUT = | 4662 | >    | 247  |     | 301 | >    | OUT = | 8127 | >    | 332 |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 2072 | 2078 |  |     |     | 3682 | 3405  |      |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                              |     |   |       |      |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035                             |     |     |      |       |      |      |     |     |
|   |     |   |       | 64   | 44   |  |     |     | 79   | 79    |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 5   | < | IN =  | 118  | <    | 5  |     | 7   | <    | IN =  | 175  | <    | 17  |     |
|   | 5   | > | OUT = | 117  | >    | 10   |     | 7   | >    | OUT = | 175  | >    | 17  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 58   | 44   |  |     |     | 72   | 72    |      |      |     |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38<br>PHF FOR TRUCKS: 0.333   |     |   |       |      |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28<br>PHF FOR TRUCKS: 0.25   |     |     |      |       |      |      |     |     |
|   |     |   |       | 933  | 785  |  |     |     | 1089 | 1084  |      |      |     |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 121 | < | IN =  | 1810 | <    | 29   |     | 89  | <    | IN =  | 2235 | <    | 89  |     |
|   | 45  | > | OUT = | 1811 | >    | 97   |     | 86  | >    | OUT = | 2319 | >    | 97  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 807  | 804  |  |     |     | 1049 | 971   |      |      |     |     |
| RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                      |     |   |       |      |      | RAW GROWTH (PCE'S):<br>CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                     |     |     |      |       |      |      |     |     |
|   |     |   |       | 2008 | TO   | 2035   |     |     |      | 2008  | TO   | 2035 |     |     |
|   |     |   |       |      |      | 356  | 165 |     |      |       |      |      | 392 | 342 |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 12  | < |       |      | <    | 22   |     | 35  | <    |       |      | <    | 68  |     |
|   | 17  | > |       |      | >    | 61   |     | -36 | >    |       |      | >    | 73  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 331  | 175  |  |     |     | 375  | 317   |      |      |     |     |
| ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                       |     |   |       |      |      | ADJUSTED GROWTH (PCE'S):<br>10 MINIMUM GROWTH %                                      |     |     |      |       |      |      |     |     |
|   |     |   |       | 2008 | TO   | 2035   |     |     |      | 2008  | TO   | 2035 |     |     |
|   |     |   |       |      |      | 360  | 170 |     |      |       |      |      | 390 | 340 |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 10  | < | IN =  | 570  | <    | 20   |     | 40  | <    | IN =  | 780  | <    | 70  |     |
|   | 20  | > | OUT = | 570  | >    | 60   |     | 0   | >    | OUT = | 820  | >    | 70  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 330  | 170  |  |     |     | 370  | 320   |      |      |     |     |
| FUTURE YEAR GROWTH:<br>2 YEARS  |     |   |       |      |      | FUTURE YEAR GROWTH:<br>2 YEARS   |     |     |      |       |      |      |     |     |
|   |     |   |       | 2015 | TO   | 2017   |     |     |      | 2015  | TO   | 2017 |     |     |
|   |     |   |       |      |      | 30   | 10  |     |      |       |      |      | 30  | 30  |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   | 0   | < |       |      | <    | 0  |     | 0   | <    |       |      | <    | 10  |     |
|   | 0   | > |       |      | >    | 0  |     | 0   | >    |       |      | >    | 10  |     |
|   |     |   |       | v    | ^    |  |     |     | v    | ^     |      |      |     |     |
|   |     |   |       | 20   | 10   |  |     |     | 30   | 20    |      |      |     |     |

**Waterman Avenue (NS) at: Park Center Circle South (EW) - #8**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 5               | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 9               | SOUTH LEG |                    |
|  | THRU             | 704             | IN ...    | 880                |                              | THRU             | 693             | IN ...    | 740                |
|  | RIGHT            | 161             | OUT ...   | 780                |                              | RIGHT            | 17              | OUT ...   | 1,300              |
| SOUTH BOUND                            | LEFT             | 21              | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                    |
|  | THRU             | 726             | IN ...    | 780                |                              | THRU             | 1,087           | IN ...    | 1,140              |
|  | RIGHT            | 7               | OUT ...   | 730                |                              | RIGHT            | 7               | OUT ...   | 750                |
| EAST BOUND                             | LEFT             | 8               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 1               | WEST LEG  |                    |
|  | THRU             | 4               | IN ...    | 20                 |                              | THRU             | 0               | IN ...    | 10                 |
|  | RIGHT            | 11              | OUT ...   | 10                 |                              | RIGHT            | 10              | OUT ...   | 20                 |
| WEST BOUND                             | LEFT             | 23              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 170             | EAST LEG  |                    |
|  | THRU             | 0               | IN ...    | 30                 |                              | THRU             | 0               | IN ...    | 210                |
|  | RIGHT            | 7               | OUT ...   | 190                |                              | RIGHT            | 25              | OUT ...   | 30                 |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 5               | 5                     | NORTH LEG                 | NORTH BOUND               | LEFT             | 9               | 10                    | NORTH LEG                 |
|  | THRU             | 704             | 715                   | RATIO 6.8%                |                           | THRU             | 693             | 718                   | RATIO 8.5%                |
|  | RIGHT            | 161             | 163                   | ADT 22,200                |                           | RIGHT            | 17              | 21                    | ADT 22,200                |
| SOUTH BOUND                            | LEFT             | 21              | 23                    | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 6               | 9                     | SOUTH LEG                 |
|  | THRU             | 726             | 748                   | RATIO 6.9%                |                           | THRU             | 1,087           | 1,113                 | RATIO 8.5%                |
|  | RIGHT            | 7               | 7                     | ADT 24,200                |                           | RIGHT            | 7               | 10                    | ADT 24,200                |
| EAST BOUND                             | LEFT             | 8               | 8                     | EAST LEG                  | EAST BOUND                | LEFT             | 1               | 1                     | EAST LEG                  |
|  | THRU             | 4               | 4                     | RATIO 8.1%                |                           | THRU             | 0               | 0                     | RATIO 8.9%                |
|  | RIGHT            | 11              | 11                    | ADT 2,700                 |                           | RIGHT            | 10              | 10                    | ADT 2,700                 |
| WEST BOUND                             | LEFT             | 23              | 23                    | WEST LEG                  | WEST BOUND                | LEFT             | 170             | 178                   | WEST LEG                  |
|  | THRU             | 0               | 0                     | RATIO 8.8%                |                           | THRU             | 0               | 0                     | RATIO 7.8%                |
|  | RIGHT            | 7               | 7                     | ADT 400                   |                           | RIGHT            | 25              | 31                    | ADT 400                   |

**Waterman Avenue (NS) at: Park Center Circle South (EW) - #8**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 5               | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 9               | SOUTH LEG |                   |
|                              | THRU             | 704             | IN ...    | 1,000             |                              | THRU             | 693             | IN ...    | 960               |
|                              | RIGHT            | 161             | OUT ...   | 1,000             |                              | RIGHT            | 17              | OUT ...   | 1,540             |
| SOUTH BOUND                  | LEFT             | 21              | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 6               | NORTH LEG |                   |
|                              | THRU             | 726             | IN ...    | 1,020             |                              | THRU             | 1,087           | IN ...    | 1,390             |
|                              | RIGHT            | 7               | OUT ...   | 850               |                              | RIGHT            | 7               | OUT ...   | 970               |
| EAST BOUND                   | LEFT             | 8               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 1               | WEST LEG  |                   |
|                              | THRU             | 4               | IN ...    | 30                |                              | THRU             | 0               | IN ...    | 10                |
|                              | RIGHT            | 11              | OUT ...   | 20                |                              | RIGHT            | 10              | OUT ...   | 50                |
| WEST BOUND                   | LEFT             | 23              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 170             | EAST LEG  |                   |
|                              | THRU             | 0               | IN ...    | 40                |                              | THRU             | 0               | IN ...    | 250               |
|                              | RIGHT            | 7               | OUT ...   | 230               |                              | RIGHT            | 25              | OUT ...   | 70                |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 5               | 6                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 9               | 24                   | NORTH LEG                 |
|                              | THRU             | 704             | 826                  | RATIO 7.1%                |                           | THRU             | 693             | 923                  | RATIO 8.9%                |
|                              | RIGHT            | 161             | 187                  | ADT 26,300                |                           | RIGHT            | 17              | 47                   | ADT 26,300                |
| SOUTH BOUND                  | LEFT             | 21              | 37                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 6               | 23                   | SOUTH LEG                 |
|                              | THRU             | 726             | 959                  | RATIO 7.2%                |                           | THRU             | 1,087           | 1,328                | RATIO 9.1%                |
|                              | RIGHT            | 7               | 14                   | ADT 27,900                |                           | RIGHT            | 7               | 26                   | ADT 27,900                |
| EAST BOUND                   | LEFT             | 8               | 12                   | EAST LEG                  | EAST BOUND                | LEFT             | 1               | 1                    | EAST LEG                  |
|                              | THRU             | 4               | 6                    | RATIO 7.5%                |                           | THRU             | 0               | 0                    | RATIO 8.9%                |
|                              | RIGHT            | 11              | 12                   | ADT 3,600                 |                           | RIGHT            | 10              | 11                   | ADT 3,600                 |
| WEST BOUND                   | LEFT             | 23              | 28                   | WEST LEG                  | WEST BOUND                | LEFT             | 170             | 204                  | WEST LEG                  |
|                              | THRU             | 0               | 0                    | RATIO 6.3%                |                           | THRU             | 0               | 0                    | RATIO 7.8%                |
|                              | RIGHT            | 7               | 12                   | ADT 800                   |                           | RIGHT            | 25              | 46                   | ADT 800                   |

| Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9                  |    |   |       |      |  |      |  |    |      |       |      |     |      |     |     |
|--|----|---|-------|------|--|------|--|----|------|-------|------|-----|------|-----|-----|
| MORNING PEAK HOUR  |    |   |       |      | EVENING PEAK HOUR  |      |  |    |      |       |      |     |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |    |   |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (AUTOS):<br>2015       |      |  |    |      |       |      |     |      |     |     |
|  |    |   | 4     | 446  | 244  |      |  |    | 11   | 976   | 172  |     |      |     |     |
|  | 3  | ^ | <     | v    | >  | ^    |  | 10 | ^    | <     | v    | >   | ^    |     |     |
|  |    | 2 | >     |      |  | <    |  | 2  | >    |       |      | <   |      | 224 |     |
|  |    | 2 | v     |      |  | v    |  | 15 | v    |       |      | v   |      | 2   |     |
|  |    |   |       |      |  |      |  |    |      |       |      |     |      | 313 |     |
|  |    |   |       | 24   | 590  | 368  |  |    |      |       |      |     | 40   | 463 | 142 |
| EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |    |   |       |      | EXISTING PEAK HOUR COUNT YEAR (AUTOS):<br>2015                     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 694  | 810  |      |  |    | 1159 | 697   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 29 | < | IN =  | 1960 | <  | 277  |  | 53 | <    | IN =  | 2370 | <   | 539  |     |     |
|  | 7  | > | OUT = | 1960 | >  | 614  |  | 27 | >    | OUT = | 2370 | >   | 316  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 507  | 982  |      |  |    | 1304 | 645   |      |     |      |     |     |
| EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |    |   |       |      | EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (TRUCKS IN PCE'S):     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 0    | 59   | 2    |  |    |      | 2     | 83   | 3   |      |     |     |
|  |    |   |       | <    | v  | >    |  |    |      | <     | v    | >   |      |     |     |
|  | 0  | ^ |       |      |  | ^    |  | 0  | ^    |       |      |     | ^    |     |     |
|  | 0  | > |       |      |  | <    |  | 0  | >    |       |      | <   |      | 5   |     |
|  | 0  | v |       |      |  | v    |  | 0  | v    |       |      | v   |      | 0   |     |
| PCE FACTORS BY AXLE:<br>2: 1.5 3: 2.0 4+: 3.0                      |    |   |       |      | PCE FACTORS BY AXLE:<br>2: 1.5 3: 2 4+: 3.0                        |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 0    | 67   | 3    |  |    |      | 0     | 47   | 5   |      |     |     |
| TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |    |   |       |      | TOTAL EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES (PCE'S):<br>2015 |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 4    | 505  | 246  |  |    |      | 13    | 1059 | 175 |      |     |     |
|  | 3  | ^ | <     | v    | >  | ^    |  | 10 | ^    | <     | v    | >   | ^    |     |     |
|  |    | 2 | >     |      |  | <    |  | 4  | >    |       |      | <   |      | 229 |     |
|  |    | 2 | v     |      |  | v    |  | 15 | v    |       |      | v   |      | 2   |     |
|  |    |   |       |      |  |      |  |    |      |       |      |     |      | 313 |     |
|  |    |   |       | 24   | 657  | 371  |  |    |      | 40    | 510  | 147 |      |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |    |   |       |      | EXISTING PEAK PERIOD MODEL YEAR (AUTO):<br>2008                    |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 1221 | 1621   |      |  |    | 2369 | 2252  |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 3356 | <  | 784  |  | 0  | <    | IN =  | 5225 | <   | 1140 |     |     |
|  | 0  | > | OUT = | 3356 | >  | 886  |  | 0  | >    | OUT = | 5224 | >   | 859  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 849  | 1351   |      |  |    | 2113 | 1716  |      |     |      |     |     |
| EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |    |   |       |      | EXISTING PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2008         |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 35   | 40   |      |  |    | 43   | 97    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 88   | <  | 17   |  | 0  | <    | IN =  | 158  | <   | 31   |     |     |
|  | 0  | > | OUT = | 88   | >  | 19   |  | 0  | >    | OUT = | 158  | >   | 30   |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 29   | 36   |      |  |    | 31   | 84    |      |     |      |     |     |
| EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38       |    |   |       |      | EXISTING PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28       |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 476  | 629  |      |  |    | 674  | 655   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
| PHF FOR TRUCKS: 0.333  |    |   |       |      | PHF FOR TRUCKS: 0.25   |      |  |    |      |       |      |     |      |     |     |
|  | 0  | < | IN =  | 1305 | <  | 304  |  | 0  | <    | IN =  | 1503 | <   | 327  |     |     |
|  | 0  | > | OUT = | 1305 | >  | 343  |  | 0  | >    | OUT = | 1502 | >   | 248  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 332  | 525  |      |  |    | 599  | 501   |      |     |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |    |   |       |      | FUTURE PEAK PERIOD MODEL YEAR (AUTO):<br>2035                      |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 2072 | 2078   |      |  |    | 3682 | 3405  |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 4155 | <  | 989  |  | 0  | <    | IN =  | 8618 | <   | 1887 |     |     |
|  | 0  | > | OUT = | 5155 | >  | 1356 |  | 0  | >    | OUT = | 8618 | >   | 1663 |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 1721 | 1094   |      |  |    | 3550 | 3049  |      |     |      |     |     |
| FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |    |   |       |      | FUTURE PEAK PERIOD MODEL YEAR (TRUCKS IN PCE'S):<br>2035           |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 58   | 44   |      |  |    | 72   | 72    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < | IN =  | 132  | <  | 28   |  | 0  | <    | IN =  | 173  | <   | 43   |     |     |
|  | 0  | > | OUT = | 132  | >  | 35   |  | 0  | >    | OUT = | 173  | >   | 43   |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 53   | 46   |      |  |    | 58   | 58    |      |     |      |     |     |
| FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.38         |    |   |       |      | FUTURE PEAK HOUR MODEL YEAR (PCE'S):<br>PHF FOR CARS: 0.28         |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 807  | 804  |      |  |    | 1049 | 971   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
| PHF FOR TRUCKS: 0.333  |    |   |       |      | PHF FOR TRUCKS: 0.25   |      |  |    |      |       |      |     |      |     |     |
|  | 0  | < | IN =  | 1623 | <  | 385  |  | 0  | <    | IN =  | 2456 | <   | 539  |     |     |
|  | 0  | > | OUT = | 2003 | >  | 527  |  | 0  | >    | OUT = | 2456 | >   | 476  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 672  | 431  |      |  |    | 1009 | 868   |      |     |      |     |     |
| RAW GROWTH (PCE'S): 2008 TO 2035                                   |    |   |       |      | RAW GROWTH (PCE'S): 2008 TO 2035                                   |      |  |    |      |       |      |     |      |     |     |
| CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |    |   |       |      | CONVERSION OF TRUCKS TO:<br>FACTOR = 1.00                          |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 331  | 175  |      |  |    | 375  | 317   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < |       |      | <  | 82   |  | 0  | <    |       | <    | 212 |      |     |     |
|  | 0  | > |       |      | >  | 184  |  | 0  | >    |       | >    | 228 |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 339  | -94  |      |  |    | 409  | 367   |      |     |      |     |     |
| ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |    |   |       |      | ADJUSTED GROWTH (PCE'S): 2008 TO 2035<br>10 MINIMUM GROWTH %       |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 330  | 170  |      |  |    | 370  | 320   |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 10 | < | IN =  | 420  | <  | 80   |  | 10 | <    | IN =  | 950  | <   | 210  |     |     |
|  | 0  | > | OUT = | 690  | >  | 180  |  | 0  | >    | OUT = | 970  | >   | 230  |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 340  | 10   |      |  |    | 410  | 370   |      |     |      |     |     |
| FUTURE YEAR GROWTH:<br>2 YEARS                                     |    |   |       |      | FUTURE YEAR GROWTH:<br>2 YEARS                                     |      |  |    |      |       |      |     |      |     |     |
|  |    |   |       | 20   | 10   |      |  |    | 30   | 20    |      |     |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  | 0  | < |       |      | <  | 10   |  | 0  | <    |       | <    | 20  |      |     |     |
|  | 0  | > |       |      | >  | 10   |  | 0  | >    |       | >    | 20  |      |     |     |
|  |    |   |       | v    | ^  |      |  |    | v    | ^     |      |     |      |     |     |
|  |    |   |       | 30   | 0  |      |  |    | 30   | 30    |      |     |      |     |     |

**Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |           |                    |                              |                  |                 |           |                    |
|--|------------------|-----------------|-----------|--------------------|------------------------------|------------------|-----------------|-----------|--------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |           |                    | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                    |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | OPENING YEAR TOTAL |
| NORTH BOUND                            | LEFT             | 24              | SOUTH LEG |                    | NORTH BOUND                  | LEFT             | 40              | SOUTH LEG |                    |
|  | THRU             | 657             | IN ...    | 1,060              |                              | THRU             | 510             | IN ...    | 730                |
|  | RIGHT            | 371             | OUT ...   | 600                |                              | RIGHT            | 147             | OUT ...   | 1,420              |
| SOUTH BOUND                            | LEFT             | 246             | NORTH LEG |                    | SOUTH BOUND                  | LEFT             | 175             | NORTH LEG |                    |
|  | THRU             | 505             | IN ...    | 790                |                              | THRU             | 1,059           | IN ...    | 1,280              |
|  | RIGHT            | 4               | OUT ...   | 890                |                              | RIGHT            | 13              | OUT ...   | 770                |
| EAST BOUND                             | LEFT             | 3               | WEST LEG  |                    | EAST BOUND                   | LEFT             | 10              | WEST LEG  |                    |
|  | THRU             | 2               | IN ...    | 10                 |                              | THRU             | 4               | IN ...    | 30                 |
|  | RIGHT            | 2               | OUT ...   | 30                 |                              | RIGHT            | 15              | OUT ...   | 60                 |
| WEST BOUND                             | LEFT             | 61              | EAST LEG  |                    | WEST BOUND                   | LEFT             | 313             | EAST LEG  |                    |
|  | THRU             | 1               | IN ...    | 290                |                              | THRU             | 2               | IN ...    | 560                |
|  | RIGHT            | 221             | OUT ...   | 630                |                              | RIGHT            | 229             | OUT ...   | 350                |

| OPENING YEAR (2017) TRAFFIC CONDITIONS |                  |                 |                       |                           |                           |                  |                 |                       |                           |
|--|------------------|-----------------|-----------------------|---------------------------|---------------------------|------------------|-----------------|-----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA           |                  |                 |                       |                           | EVENING PEAK HOUR RESULTS |                  |                 |                       |                           |
| APPROACH                               | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | OPENING YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                            | LEFT             | 24              | 25                    | NORTH LEG                 | NORTH BOUND               | LEFT             | 40              | 44                    | NORTH LEG                 |
|  | THRU             | 657             | 661                   | RATIO 6.9%                |                           | THRU             | 510             | 526                   | RATIO 8.4%                |
|  | RIGHT            | 371             | 374                   | ADT 24,400                |                           | RIGHT            | 147             | 160                   | ADT 24,400                |
| SOUTH BOUND                            | LEFT             | 246             | 253                   | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 175             | 186                   | SOUTH LEG                 |
|  | THRU             | 505             | 533                   | RATIO 6.5%                |                           | THRU             | 1,059           | 1,080                 | RATIO 8.4%                |
|  | RIGHT            | 4               | 4                     | ADT 25,500                |                           | RIGHT            | 13              | 14                    | ADT 25,500                |
| EAST BOUND                             | LEFT             | 3               | 4                     | EAST LEG                  | EAST BOUND                | LEFT             | 10              | 10                    | EAST LEG                  |
|  | THRU             | 2               | 3                     | RATIO 8.6%                |                           | THRU             | 4               | 4                     | RATIO 8.5%                |
|  | RIGHT            | 2               | 3                     | ADT 10,700                |                           | RIGHT            | 15              | 15                    | ADT 10,700                |
| WEST BOUND                             | LEFT             | 61              | 64                    | WEST LEG                  | WEST BOUND                | LEFT             | 313             | 324                   | WEST LEG                  |
|  | THRU             | 1               | 1                     | RATIO 4.0%                |                           | THRU             | 2               | 2                     | RATIO 8.9%                |
|  | RIGHT            | 221             | 225                   | ADT 1,000                 |                           | RIGHT            | 229             | 234                   | ADT 1,000                 |

**Waterman Avenue (NS) at: Vanderbilt Way (EW) - #9**

**FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES**

**NCHRP 255**

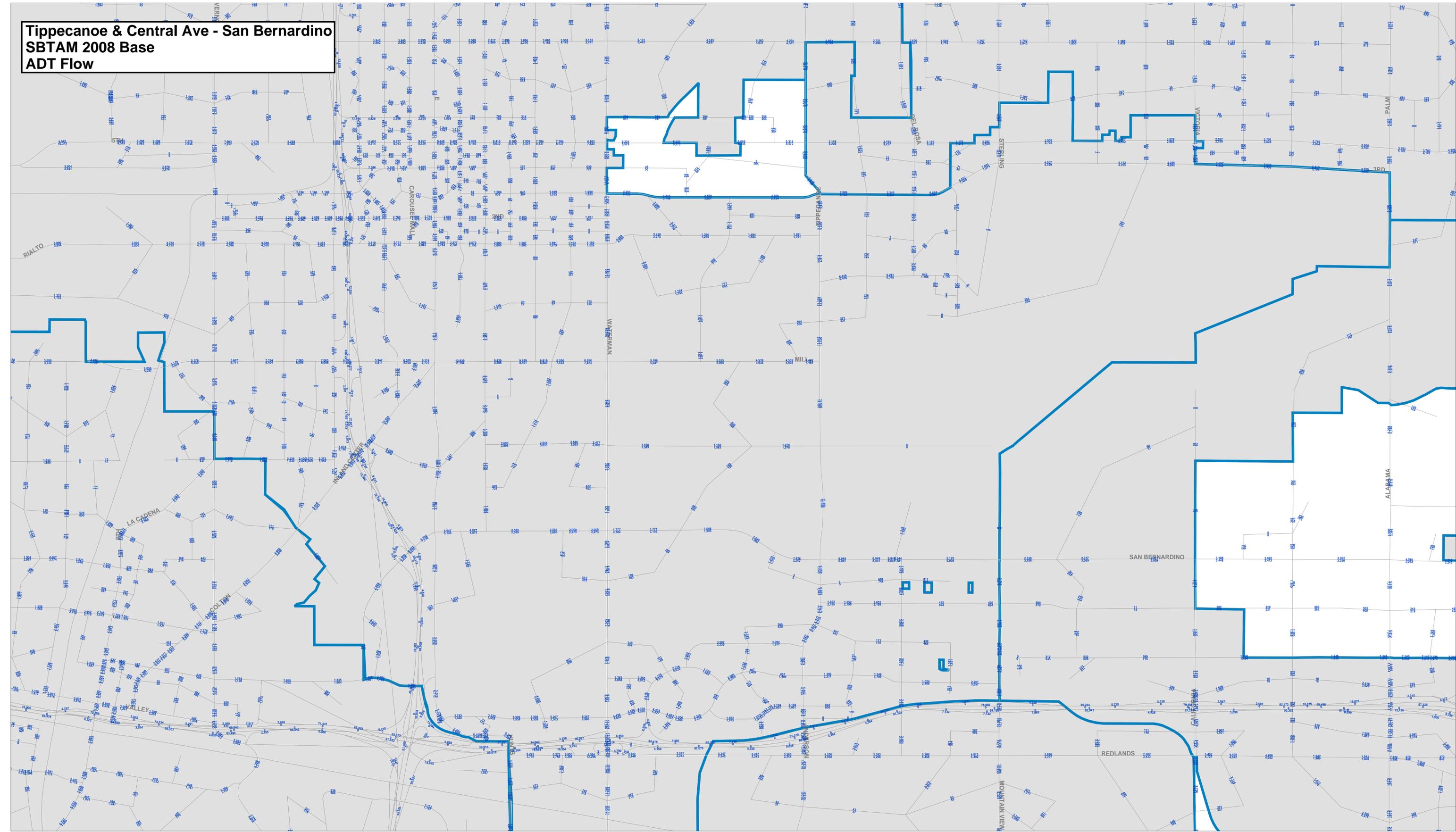
| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |           |                   |                              |                  |                 |           |                   |
|------------------------------|------------------|-----------------|-----------|-------------------|------------------------------|------------------|-----------------|-----------|-------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |           |                   | EVENING PEAK HOUR INPUT DATA |                  |                 |           |                   |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL | APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | APPROACH  | FUTURE YEAR TOTAL |
| NORTH BOUND                  | LEFT             | 24              | SOUTH LEG |                   | NORTH BOUND                  | LEFT             | 40              | SOUTH LEG |                   |
|                              | THRU             | 657             | IN ...    | 1,060             | NORTH BOUND                  | THRU             | 510             | IN ...    | 970               |
|                              | RIGHT            | 371             | OUT ...   | 820               | NORTH BOUND                  | RIGHT            | 147             | OUT ...   | 1,690             |
| SOUTH BOUND                  | LEFT             | 246             | NORTH LEG |                   | SOUTH BOUND                  | LEFT             | 175             | NORTH LEG |                   |
|                              | THRU             | 505             | IN ...    | 1,000             | SOUTH BOUND                  | THRU             | 1,059           | IN ...    | 1,520             |
|                              | RIGHT            | 4               | OUT ...   | 1,010             | SOUTH BOUND                  | RIGHT            | 13              | OUT ...   | 990               |
| EAST BOUND                   | LEFT             | 3               | WEST LEG  |                   | EAST BOUND                   | LEFT             | 10              | WEST LEG  |                   |
|                              | THRU             | 2               | IN ...    | 10                | EAST BOUND                   | THRU             | 4               | IN ...    | 30                |
|                              | RIGHT            | 2               | OUT ...   | 30                | EAST BOUND                   | RIGHT            | 15              | OUT ...   | 70                |
| WEST BOUND                   | LEFT             | 61              | EAST LEG  |                   | WEST BOUND                   | LEFT             | 313             | EAST LEG  |                   |
|                              | THRU             | 1               | IN ...    | 340               | WEST BOUND                   | THRU             | 2               | IN ...    | 700               |
|                              | RIGHT            | 221             | OUT ...   | 750               | WEST BOUND                   | RIGHT            | 229             | OUT ...   | 500               |

| YEAR 2035 TRAFFIC CONDITIONS |                  |                 |                      |                           |                           |                  |                 |                      |                           |
|------------------------------|------------------|-----------------|----------------------|---------------------------|---------------------------|------------------|-----------------|----------------------|---------------------------|
| MORNING PEAK HOUR INPUT DATA |                  |                 |                      |                           | EVENING PEAK HOUR RESULTS |                  |                 |                      |                           |
| APPROACH                     | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP | APPROACH                  | TURNING MOVEMENT | BASE YEAR COUNT | FUTURE YEAR FORECAST | PEAK - DAILY RELATIONSHIP |
| NORTH BOUND                  | LEFT             | 24              | 27                   | NORTH LEG                 | NORTH BOUND               | LEFT             | 40              | 52                   | NORTH LEG                 |
|                              | THRU             | 657             | 720                  | RATIO 7.4%                | NORTH BOUND               | THRU             | 510             | 685                  | RATIO 9.0%                |
|                              | RIGHT            | 371             | 404                  | ADT 28,100                | NORTH BOUND               | RIGHT            | 147             | 242                  | ADT 28,100                |
| SOUTH BOUND                  | LEFT             | 246             | 343                  | SOUTH LEG                 | SOUTH BOUND               | LEFT             | 175             | 253                  | SOUTH LEG                 |
|                              | THRU             | 505             | 735                  | RATIO 6.5%                | SOUTH BOUND               | THRU             | 1,059           | 1,266                | RATIO 8.9%                |
|                              | RIGHT            | 4               | 5                    | ADT 30,100                | SOUTH BOUND               | RIGHT            | 13              | 15                   | ADT 30,100                |
| EAST BOUND                   | LEFT             | 3               | 5                    | EAST LEG                  | EAST BOUND                | LEFT             | 10              | 10                   | EAST LEG                  |
|                              | THRU             | 2               | 3                    | RATIO 8.5%                | EAST BOUND                | THRU             | 4               | 5                    | RATIO 9.1%                |
|                              | RIGHT            | 2               | 3                    | ADT 13,200                | EAST BOUND                | RIGHT            | 15              | 15                   | ADT 13,200                |
| WEST BOUND                   | LEFT             | 61              | 82                   | WEST LEG                  | WEST BOUND                | LEFT             | 313             | 409                  | WEST LEG                  |
|                              | THRU             | 1               | 1                    | RATIO 4.0%                | WEST BOUND                | THRU             | 2               | 3                    | RATIO 9.1%                |
|                              | RIGHT            | 221             | 285                  | ADT 1,100                 | WEST BOUND                | RIGHT            | 229             | 295                  | ADT 1,100                 |

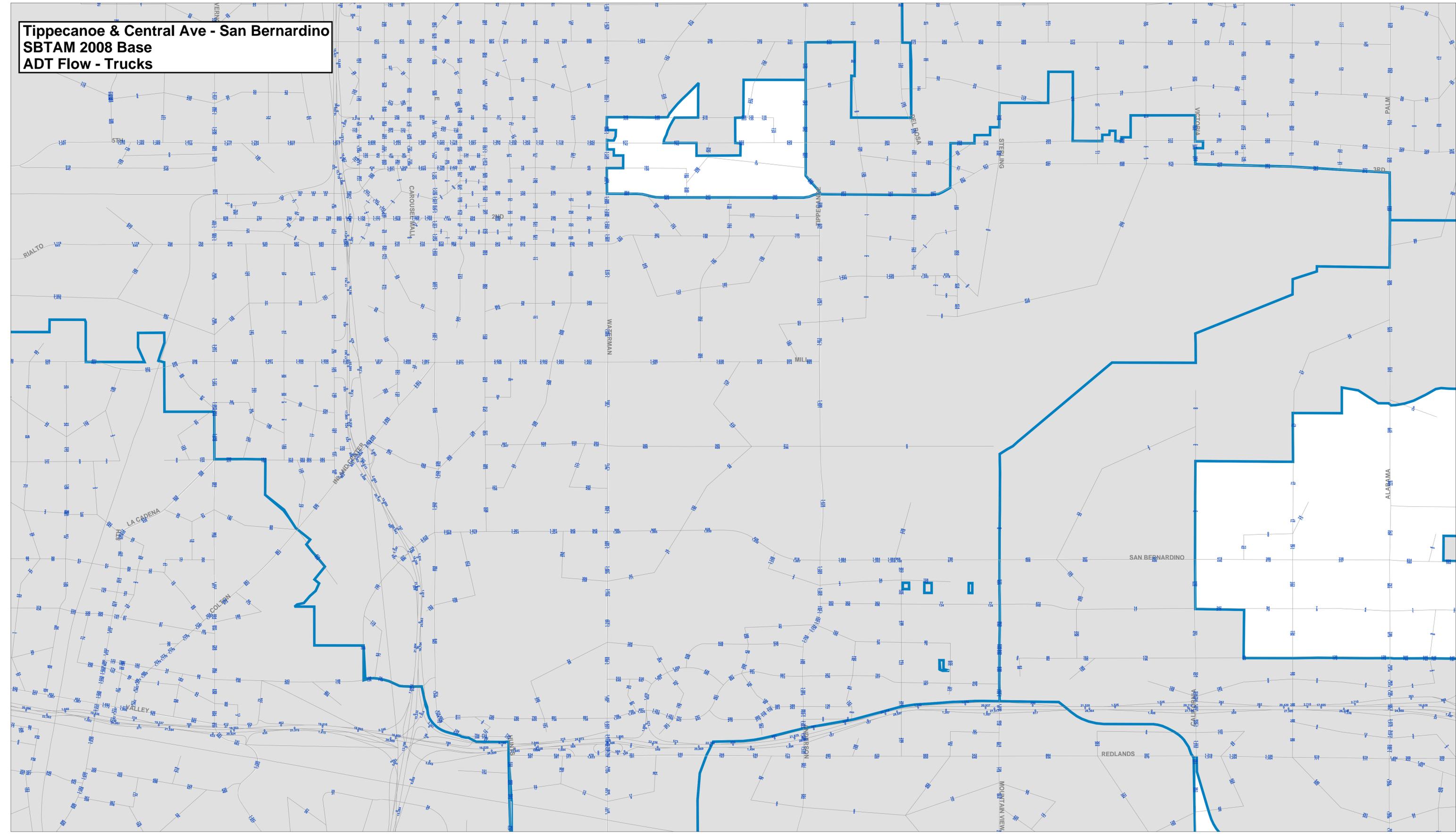
**APPENDIX E**

**Traffic Model Plots**

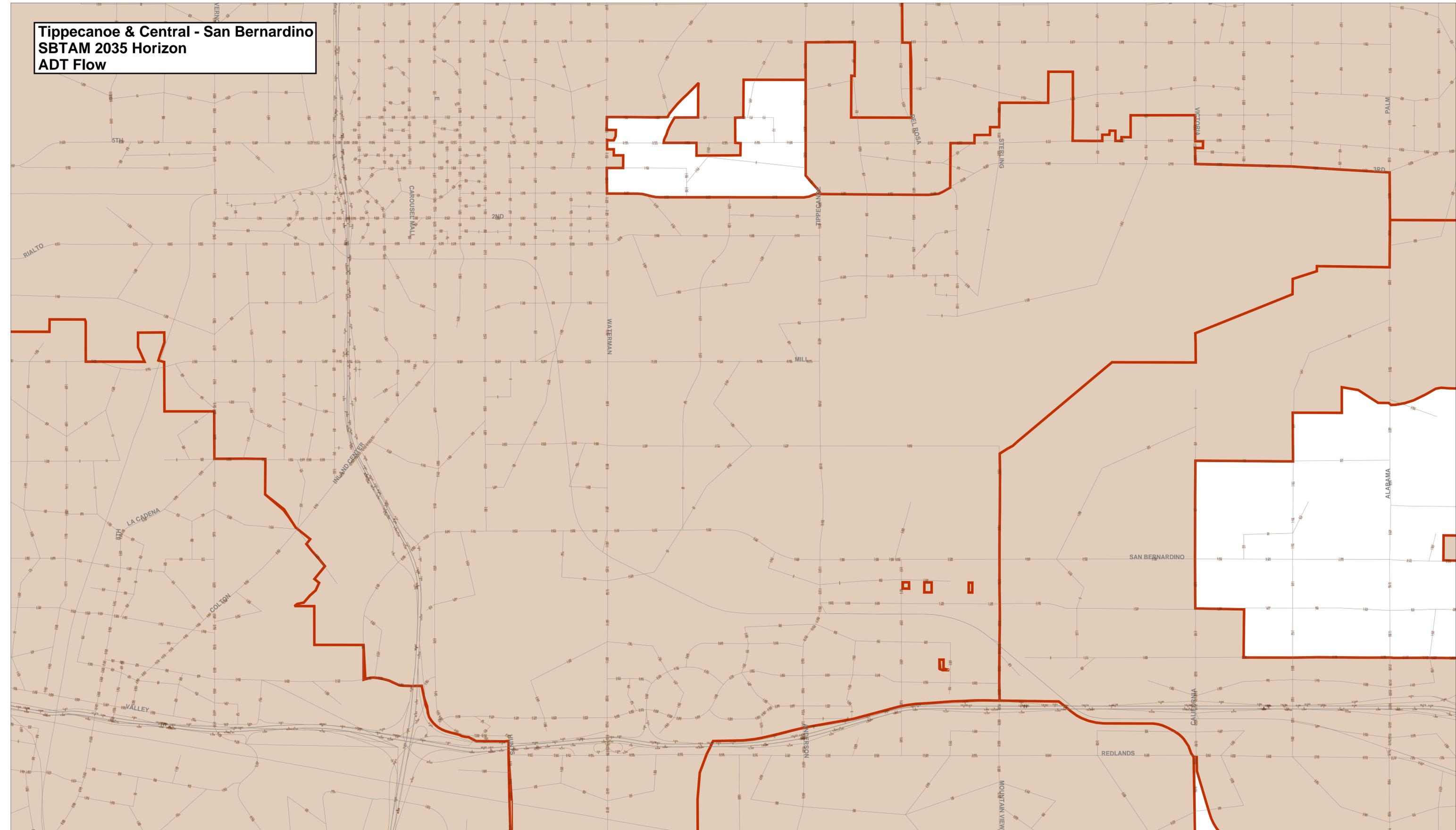
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**ADT Flow**



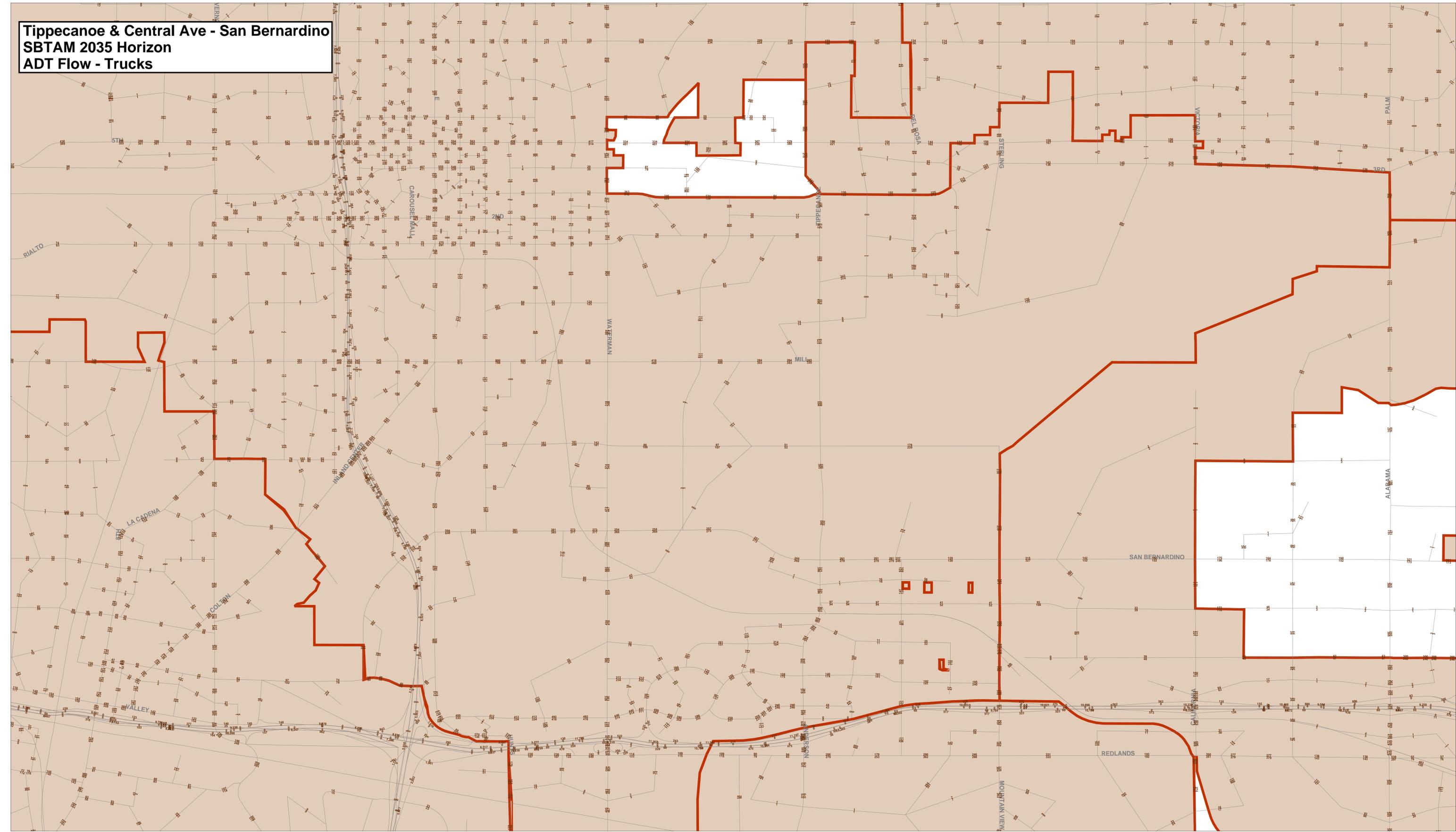
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**ADT Flow - Trucks**



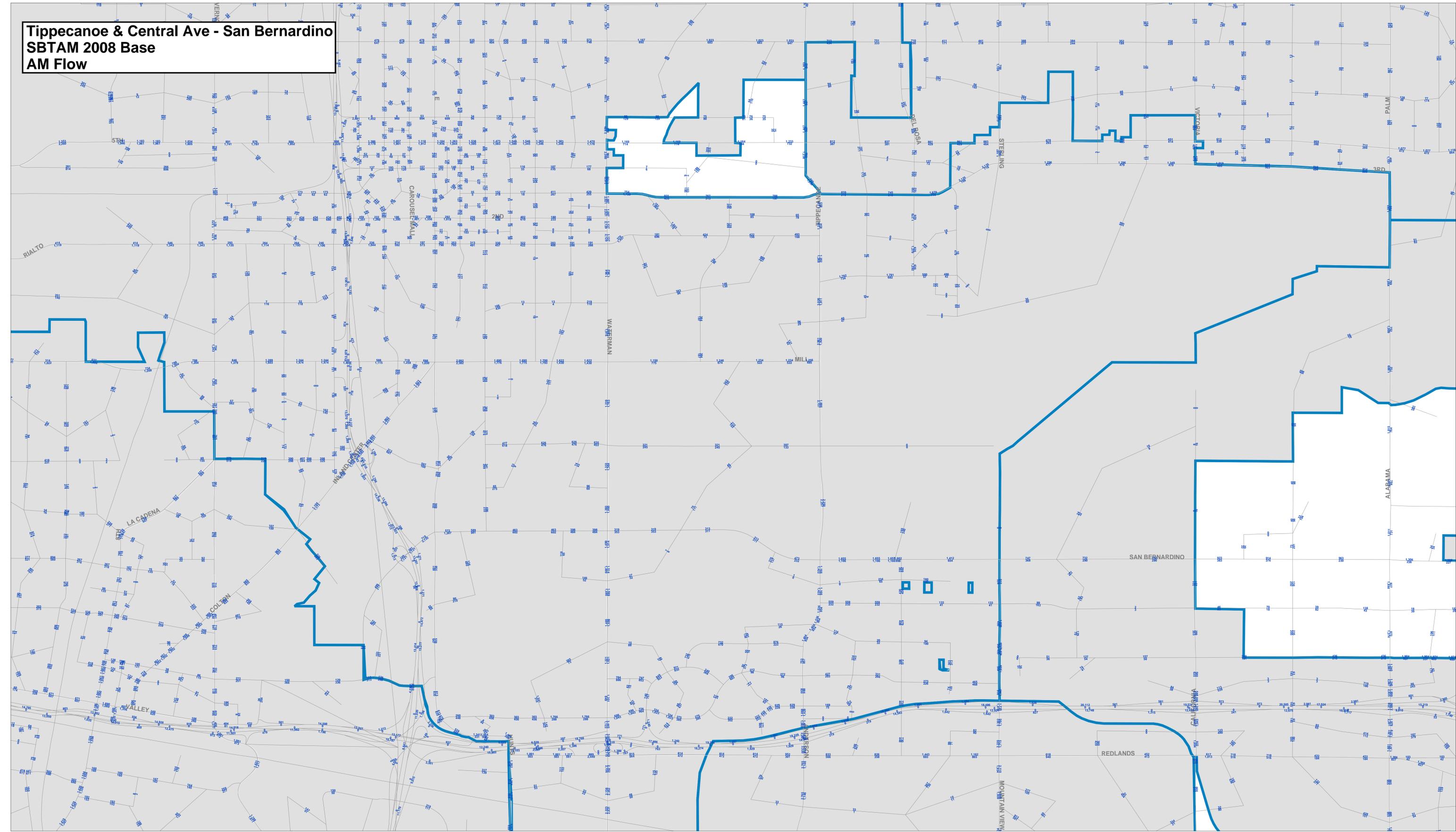
**Tippecanoe & Central - San Bernardino**  
**SBTAM 2035 Horizon**  
**ADT Flow**



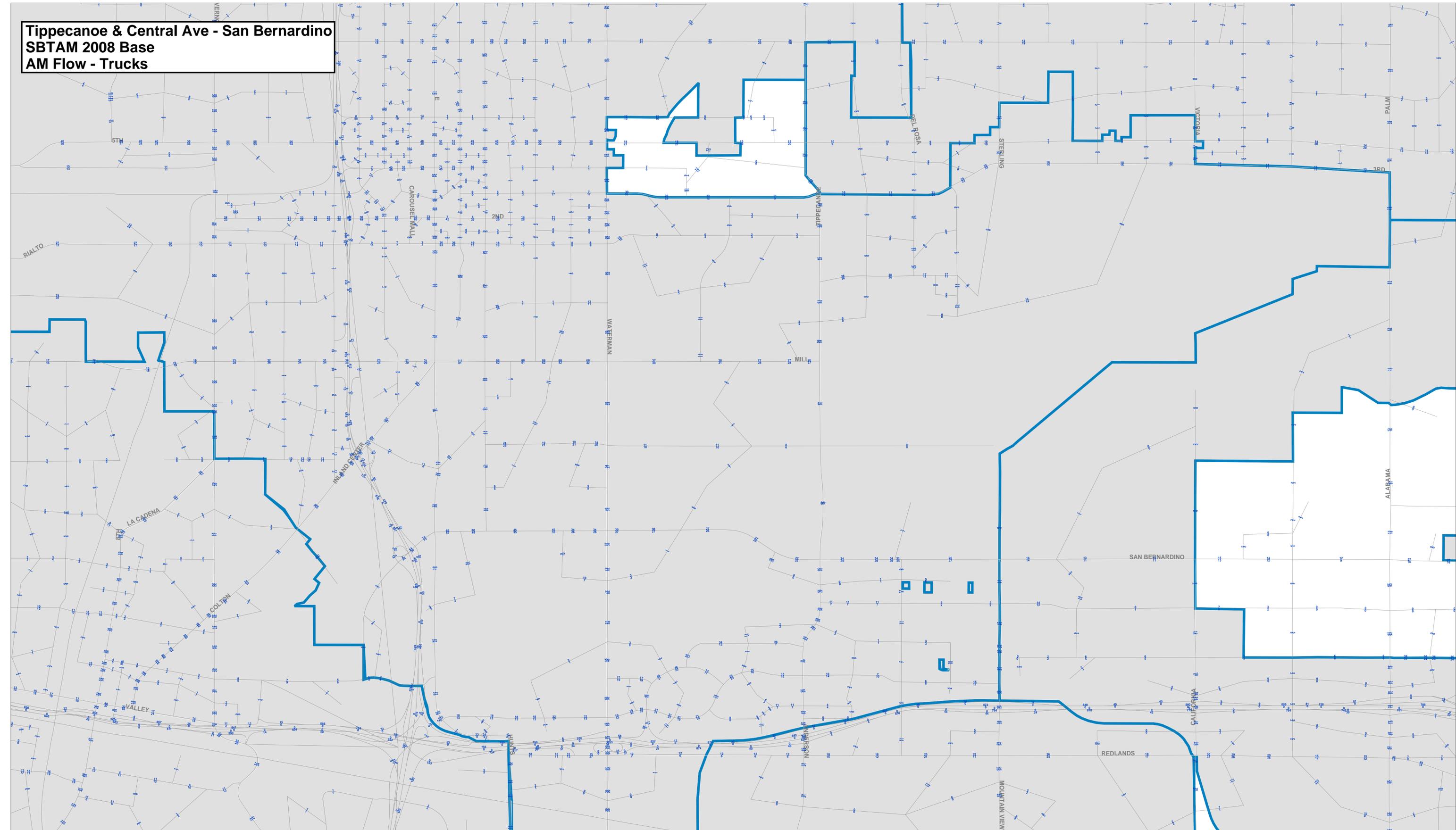
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**ADT Flow - Trucks**



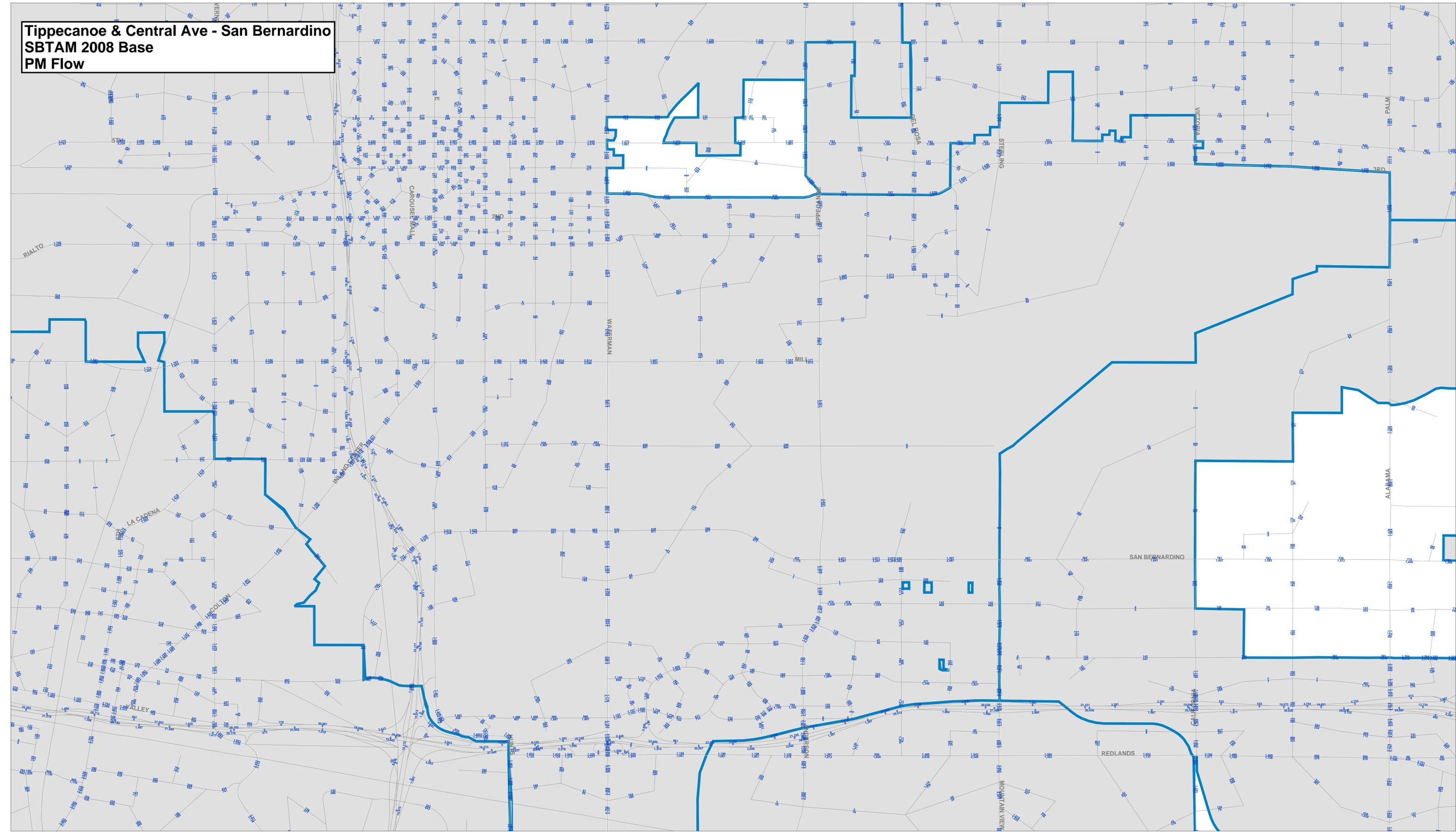
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**AM Flow**



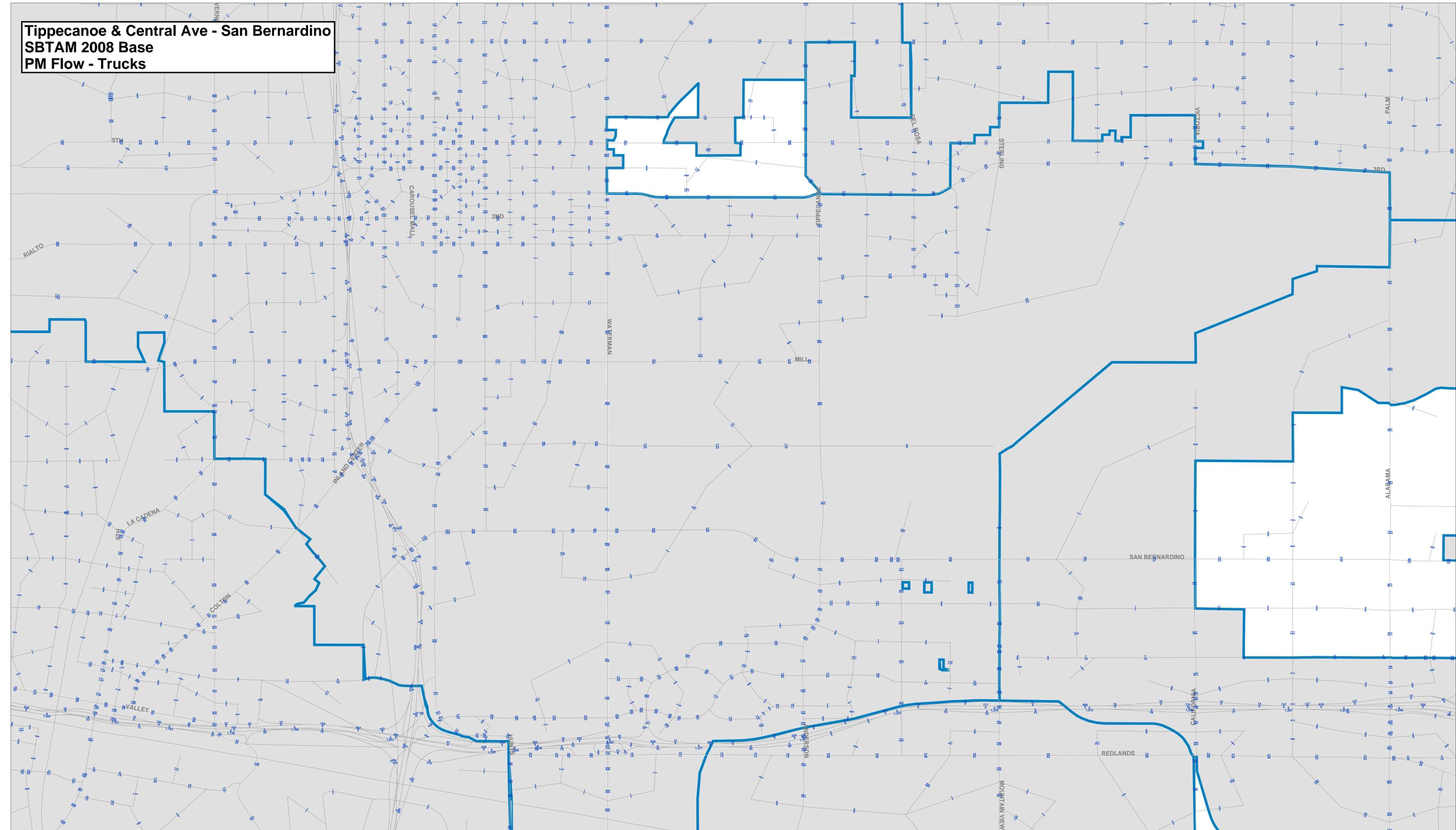
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**AM Flow - Trucks**



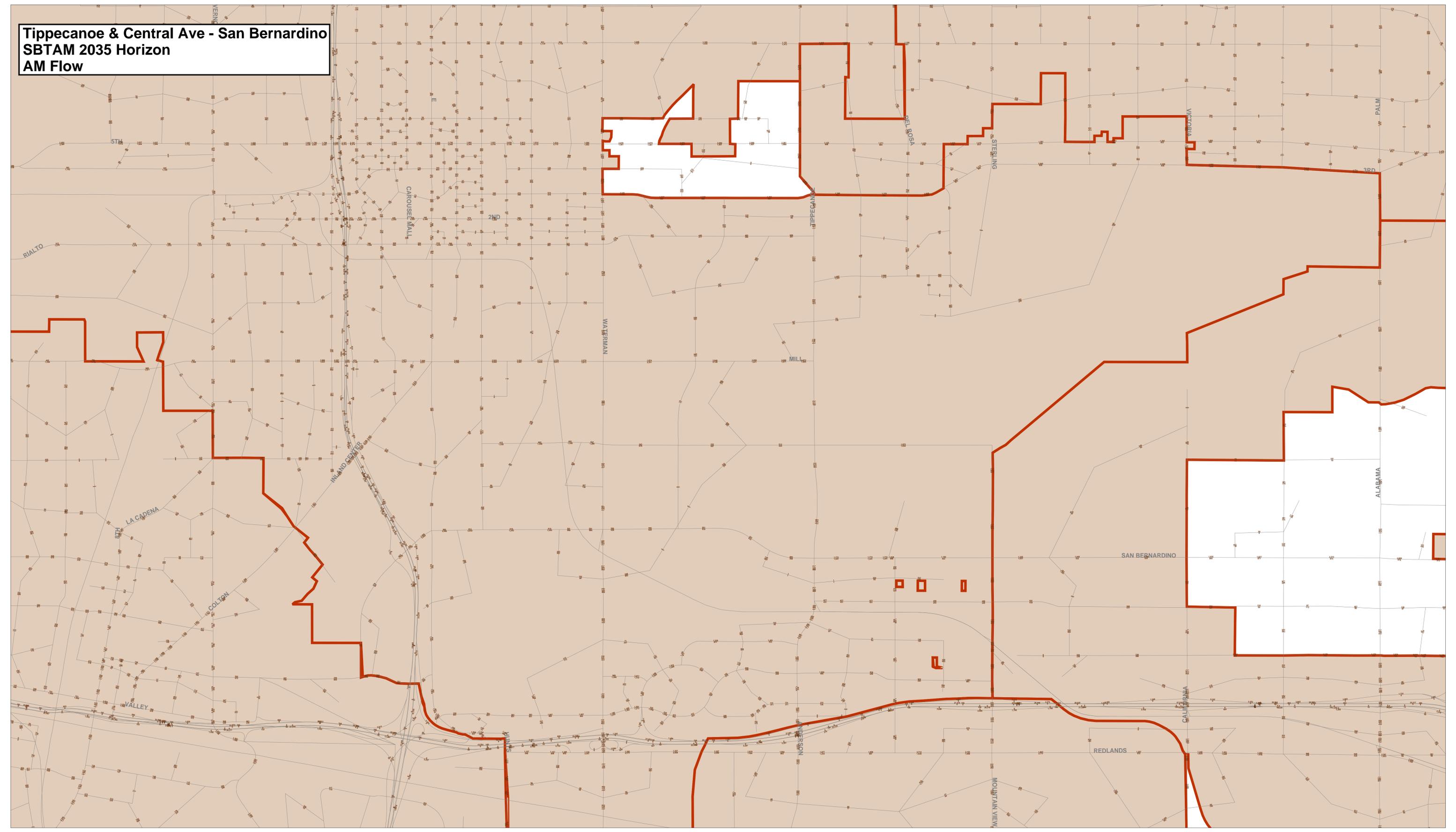
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**PM Flow**



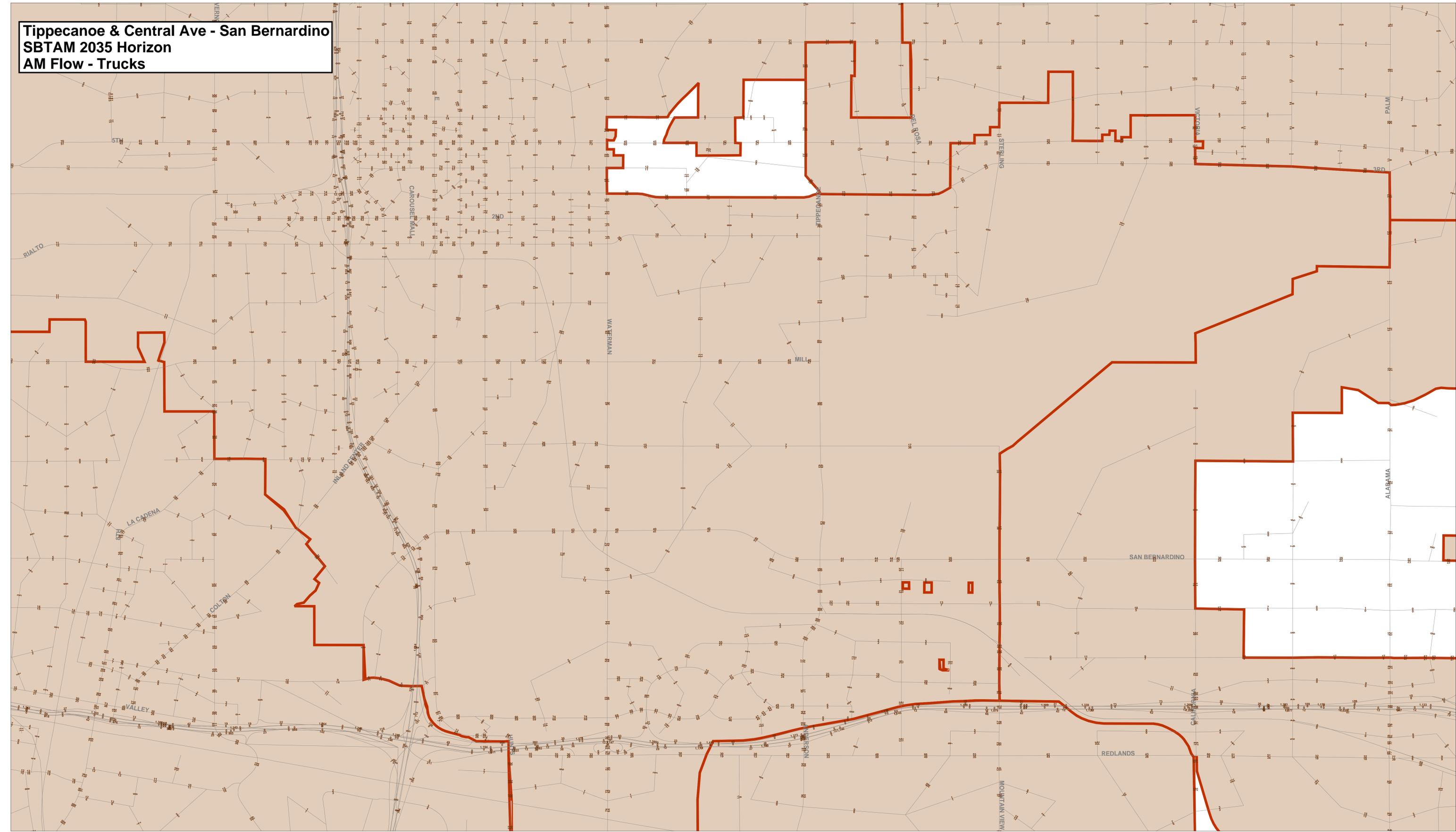
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2008 Base**  
**PM Flow - Trucks**



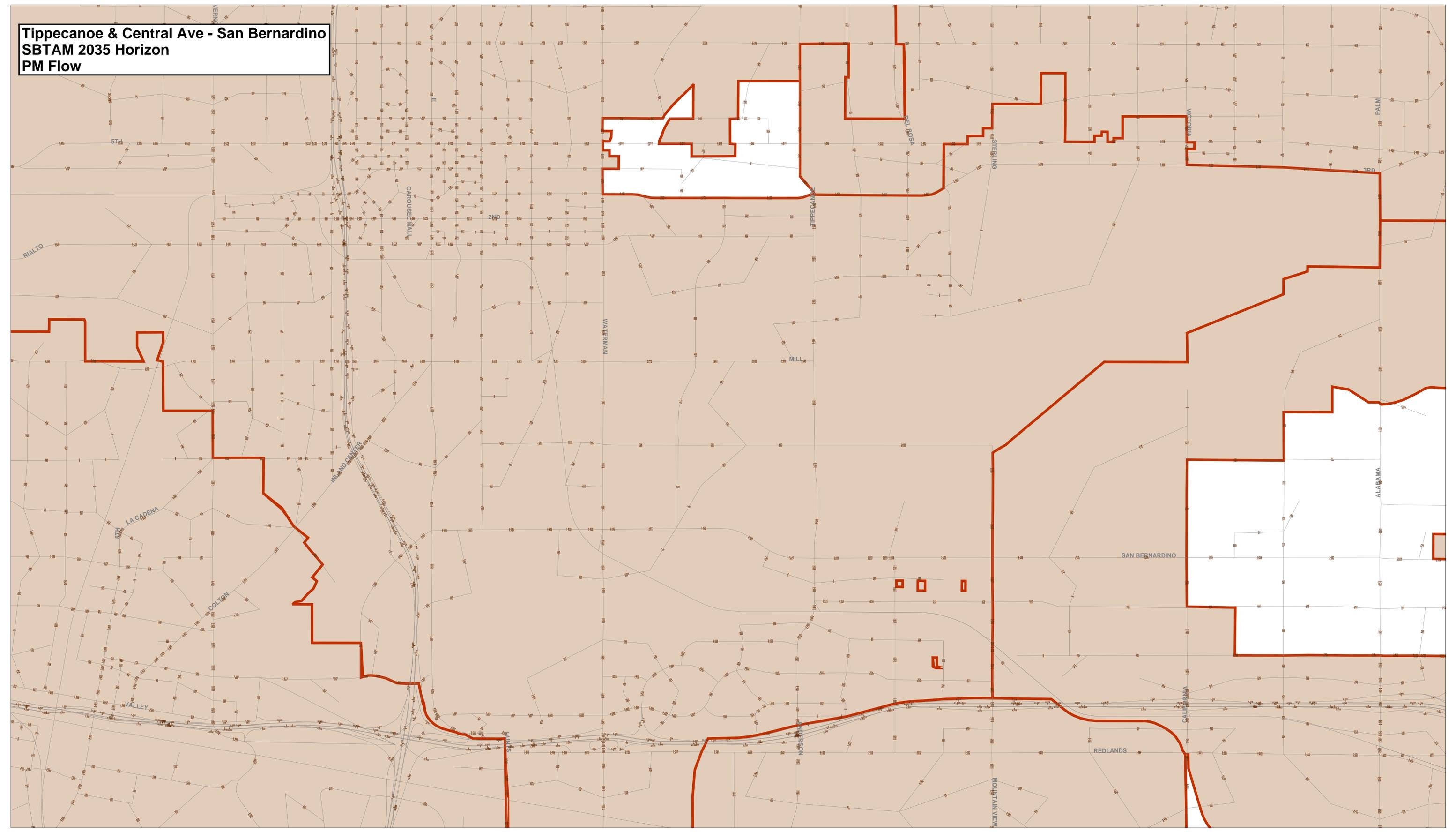
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**AM Flow**



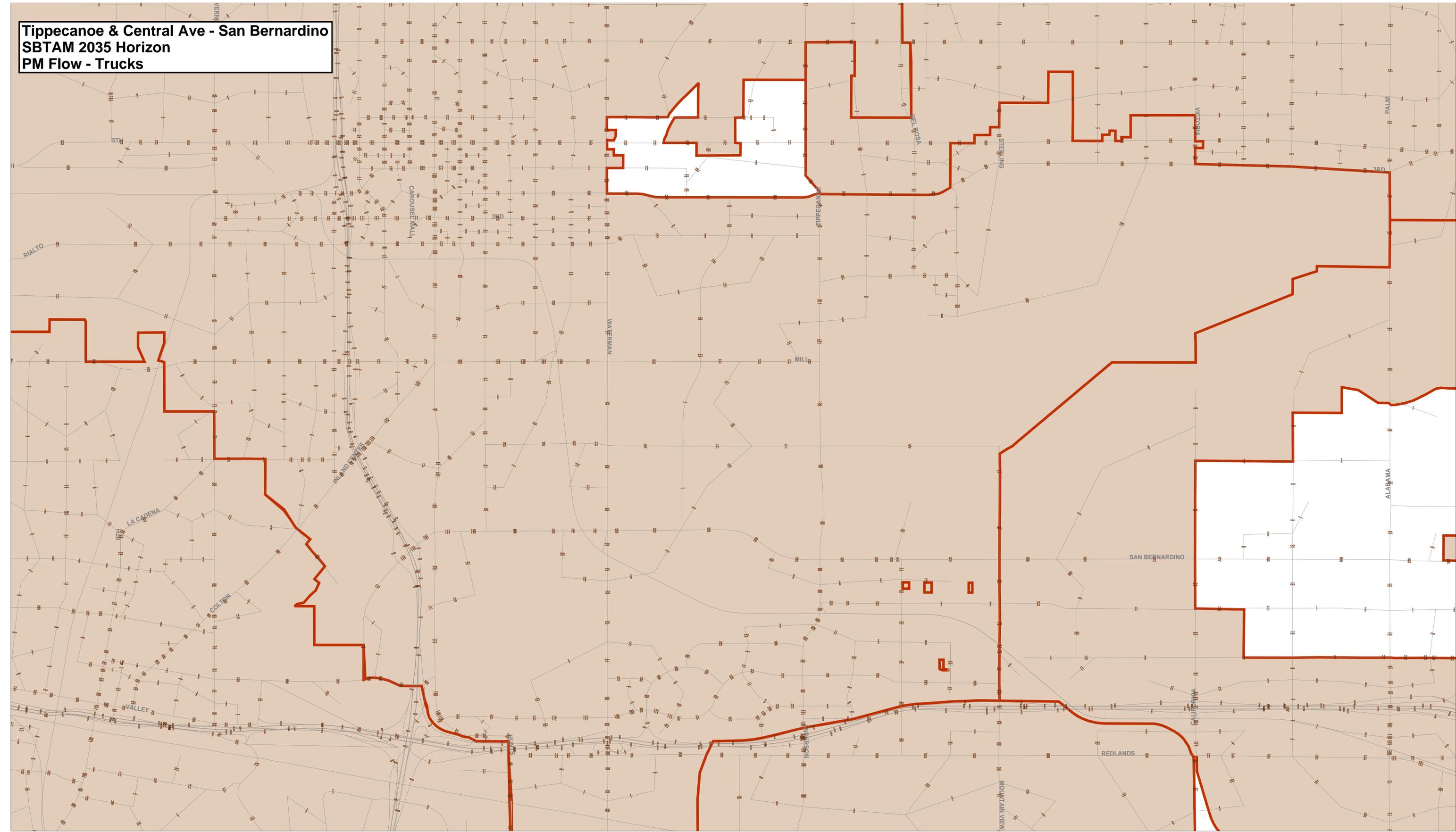
**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**AM Flow - Trucks**



**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**PM Flow**



**Tippecanoe & Central Ave - San Bernardino**  
**SBTAM 2035 Horizon**  
**PM Flow - Trucks**



**APPENDIX F**

**Explanation and Calculation of Intersection Delay**

## **EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY**

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)
9. Right turns
10. Left turns

11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

## LEVEL OF SERVICE DESCRIPTION<sup>1</sup>

| Level Of Service | Description  | Average Total Delay Per Vehicle (Seconds) |                |
|------------------|--|---|----------------|
|                  |  | Signalized                                | Unsignalized   |
| A                | Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.   | 0 to 10.00                                | 0 to 10.00     |
| B                | Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.  | 10.01 to 20.00                            | 10.01 to 15.00 |
| C                | Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.  | 20.01 to 35.00                            | 15.01 to 25.00 |
| D                | Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.   | 35.01 to 55.00                            | 25.01 to 35.00 |
| E                | Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.   | 55.01 to 80.00                            | 35.01 to 50.00 |
| F                | Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. | 80.01 and up                              | 50.01 and up   |

<sup>1</sup> Source: [Highway Capacity Manual](#) Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2000.

**Existing**

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 115 Critical Vol./Cap.(X): 0.377
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns for each (L, T, R). Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns for traffic volumes and adjustment factors (Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume).

Saturation Flow Module: Table with 12 columns for saturation flow values and adjustment factors (Sat/Lane, Adjustment, Lanes, Final Sat.).

Capacity Analysis Module: Table with 12 columns for capacity analysis metrics (Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ).

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.557
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 36.6
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.677

Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.2

Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat., etc.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, etc.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.759
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.9
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.443
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.1
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns for traffic volumes and adjustment factors like Base Vol, Growth Adj, PHF Adj, etc.

Saturation Flow Module: Table with 12 columns for saturation flow rates and adjustment factors like Sat/Lane, Adjustment, etc.

Capacity Analysis Module: Table with 12 columns for capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 95 Critical Vol./Cap.(X): 0.694
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 31.9
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns for each (L, T, R). Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 12 columns for different volume types (Base Vol, Growth Adj, etc.) and 4 rows of data.

Saturation Flow Module table with 12 columns for saturation flow values and 4 rows of data.

Capacity Analysis Module table with 12 columns for capacity analysis metrics (Vol/Sat, Crit Moves, etc.) and 10 rows of data.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C [ 15.6]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 12 columns representing traffic volumes. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Table with 12 columns representing critical gap and follow-up times. Rows include Critical Gap and FollowUpTim.

Table with 12 columns representing capacity. Rows include Cnflct Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Table with 12 columns representing level of service. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: D [ 27.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 12 columns representing traffic volumes. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Table with 12 columns representing critical gap and follow-up times. Rows include Critical Gap and FollowUpTim.

Table with 12 columns representing capacity and conflict volumes. Rows include Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with 12 columns representing level of service and delay. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B [ 14.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 12 columns representing traffic volumes and adjustments for different directions.

Critical Gap Module table with 12 columns showing critical gap and follow-up time values.

Capacity Module table with 12 columns showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module table with 12 columns showing delay, LOS by movement, and shared queue/LOS values.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[ 14.1]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 12 columns representing traffic volumes. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Table with 12 columns representing critical gap and follow-up times. Rows include Critical Gap and FollowUpTime.

Table with 12 columns representing capacity and conflict volumes. Rows include Conflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Table with 12 columns representing level of service and delay. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.763
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns for each (L, T, R). Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume adjustment factors (Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume) and 4 columns for approaches (L, T, R).

Saturation Flow Module:

Table with 13 columns for saturation flow factors (Sat/Lane, Adjustment, Lanes, Final Sat.) and 4 columns for approaches (L, T, R).

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors (Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ) and 4 columns for approaches (L, T, R).

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit, Permitted), Rights (Include), Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.577
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.0
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module: Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module: Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.434
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 18.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of adjustment factors like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 12 columns and 4 rows showing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 12 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, etc.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

**Existing Plus Project**

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 115 Critical Vol./Cap.(X): 0.385
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.561
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 36.8
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.681
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.4
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.761
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.1
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Permitted, Prot+Permit), Rights (Include), Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different traffic volumes and adjustments like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times for different movements.

Capacity Module: Table with 13 columns showing conflict volumes, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 13 columns showing delay, LOS, and approach delay for different movements.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: A[ 8.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 10 rows of volume-related metrics.

Critical Gap Module table with 13 columns and 2 rows showing critical gap and follow-up time.

Capacity Module table with 13 columns and 4 rows showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module table with 13 columns and 10 rows showing delay, LOS, and shared queue information.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 4 columns showing critical gap and follow-up time values.

Capacity Module: Table with 4 columns showing conflict volume, potential capacity, move capacity, and volume/capacity.

Level of Service Module: Table with 4 columns showing 2Way95thQ, Control Del, LOS by Move, and ApproachDel/ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Table with 13 columns representing traffic volumes. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Table with 13 columns. Rows include Critical Gap Module and FollowUpTim.

Table with 13 columns. Rows include Capacity Module and Volume/Cap.

Table with 13 columns. Rows include Level Of Service Module, 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap, SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.444
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.2
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic components and 13 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module:

Table with 13 columns and 4 rows of saturation flow data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns and 10 rows of capacity analysis data including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.702
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[ 15.0]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control, Rights, Lanes.

Volume Module: Table with 12 columns and 12 rows showing traffic volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns and 2 rows showing critical gap and follow-up time values.

Capacity Module: Table with 12 columns and 5 rows showing capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module: Table with 12 columns and 8 rows showing level of service metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[ 22.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up times for different movements.

Capacity Module: Table with 12 columns showing capacity-related metrics like Cnflict Vol, Potent Cap, Move Cap, etc.

Level of Service Module: Table with 12 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: E[ 46.3]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module table with 13 columns representing different traffic movements and 10 rows of volume data including Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module table with 13 columns and 3 rows showing Critical Gp, FollowUpTim, and other gap-related metrics.

Capacity Module table with 13 columns and 5 rows showing Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module table with 13 columns and 10 rows showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour With Improvements

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*
Cycle (sec): 80 Critical Vol./Cap.(X): 0.316
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.1
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 0 711 27 77 749 0 0 0 0 1 0 6
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 711 27 77 749 0 0 0 0 1 0 6
Added Vol: 14 7 0 0 3 19 11 0 5 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 718 27 77 752 19 11 0 5 1 0 6
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
PHF Volume: 16 836 31 90 876 22 13 0 6 1 0 7
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 836 31 90 876 22 13 0 6 1 0 7
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 16 836 31 90 876 22 13 0 6 1 0 7

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00
Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1700 3600 1800 1700 3600 1800 1700 0 1800 1700 0 1800

Capacity Analysis Module:
Vol/Sat: 0.01 0.23 0.02 0.05 0.24 0.01 0.01 0.00 0.00 0.00 0.00 0.00
Crit Moves: \*\*\*\*
Green/Cycle: 0.16 0.55 0.55 0.13 0.51 0.51 0.25 0.00 0.25 0.25 0.00 0.25
Volume/Cap: 0.06 0.42 0.03 0.42 0.48 0.02 0.03 0.00 0.01 0.00 0.00 0.02
Delay/Veh: 28.3 10.7 8.3 33.7 12.9 9.7 22.7 0.0 22.6 22.5 0.0 22.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 28.3 10.7 8.3 33.7 12.9 9.7 22.7 0.0 22.6 22.5 0.0 22.6
LOS by Move: C B A C B A C A C C A C
HCM2kAvgQ: 0 6 0 3 7 0 0 0 0 0 0 0

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: F[ 83.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns representing gap metrics like Critical Gp, FollowUpTim.

Capacity Module: Table with 12 columns representing capacity metrics like Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Level of Service Module: Table with 12 columns representing LOS metrics like 2Way95thQ, Control Del, LOS by Move, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour With Improvements

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 125 Critical Vol./Cap.(X): 0.406
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.2
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume) and 12 columns of values.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat., and 12 columns of values.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ, and 12 columns of values.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns (L, T, R) for Movement, Control, Rights, and Min. Green. Includes lane counts and control types like Prot+Permit and Permitted.

Volume Module:

Table showing traffic volume adjustments: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table showing saturation flow parameters: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table showing capacity analysis metrics: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.577
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.0
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.437
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 18.6
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat., etc.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

**Existing Plus Ambient Growth**

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.388
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic metrics and 13 rows for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow metrics and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis metrics and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

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Note: Queue reported is the number of cars per lane.

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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #1 E Street (NS) at Orange Show Road (EW)
\*\*\*\*\*
Cycle (sec): 110 Critical Vol./Cap.(X): 0.567
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 37.1
Optimal Cycle: OPTIMIZED Level Of Service: D
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)
\*\*\*\*\*
Cycle (sec): 130 Critical Vol./Cap.(X): 0.682
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.3
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 6 3 2 6 0 10 34 850 23 7 380 11
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 6 3 2 6 0 10 34 850 23 7 380 11
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 6 3 2 6 0 10 34 850 23 7 380 11
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89
PHF Volume: 7 3 2 7 0 11 38 957 26 8 428 12
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 7 3 2 7 0 11 38 957 26 8 428 12
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 7 3 2 7 0 11 38 957 26 8 428 12

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00
Lanes: 0.68 0.32 1.00 1.00 0.00 1.00 1.00 2.00 1.00 1.00 2.00 1.00
Final Sat.: 1155 577 1800 1700 0 1800 1700 3600 1800 1700 3600 1800

Capacity Analysis Module:
Vol/Sat: 0.01 0.01 0.00 0.00 0.00 0.01 0.00 0.27 0.01 0.00 0.12 0.01
Crit Moves: \*\*\*\*
Green/Cycle: 0.15 0.15 0.15 0.15 0.00 0.15 0.20 0.72 0.72 0.08 0.60 0.60
Volume/Cap: 0.04 0.04 0.01 0.03 0.00 0.04 0.11 0.37 0.02 0.06 0.20 0.01
Delay/Veh: 46.9 46.9 46.6 46.8 0.0 46.9 42.7 6.9 5.1 55.8 11.8 10.5
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 46.9 46.9 46.6 46.8 0.0 46.9 42.7 6.9 5.1 55.8 11.8 10.5
LOS by Move: D D D D A D D A A E B B
HCM2kAvgQ: 0 0 0 0 0 0 1 7 0 0 4 0

Note: Queue reported is the number of cars per lane.
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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.762
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.2
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Table with 13 columns for Volume Module. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Table with 13 columns for Saturation Flow Module. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Table with 13 columns for Capacity Analysis Module. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #5 Waterman Street (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.452
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.3
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #5 Waterman Street (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.706
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.7
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #6 Waterman Street (NS) at Dumas Street (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C [ 16.1]
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns for Critical Gp and FollowUpTim.

Capacity Module: Table with 13 columns for Cnflct Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module: Table with 13 columns for 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #6 Waterman Street (NS) at Dumas Street (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: D[ 29.4]
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (1 0 2 0 0, 0 0 2 0 1, 0 0 1! 0 0, 0 0 0 0 0)

Volume Module: Table with 12 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume

Critical Gap Module: Table with 12 columns and 2 rows including Critical Gp, FollowUpTim

Capacity Module: Table with 12 columns and 4 rows including Cnflict Vol, Potent Cap., Move Cap., Volume/Cap.

Level Of Service Module: Table with 12 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[ 14.0]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module: Table with 13 columns showing critical gap and follow-up times for different approaches.

Capacity Module: Table with 13 columns showing capacity metrics like Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center  
 Existing Plus Ambient Growth  
 Morning Peak Hour With Improvements

Level Of Service Computation Report  
 2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
 Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)  
 \*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.309  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 9.1  
 Optimal Cycle: OPTIMIZED Level Of Service: A  
 \*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 1  | 0          | 0  | 1  | 0          | 0  | 1  |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 721  | 27   | 78   | 779  | 0    | 0    | 0    | 0    | 1    | 0    | 9    |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0    | 721  | 27   | 78   | 779  | 0    | 0    | 0    | 0    | 1    | 0    | 9    |
| Added Vol:   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 0    | 721  | 27   | 78   | 779  | 0    | 0    | 0    | 0    | 1    | 0    | 9    |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| PHF Volume:  | 0    | 840  | 31   | 91   | 907  | 0    | 0    | 0    | 0    | 1    | 0    | 10   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 0    | 840  | 31   | 91   | 907  | 0    | 0    | 0    | 0    | 1    | 0    | 10   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0    | 840  | 31   | 91   | 907  | 0    | 0    | 0    | 0    | 1    | 0    | 10   |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Adjustment: | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 |
| Lanes:      | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 1700 | 3600 | 1800 | 1700 | 3600 | 1800 | 0    | 1800 | 0    | 1700 | 0    | 1800 |

Capacity Analysis Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:     | 0.00 | 0.23 | 0.02 | 0.05 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Crit Moves:  | **** |      |      | **** |      |      |      |      |      | **** |      |      |
| Green/Cycle: | 0.00 | 0.62 | 0.62 | 0.14 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.18 |
| Volume/Cap:  | 0.00 | 0.38 | 0.03 | 0.38 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| Delay/Veh:   | 0.0  | 10.4 | 8.0  | 43.7 | 4.2  | 0.0  | 0.0  | 0.0  | 0.0  | 36.8 | 0.0  | 37.1 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:  | 0.0  | 10.4 | 8.0  | 43.7 | 4.2  | 0.0  | 0.0  | 0.0  | 0.0  | 36.8 | 0.0  | 37.1 |
| LOS by Move: | A    | B    | A    | D    | A    | A    | A    | A    | A    | D    | A    | D    |
| HCM2kAvgQ:   | 0    | 7    | 0    | 3    | 5    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |

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 Note: Queue reported is the number of cars per lane.  
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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[ 14.8]
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 4 columns for approaches.

Critical Gap Module: Table with 12 columns for critical gap and follow-up time for each approach.

Capacity Module: Table with 12 columns for capacity components (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 columns for approaches.

Level Of Service Module: Table with 12 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 columns for approaches.

Note: Queue reported is the number of cars per lane.
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 Waterman Industrial Center  
 Existing Plus Ambient Growth  
 Evening Peak Hour With Improvements  
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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

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Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.283  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 7.3  
 Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 1  | 0          | 0  | 1  | 0          | 0  | 1  |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 0           | 748  | 2    | 9           | 1182 | 0    | 0          | 0    | 0    | 9          | 0    | 66   |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 0           | 748  | 2    | 9           | 1182 | 0    | 0          | 0    | 0    | 9          | 0    | 66   |
| Added Vol:     | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 0           | 748  | 2    | 9           | 1182 | 0    | 0          | 0    | 0    | 9          | 0    | 66   |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 0.93        | 0.93 | 0.93 | 0.93        | 0.93 | 0.93 | 0.93       | 0.93 | 0.93 | 0.93       | 0.93 | 0.93 |
| PHF Volume:    | 0           | 801  | 2    | 10          | 1265 | 0    | 0          | 0    | 0    | 10         | 0    | 71   |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 0           | 801  | 2    | 10          | 1265 | 0    | 0          | 0    | 0    | 10         | 0    | 71   |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:   | 0           | 801  | 2    | 10          | 1265 | 0    | 0          | 0    | 0    | 10         | 0    | 71   |

| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1800        | 1800 | 1800 | 1800        | 1800 | 1800 | 1800       | 1800 | 1800 | 1800       | 1800 | 1800 |
| Adjustment:             | 0.94        | 1.00 | 1.00 | 0.94        | 1.00 | 1.00 | 0.94       | 1.00 | 1.00 | 0.94       | 1.00 | 1.00 |
| Lanes:                  | 1.00        | 2.00 | 1.00 | 1.00        | 2.00 | 1.00 | 0.00       | 1.00 | 0.00 | 1.00       | 0.00 | 1.00 |
| Final Sat.:             | 1700        | 3600 | 1800 | 1700        | 3600 | 1800 | 0          | 1800 | 0    | 1700       | 0    | 1800 |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.00        | 0.22 | 0.00 | 0.01        | 0.35 | 0.00 | 0.00       | 0.00 | 0.00 | 0.01       | 0.00 | 0.04 |
| Crit Moves:               | ****        |      |      | ****        |      |      |            |      |      | ****       |      |      |
| Green/Cycle:              | 0.00        | 0.67 | 0.67 | 0.09        | 0.76 | 0.00 | 0.00       | 0.00 | 0.00 | 0.18       | 0.00 | 0.18 |
| Volume/Cap:               | 0.00        | 0.33 | 0.00 | 0.06        | 0.46 | 0.00 | 0.00       | 0.00 | 0.00 | 0.03       | 0.00 | 0.22 |
| Delay/Veh:                | 0.0         | 7.7  | 5.9  | 45.9        | 4.9  | 0.0  | 0.0        | 0.0  | 0.0  | 37.1       | 0.0  | 38.7 |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 0.0         | 7.7  | 5.9  | 45.9        | 4.9  | 0.0  | 0.0        | 0.0  | 0.0  | 37.1       | 0.0  | 38.7 |
| LOS by Move:              | A           | A    | A    | D           | A    | A    | A          | A    | A    | D          | A    | D    |
| HCM2kAvgQ:                | 0           | 6    | 0    | 0           | 8    | 0    | 0          | 0    | 0    | 0          | 0    | 2    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

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Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.7
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module: Table showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)
\*\*\*\*\*

Cycle (sec): 95 Critical Vol./Cap.(X): 0.978
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.8
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 13 columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 13 columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)
\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.587
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.2
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module: Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Existing Plus Ambient Growth (2017)
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)
\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.450
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.0
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

**Opening Year (2017) Without Project**

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.411
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.8
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #1 E Street (NS) at Orange Show Road (EW)
\*\*\*\*\*
Cycle (sec): 115 Critical Vol./Cap.(X): 0.582
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 38.4
Optimal Cycle: OPTIMIZED Level Of Service: D
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different traffic movements and 13 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Saturation Flow Module: Table with 13 columns and 5 rows showing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 13 columns and 10 rows showing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.700
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.3
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns for each (L, T, R). Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for different volume and adjustment factors (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume).

Saturation Flow Module: Table with 13 columns for saturation flow factors (Sat/Lane, Adjustment, Lanes, Final Sat.).

Capacity Analysis Module: Table with 13 columns for capacity analysis factors (Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ).

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.771
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.1
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module: Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #5 Waterman Street (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.466
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.4
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different traffic volumes and adjustment factors.

Saturation Flow Module: Table with 13 columns representing saturation flow rates and adjustments.

Capacity Analysis Module: Table with 13 columns representing capacity analysis metrics like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #5 Waterman Street (NS) at Orange Show Road (EW)
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.750
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 34.6
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different traffic flows and 13 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, etc.

Saturation Flow Module: Table with 13 columns and 5 rows showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 13 columns and 10 rows showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #6 Waterman Street (NS) at Dumas Street (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: C [ 16.6]
\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times for different movements.

Capacity Module: Table with 13 columns showing capacity-related metrics like Cnflict Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module: Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #6 Waterman Street (NS) at Dumas Street (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: D[ 32.6]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up time for each approach.

Capacity Module: Table with 12 columns showing capacity-related metrics like Cnflict Vol, Potent Cap, Move Cap, etc.

Level Of Service Module: Table with 12 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[ 14.8]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing traffic volumes and adjustments for different directions.

Critical Gap Module: Table with 12 columns showing critical gap and follow-up time values.

Capacity Module: Table with 12 columns showing conflict volume, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 12 columns showing delay, LOS by move, and approach delay/LOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[ 15.4]
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 12 columns and 2 rows showing critical gap and follow-up time for various movements.

Capacity Module: Table with 12 columns and 4 rows showing capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module: Table with 12 columns and 10 rows showing level of service metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)
\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.837
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)
\*\*\*\*\*
Cycle (sec): 100 Critical Vol./Cap.(X): 0.936
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 14.0
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 10 718 21 9 1113 10 1 0 10 178 0 31
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 10 718 21 9 1113 10 1 0 10 178 0 31
Added Vol: 0 34 0 0 61 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 10 752 21 9 1174 10 1 0 10 178 0 31
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96
PHF Volume: 10 785 22 9 1225 10 1 0 10 186 0 32
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 10 785 22 9 1225 10 1 0 10 186 0 32
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 10 785 22 9 1225 10 1 0 10 186 0 32

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00
Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1700 3600 1800 1700 3600 1800 1700 0 1800 1700 0 1800

Capacity Analysis Module:
Vol/Sat: 0.00 0.22 0.01 0.00 0.34 0.01 0.00 0.00 0.01 0.11 0.00 0.02
Crit Moves: \*\*\*\*
Green/Cycle: 0.10 0.56 0.56 0.17 0.63 0.63 0.21 0.00 0.21 0.21 0.00 0.21
Volume/Cap: 0.06 0.39 0.02 0.03 0.54 0.01 0.00 0.00 0.03 0.52 0.00 0.09
Delay/Veh: 40.9 12.5 9.8 34.7 10.6 6.9 31.2 0.0 31.4 36.4 0.0 31.9
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 40.9 12.5 9.8 34.7 10.6 6.9 31.2 0.0 31.4 36.4 0.0 31.9
LOS by Move: D B A C B A C A C D A C
HCM2kAvgQ: 0 7 0 0 11 0 0 0 0 6 0 1

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Morning Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)
\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.608
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.5
Optimal Cycle: OPTIMIZED Level Of Service: C
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) Without Project
Evening Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)
\*\*\*\*\*
Cycle (sec): 80 Critical Vol./Cap.(X): 0.470
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module: Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module: Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

**Opening Year (2017) With Project**

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 120 Critical Vol./Cap.(X): 0.419
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.8
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, etc.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 115 Critical Vol./Cap.(X): 0.586
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 38.7
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.704
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.5
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with 13 columns. Rows include Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 13 columns. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.773
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.4
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Table with 13 columns representing different traffic volumes and adjustments. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Table with 13 columns representing saturation flow rates. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Table with 13 columns representing capacity analysis metrics. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.9 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times.

Capacity Module: Table with 13 columns showing conflict volumes, potential capacity, and volume/capacity ratios.

Level of Service Module: Table with 13 columns showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.0 Worst Case Level Of Service: A[ 8.9]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 4 columns for North, South, East, West bounds.

Critical Gap Module: Table with 13 columns for critical gap components (Critical Gp, FollowUpTim) and 4 columns for North, South, East, West bounds.

Capacity Module: Table with 13 columns for capacity components (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 columns for North, South, East, West bounds.

Level Of Service Module: Table with 13 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 columns for North, South, East, West bounds.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 13 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 13 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 13 columns and 4 rows including Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module table with 13 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume).

Critical Gap Module: Table with 12 columns for critical gap and follow-up time components.

Capacity Module: Table with 12 columns for capacity components (Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.).

Level Of Service Module: Table with 12 columns for level of service components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS).

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.459
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 28.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with 13 columns for saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.762
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 35.5
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 sub-columns (L, T, R) for Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing various volume and adjustment factors: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 15.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module:

Table with 12 columns for Critical Gap and FollowUpTim values.

Capacity Module:

Table with 12 columns for Capacity values including Cnflict Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module:

Table with 12 columns for Level of Service values including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: D[ 26.1]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of volume-related metrics.

Critical Gap Module: Table with 12 columns and 2 rows showing critical gap and follow-up time values.

Capacity Module: Table with 12 columns and 4 rows showing conflict volume, capacity, and volume/capacity ratios.

Level of Service Module: Table with 12 columns and 10 rows showing delay, LOS, and approach delay/LOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: F[ 57.7]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (1 0 2 0 1).

Volume Module:

Table with 13 columns for volume components (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, FinalVolume) and 4 rows for North, South, East, and West bounds.

Critical Gap Module:

Table with 13 columns for critical gap metrics (Critical Gp, FollowUpTim) and 4 rows for North, South, East, and West bounds.

Capacity Module:

Table with 13 columns for capacity metrics (Cnflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 rows for North, South, East, and West bounds.

Level of Service Module:

Table with 13 columns for level of service metrics (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 rows for North, South, East, and West bounds.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour With Improvements

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*
Cycle (sec): 85 Critical Vol./Cap.(X): 0.341
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 13.2
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 0 721 27 78 779 0 0 0 0 1 0 9
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 721 27 78 779 0 0 0 0 1 0 9
Added Vol: 14 70 0 0 30 19 11 0 5 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 791 27 78 809 19 11 0 5 1 0 9
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
PHF Volume: 16 921 31 91 942 22 13 0 6 1 0 10
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 16 921 31 91 942 22 13 0 6 1 0 10
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 16 921 31 91 942 22 13 0 6 1 0 10

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00 0.94 1.00 1.00
Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1700 3600 1800 1700 3600 1800 1700 0 1800 1700 0 1800

Capacity Analysis Module:
Vol/Sat: 0.01 0.26 0.02 0.05 0.26 0.01 0.01 0.00 0.00 0.00 0.00 0.01
Crit Moves: \*\*\*\*
Green/Cycle: 0.17 0.57 0.57 0.12 0.52 0.52 0.24 0.00 0.24 0.24 0.00 0.24
Volume/Cap: 0.06 0.45 0.03 0.45 0.50 0.02 0.03 0.00 0.01 0.00 0.00 0.02
Delay/Veh: 29.7 10.5 7.9 36.3 13.2 9.7 25.1 0.0 24.9 24.9 0.0 25.0
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 29.7 10.5 7.9 36.3 13.2 9.7 25.1 0.0 24.9 24.9 0.0 25.0
LOS by Move: C B A D B A C A C C A C
HCM2kAvgQ: 0 7 0 3 8 0 0 0 0 0 0 0

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 3.0 Worst Case Level Of Service: F[122.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing volume components and 4 columns for each bound. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module: Table with 12 columns for gap and follow-up times. Rows include Critical Gp and FollowUpTim.

Capacity Module: Table with 12 columns for capacity metrics. Rows include Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 12 columns for LOS metrics. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center  
 Opening Year (2017) With Project  
 Evening Peak Hour With Improvements

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 130 Critical Vol./Cap.(X): 0.435  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.4  
 Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 0  | 0          | 1  | 0  | 0          | 1  | 0  |

Volume Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Base Vol:    | 0    | 748  | 2    | 9    | 1182 | 0    | 0    | 0    | 0    | 9    | 0    | 66   |
| Growth Adj:  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0    | 748  | 2    | 9    | 1182 | 0    | 0    | 0    | 0    | 9    | 0    | 66   |
| Added Vol:   | 7    | 38   | 0    | 0    | 68   | 10   | 27   | 0    | 14   | 0    | 0    | 0    |
| PasserByVol: | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Fut: | 7    | 786  | 2    | 9    | 1250 | 10   | 27   | 0    | 14   | 9    | 0    | 66   |
| User Adj:    | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj:     | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| PHF Volume:  | 7    | 841  | 2    | 10   | 1338 | 11   | 29   | 0    | 15   | 10   | 0    | 71   |
| Reduct Vol:  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced Vol: | 7    | 841  | 2    | 10   | 1338 | 11   | 29   | 0    | 15   | 10   | 0    | 71   |
| PCE Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj:     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 7    | 841  | 2    | 10   | 1338 | 11   | 29   | 0    | 15   | 10   | 0    | 71   |

Saturation Flow Module:

|             |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sat/Lane:   | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Adjustment: | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 |
| Lanes:      | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 1700 | 3600 | 1800 | 1700 | 3600 | 1800 | 1700 | 0    | 1800 | 1700 | 0    | 1800 |

Capacity Analysis Module:

|              |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol/Sat:     | 0.00 | 0.23 | 0.00 | 0.01 | 0.37 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.00 | 0.04 |
| Crit Moves:  | **** |      |      | **** |      |      |      |      |      |      |      | **** |
| Green/Cycle: | 0.08 | 0.60 | 0.60 | 0.20 | 0.72 | 0.72 | 0.15 | 0.00 | 0.15 | 0.15 | 0.00 | 0.15 |
| Volume/Cap:  | 0.06 | 0.39 | 0.00 | 0.03 | 0.51 | 0.01 | 0.11 | 0.00 | 0.05 | 0.04 | 0.00 | 0.26 |
| Delay/Veh:   | 55.8 | 13.4 | 10.2 | 42.4 | 8.1  | 5.0  | 47.5 | 0.0  | 47.0 | 46.9 | 0.0  | 48.9 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh:  | 55.8 | 13.4 | 10.2 | 42.4 | 8.1  | 5.0  | 47.5 | 0.0  | 47.0 | 46.9 | 0.0  | 48.9 |
| LOS by Move: | E    | B    | B    | D    | A    | A    | D    | A    | D    | D    | A    | D    |
| HCM2kAvgQ:   | 0    | 8    | 0    | 0    | 12   | 0    | 1    | 0    | 1    | 0    | 0    | 3    |

Note: Queue reported is the number of cars per lane.

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Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.837
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.6
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module table with 13 columns and 13 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module table with 13 columns and 4 rows including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with 13 columns and 10 rows including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.943
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 14.0
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns representing saturation flow factors like Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with 13 columns representing capacity analysis factors like Vol/Sat, Crit Moves, Green/Cycle, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.608
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 22.5
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Opening Year (2017) With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 80 Critical Vol./Cap.(X): 0.473
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach, Movement, Control, Rights, Min. Green, Lanes. Rows for North, South, East, and West bounds.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

**Year 2035 Without Project**

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.459
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.1
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.606
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 40.8
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, and Lanes.

Volume Module: Table with 12 columns for different traffic movements. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module: Table with 12 columns for different traffic movements. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for different traffic movements. Rows include Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.851
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 7.3
Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.962

Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.6

Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Permitted, Prot+Permit), Rights (Include), Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.493
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.776
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 37.1
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 17.2]

\*\*\*\*\*

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 2 0 0 0 0 2 0 1 0 0 1! 0 0 0 0 0 0 0

Volume Module:
Base Vol: 4 763 0 0 1099 9 7 0 11 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 4 763 0 0 1099 9 7 0 11 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 4 803 0 0 1157 9 7 0 12 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 4 803 0 0 1157 9 7 0 12 0 0 0

Critical Gap Module:
Critical Gp: 4.1 xxx xxxxxx xxxxxx xxxx xxxxxx 6.8 6.5 6.9 xxxxxx xxxx xxxxxx
FollowUpTim: 2.2 xxx xxxxxx xxxxxx xxxx xxxxxx 3.5 4.0 3.3 xxxxxx xxxx xxxxxx

Capacity Module:
Cnflict Vol: 1166 xxx xxxxxx xxx xxx xxxxxx 1567 1968 578 xxx xxx xxxxxx
Potent Cap.: 606 xxx xxxxxx xxx xxx xxxxxx 104 63 464 xxx xxx xxxxxx
Move Cap.: 606 xxx xxxxxx xxx xxx xxxxxx 103 63 464 xxx xxx xxxxxx
Total Cap: xxx xxx xxxxxx xxx xxx xxxxxx 208 175 xxxxxx 223 172 xxxxxx
Volume/Cap: 0.01 xxx xxx xxx xxx xxx xxx 0.04 0.00 0.02 xxx xxx xxx

Level Of Service Module:
2Way95thQ: 0.0 xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx
Control Del: 11.0 xxx xxxxxx xxxxxx xxx xxx xxxxxx xxxxxx xxx xxx xxxxxx
LOS by Move: B \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxx xxx xxxxxx xxx xxx xxxxxx xxx 314 xxxxxx xxx xxx xxxxxx
SharedQueue: xxxxxx xxx xxxxxx xxxxxx xxx xxxxxx xxxxxx 0.2 xxxxxx xxxxxx xxx xxxxxx
Shrd ConDel: xxxxxx xxx xxxxxx xxxxxx xxx xxxxxx xxxxxx 17.2 xxxxxx xxxxxx xxx xxxxxx
Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*
ApproachDel: xxxxxx xxxxxx 17.2 xxxxxx
ApproachLOS: \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 23.0]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Include), Lanes (1 0 2 0 0, etc.)

Volume Module: Table with 12 columns for volume components (Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume) and 12 rows for different movements.

Critical Gap Module: Table with 12 columns for gap components (Critical Gp, FollowUpTim) and 12 rows for different movements.

Capacity Module: Table with 12 columns for capacity components (Cnflct Vol, Potent Cap., Move Cap., Total Cap, Volume/Cap) and 12 rows for different movements.

Level Of Service Module: Table with 12 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 12 rows for different movements.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B [ 14.8]

\*\*\*\*\*

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 2 0 1 1 0 2 0 1 0 0 1! 0 0 1 0 0 0 1

Volume Module:
Base Vol: 0 841 30 83 1019 0 0 0 0 1 0 9
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 841 30 83 1019 0 0 0 0 1 0 9
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 0 885 32 87 1073 0 0 0 0 1 0 9
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
FinalVolume: 0 885 32 87 1073 0 0 0 0 1 0 9

Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx 4.1 xxxx xxxxx 7.5 6.5 6.9 6.8 xxxxx 6.9
FollowUpTim:xxxxx xxxx xxxxx 2.2 xxxx xxxxx 3.5 4.0 3.3 3.5 xxxxx 3.3

Capacity Module:
Cnflct Vol: xxxxx xxxxx xxxxx 917 xxxxx xxxxx 1690 2164 536 1596 xxxxx 443
Potent Cap.: xxxxx xxxxx xxxxx 752 xxxxx xxxxx 62 48 494 99 xxxxx 568
Move Cap.: xxxxx xxxxx xxxxx 752 xxxxx xxxxx 56 42 494 90 xxxxx 568
Volume/Cap: xxxxx xxxxx xxxxx 0.12 xxxxx xxxxx 0.00 0.00 0.00 0.01 xxxxx 0.02

Level Of Service Module:
2Way95thQ: xxxxx xxxxx xxxxx 0.4 xxxxx xxxxx xxxxx xxxxx xxxxx 0.0 xxxxx 0.1
Control Del:xxxxx xxxxx xxxxx 10.4 xxxxx xxxxx xxxxx xxxxx xxxxx 45.3 xxxxx 11.4
LOS by Move: \* \* \* B \* \* \* \* \* E \* \* \*
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx 0 xxxxx xxxxx xxxxx xxxxx
SharedQueue:xxxxxx xxxxx xxxxx
Shrd ConDel:xxxxxx xxxxx xxxxx
Shared LOS: \* \* \* \* \* \* \* \* \* \* \* \* \*
ApproachDel: xxxxxxx xxxxxxx xxxxxxx 14.8
ApproachLOS: \* \* \* B

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: C[ 19.3]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and 3 rows: Movement (L-T-R), Control, Rights, Lanes.

Volume Module: Table with 12 columns for volume components (Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume) and 4 columns for approaches.

Critical Gap Module: Table with 12 columns for critical gap and follow-up time components and 4 columns for approaches.

Capacity Module: Table with 12 columns for capacity components (Conflict Vol, Potent Cap., Move Cap., Volume/Cap) and 4 columns for approaches.

Level of Service Module: Table with 12 columns for LOS components (2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS) and 4 columns for approaches.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.837
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 7.7
Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit, Permitted), Rights (Include), Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.966
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.3
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Prot+Permit, Permitted), Rights (Include), Min. Green, Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.624
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 23.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 Without Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.539
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.8
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for movement types and rows for Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module table with columns for movement types and rows for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module table with columns for movement types and rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

**Year 2035 With Project**

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.466
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 32.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic metrics and 13 rows for various volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

Table with 13 columns for saturation flow metrics and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis metrics and 10 rows for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #1 E Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 110 Critical Vol./Cap.(X): 0.609
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 41.3
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.952
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 8.3
Optimal Cycle: OPTIMIZED Level Of Service: A

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table showing various volume and adjustment factors such as Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table showing saturation flow factors: Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table showing capacity analysis factors: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #2 Washington Avenue (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.964
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 10.7
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns for Approach (North, South, East, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Table for Volume Module showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and Final Volume.

Table for Saturation Flow Module showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Table for Capacity Analysis Module showing Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: A[ 8.7]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times.

Capacity Module: Table with 13 columns showing capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level of Service Module: Table with 13 columns showing level of service details like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #3 Project West Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: A[ 8.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 13 columns showing critical gap values and follow-up times.

Capacity Module: Table with 13 columns showing capacity-related metrics like Cnflict Vol, Potent Cap., etc.

Level Of Service Module: Table with 13 columns showing LOS metrics like 2Way95thQ, Control Del, etc.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 13 columns for traffic volumes and adjustments. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module: Table with 13 columns for critical gap and follow-up time. Rows include Critical Gp and FollowUpTim.

Capacity Module: Table with 13 columns for capacity and volume. Rows include Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Level of Service Module: Table with 13 columns for level of service and delay. Rows include 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Project East Driveway (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: A[ 8.4]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns representing different traffic movements and 10 rows of volume-related metrics like Base Vol, Growth Adj, etc.

Critical Gap Module: Table with 12 columns and 2 rows showing critical gap and follow-up time for different movements.

Capacity Module: Table with 12 columns and 4 rows showing conflict volume, potential capacity, and volume/capacity ratios.

Level Of Service Module: Table with 12 columns and 10 rows showing delay, LOS, and shared queue information for different movements.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.498
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 29.6
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different traffic components and 13 rows of volume data including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 13 columns and 4 rows of saturation flow data including Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns and 10 rows of capacity analysis data including Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #5 Waterman Street (NS) at Orange Show Road (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.784
Loss Time (sec): 8 (Y+R=3.0 sec) Average Delay (sec/veh): 37.9
Optimal Cycle: OPTIMIZED Level Of Service: D

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Protected), Rights (Include), Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [ 16.6]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 12 columns and 12 rows including Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and FinalVolume.

Critical Gap Module table with 12 columns and 2 rows including Critical Gp and FollowUpTim.

Capacity Module table with 12 columns and 5 rows including Cnflict Vol, Potent Cap., Move Cap., Total Cap, and Volume/Cap.

Level Of Service Module table with 12 columns and 10 rows including 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #6 Waterman Street (NS) at Dumas Street (EW)

\*\*\*\*\*

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C [ 20.8]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module table with 12 columns representing different traffic volumes and adjustment factors.

Critical Gap Module table with 12 columns showing critical gap and follow-up time values.

Capacity Module table with 12 columns showing conflict volume, potential capacity, and total capacity.

Level of Service Module table with 12 columns showing delay, LOS by move, and approach delay.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: F[ 69.0]

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing traffic volumes and adjustments for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Volume.

Critical Gap Module:

Table with 12 columns for Critical Gap, FollowUpTim, and other timing parameters.

Capacity Module:

Table with 12 columns for Capacity, Cnflict Vol, Potent Cap., Move Cap., and Volume/Cap.

Level Of Service Module:

Table with 12 columns for Level of Service, 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour With Improvements

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*
Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)
\*\*\*\*\*
Cycle (sec): 65 Critical Vol./Cap.(X): 0.327
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 12.8
Optimal Cycle: OPTIMIZED Level Of Service: B
\*\*\*\*\*

Table with 4 main columns: North Bound, South Bound, East Bound, West Bound. Sub-columns: L, T, R. Rows: Approach, Movement, Control, Rights, Min. Green, Lanes.

Volume Module:
Base Vol: 0 841 30 83 1019 0 0 0 0 1 0 9
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 841 30 83 1019 0 0 0 0 1 0 9
Added Vol: 14 7 0 0 3 19 11 0 5 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 14 848 30 83 1022 19 11 0 5 1 0 9
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95
PHF Volume: 15 893 32 87 1076 20 12 0 5 1 0 9
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 15 893 32 87 1076 20 12 0 5 1 0 9
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 15 893 32 87 1076 20 12 0 5 1 0 9

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.95 1.00 1.00 0.95 1.00 1.00 0.95 1.00 1.00 0.95 1.00 1.00
Lanes: 1.00 2.00 1.00 1.00 2.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00
Final Sat.: 1800 3800 1900 1800 3800 1900 1800 0 1900 1800 0 1900

Capacity Analysis Module:
Vol/Sat: 0.01 0.23 0.02 0.05 0.28 0.01 0.01 0.00 0.00 0.00 0.00 0.00
Crit Moves: \*\*\*\*
Green/Cycle: 0.15 0.46 0.46 0.15 0.46 0.46 0.30 0.00 0.30 0.30 0.00 0.30
Volume/Cap: 0.05 0.51 0.04 0.33 0.61 0.02 0.02 0.00 0.01 0.00 0.00 0.02
Delay/Veh: 24.8 11.4 8.1 28.7 12.7 8.1 16.4 0.0 16.3 16.3 0.0 16.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 24.8 11.4 8.1 28.7 12.7 8.1 16.4 0.0 16.3 16.3 0.0 16.4
LOS by Move: C B A C B A B A B B A B
HCM2kAvgQ: 0 6 0 2 8 0 0 0 0 0 0 0

\*\*\*\*\*
Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: F[271.5]

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module: Table with 12 columns for traffic volumes and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module: Table with 12 columns for critical gap and follow-up time values.

Capacity Module: Table with 12 columns for capacity-related metrics like Cnflict Vol, Potent Cap., Move Cap., etc.

Level of Service Module: Table with 12 columns for LOS-related metrics like 2Way95thQ, Control Del, LOS by Move, etc.

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour With Improvements

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 70 Critical Vol./Cap.(X): 0.486
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 14.9
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with 4 columns: Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module:

Table with 13 columns for saturation flow factors: Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 13 columns for capacity analysis factors: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

-----  
 Waterman Industrial Center  
 Year 2035 With Project  
 Evening Peak Hour With Improvements  
 -----

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Waterman Street (NS) at Park Center Circle N (EW)

\*\*\*\*\*

Cycle (sec): 70 Critical Vol./Cap.(X): 0.486  
 Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 14.9  
 Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

| Approach:   | North Bound |    |    | South Bound |    |    | East Bound |    |    | West Bound |    |    |
|-------------|-------------|----|----|-------------|----|----|------------|----|----|------------|----|----|
| Movement:   | L           | T  | R  | L           | T  | R  | L          | T  | R  | L          | T  | R  |
| Control:    | Protected   |    |    | Protected   |    |    | Permitted  |    |    | Permitted  |    |    |
| Rights:     | Include     |    |    | Include     |    |    | Include    |    |    | Include    |    |    |
| Min. Green: | 10          | 31 | 31 | 10          | 31 | 31 | 20         | 20 | 20 | 20         | 20 | 20 |
| Lanes:      | 1           | 0  | 2  | 0           | 1  | 0  | 1          | 0  | 0  | 0          | 1  | 0  |

| Volume Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|----------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Base Vol:      | 0           | 960  | 2    | 10          | 1441 | 0    | 0          | 0    | 0    | 10         | 0    | 70   |
| Growth Adj:    | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| Initial Bse:   | 0           | 960  | 2    | 10          | 1441 | 0    | 0          | 0    | 0    | 10         | 0    | 70   |
| Added Vol:     | 7           | 4    | 0    | 0           | 7    | 10   | 27         | 0    | 14   | 0          | 0    | 0    |
| PasserByVol:   | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Initial Fut:   | 7           | 964  | 2    | 10          | 1448 | 10   | 27         | 0    | 14   | 10         | 0    | 70   |
| User Adj:      | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| PHF Adj:       | 0.95        | 0.95 | 0.95 | 0.95        | 0.95 | 0.95 | 0.95       | 0.95 | 0.95 | 0.95       | 0.95 | 0.95 |
| PHF Volume:    | 7           | 1015 | 2    | 11          | 1524 | 11   | 28         | 0    | 15   | 11         | 0    | 74   |
| Reduct Vol:    | 0           | 0    | 0    | 0           | 0    | 0    | 0          | 0    | 0    | 0          | 0    | 0    |
| Reduced Vol:   | 7           | 1015 | 2    | 11          | 1524 | 11   | 28         | 0    | 15   | 11         | 0    | 74   |
| PCE Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| MLF Adj:       | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| FinalVolume:   | 7           | 1015 | 2    | 11          | 1524 | 11   | 28         | 0    | 15   | 11         | 0    | 74   |

| Saturation Flow Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|-------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Sat/Lane:               | 1900        | 1900 | 1900 | 1900        | 1900 | 1900 | 1900       | 1900 | 1900 | 1900       | 1900 | 1900 |
| Adjustment:             | 0.95        | 1.00 | 1.00 | 0.95        | 1.00 | 1.00 | 0.95       | 1.00 | 1.00 | 0.95       | 1.00 | 1.00 |
| Lanes:                  | 1.00        | 2.00 | 1.00 | 1.00        | 2.00 | 1.00 | 1.00       | 0.00 | 1.00 | 1.00       | 0.00 | 1.00 |
| Final Sat.:             | 1800        | 3800 | 1900 | 1800        | 3800 | 1900 | 1800       | 0    | 1900 | 1800       | 0    | 1900 |

| Capacity Analysis Module: | North Bound |      |      | South Bound |      |      | East Bound |      |      | West Bound |      |      |
|---------------------------|-------------|------|------|-------------|------|------|------------|------|------|------------|------|------|
| Vol/Sat:                  | 0.00        | 0.27 | 0.00 | 0.01        | 0.40 | 0.01 | 0.02       | 0.00 | 0.01 | 0.01       | 0.00 | 0.04 |
| Crit Moves:               | ****        |      |      | ****        |      |      |            |      |      | ****       |      |      |
| Green/Cycle:              | 0.14        | 0.48 | 0.48 | 0.15        | 0.49 | 0.49 | 0.29       | 0.00 | 0.29 | 0.29       | 0.00 | 0.29 |
| Volume/Cap:               | 0.03        | 0.56 | 0.00 | 0.04        | 0.83 | 0.01 | 0.06       | 0.00 | 0.03 | 0.02       | 0.00 | 0.14 |
| Delay/Veh:                | 26.0        | 11.8 | 7.8  | 25.5        | 16.6 | 7.4  | 18.3       | 0.0  | 18.0 | 18.0       | 0.0  | 19.0 |
| User DelAdj:              | 1.00        | 1.00 | 1.00 | 1.00        | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 | 1.00       | 1.00 | 1.00 |
| AdjDel/Veh:               | 26.0        | 11.8 | 7.8  | 25.5        | 16.6 | 7.4  | 18.3       | 0.0  | 18.0 | 18.0       | 0.0  | 19.0 |
| LOS by Move:              | C           | B    | A    | C           | B    | A    | B          | A    | B    | B          | A    | B    |
| HCM2kAvgQ:                | 0           | 7    | 0    | 0           | 15   | 0    | 0          | 0    | 0    | 0          | 0    | 1    |

\*\*\*\*\*

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.926
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 8.4
Optimal Cycle: OPTIMIZED Level Of Service: A
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #8 Waterman Street (NS) at Park Center Circle South (EW)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.972
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 11.3
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Table with columns: Volume Module, Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Table with columns: Saturation Flow Module, Sat/Lane, Adjustment, Lanes, Final Sat.

Table with columns: Capacity Analysis Module, Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Morning Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 90 Critical Vol./Cap.(X): 0.624
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 23.4
Optimal Cycle: OPTIMIZED Level Of Service: C

\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, and Lanes.

Volume Module table with columns for various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume) and 12 data columns.

Saturation Flow Module table with columns for Sat/Lane, Adjustment, Lanes, and Final Sat., and 12 data columns.

Capacity Analysis Module table with columns for Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, and HCM2kAvgQ, and 12 data columns.

Note: Queue reported is the number of cars per lane.
\*\*\*\*\*

Waterman Industrial Center
Year 2035 With Project
Evening Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #9 Waterman Street (NS) at Varnderbilt Way (EW)

\*\*\*\*\*

Cycle (sec): 85 Critical Vol./Cap.(X): 0.542
Loss Time (sec): 6 (Y+R=3.0 sec) Average Delay (sec/veh): 19.8
Optimal Cycle: OPTIMIZED Level Of Service: B

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Delay/Veh, User DelAdj, AdjDel/Veh, LOS by Move, HCM2kAvgQ.

Note: Queue reported is the number of cars per lane.

\*\*\*\*\*

**APPENDIX G**

**Traffic Signal Warrant Worksheets**

# PEAK HOUR VOLUME WARRANT (Rural Areas)

## Existing + Ambient Growth

Major Street Name = **Waterman Avenue**

Total of Both Approaches (VPH) = **1941**

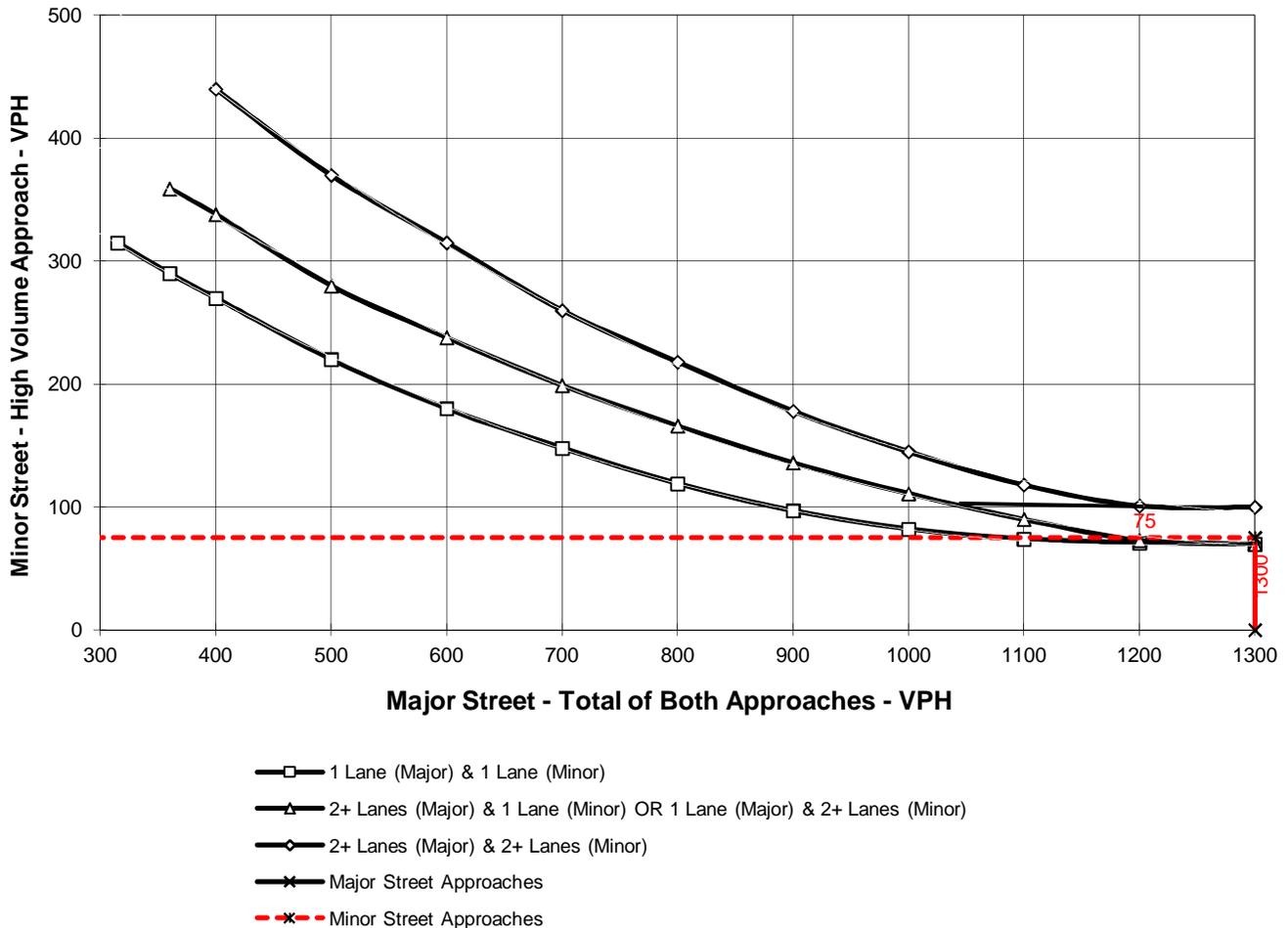
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Park Center North**

High Volume Approach (VPH) = **75**

Number of Approach Lanes Minor Street = **1**

### WARRANTED FOR A SIGNAL



**\*\* NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**APPENDIX H**

**Preliminary Construction Cost Estimates for  
Congestion Management Program**

**PRELIMINARY CONSTRUCTION COST ESTIMATES  
FOR  
CONGESTION MANAGEMENT PLAN**

| <b>Add One Lane Each Direction on Freeway</b>  |   |          |                             |
|--|---|----------|-----------------------------|
| Asphalt Concrete Pavement  | \$2,300,000 Per Mile  |          |                             |
| Portland Cement Concrete Pavement  | \$2,800,000 Per Mile  |          |                             |
| <b>Includes:</b> Excavation<br>Paving Section<br>Barrier<br>Shoulder<br>Upgrade Drainage System<br>Traffic Control<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5% | <b>Excludes:</b> Environmental Costs<br>Right of Way<br>Widening of Bridge Structures<br>Added Retaining Walls<br>Added Sound Walls   |          |                             |
| <b>Widen Existing UC Structures</b>  |   |          |                             |
| Total Cost =   | \$160 Per Square Foot   |          |                             |
| <b>Includes:</b> Structure<br>Mobilization @10%<br>Design @11%<br>Construction Mgt. @12.5%   | <b>Excludes:</b> Environmental Costs<br>Right of Way<br>Traffic Control<br>Ramp Modifications<br>Signal/Lighting Up Grades<br>Drainage Upgrades<br>Added Retaining Walls<br>Added Sound Walls |          |                             |
| <b>Diamond Interchanges</b>  |   |          |                             |
| \$10,000,000   | EACH  | NEW IC   | Minimal Row/Environmental   |
| \$15,000,000   | EACH  | NEW IC   | Includes Row/Environmental  |
| \$20,000,000   | EACH  | EXISTING | Minimal Row/Environmental   |
| \$25,000,000   | EACH  | EXISTING | Includes Row/ Environmental |
| <b>Includes:</b> Structure<br>Retaining Walls<br>Soil Nail Walls<br>Drainage System<br>Ramps<br>Mobilization @ 10%<br>Design @ 11%<br>Construction Mgt. @ 12.5%                    | <b>Excludes:</b> As listed  |          |                             |

**Retaining Walls**

| Height Feet  | Structure Cost \$/LF | Mobilization Design Constr. Mgt. \$/LF | Total \$/LF |
|--|----------------------|--|-------------|
| 4  | \$190                | \$70                                   | \$260       |
| 6  | \$260                | \$90                                   | \$350       |
| 8  | \$380                | \$140                                  | \$520       |
| 10   | \$430                | \$150                                  | \$580       |
| 12   | \$480                | \$170                                  | \$650       |
| 14   | \$590                | \$210                                  | \$800       |
| 16   | \$660                | \$240                                  | \$900       |
| <b>Excludes:</b> Environmental Costs<br>Right of Way |                      |  |             |

**12' High Sound Walls (Masonry Block on Footing)**

| Structure Cost \$/Mile | Mobilization Design Constr. Mgt. \$/Mile | Total \$/Mile |
|------------------------|--|---------------|
| \$800,000              | \$300,000                                | \$1,100,000   |

**Widen Conventional Highway**

|  |  |
|--|--|
| 1. Add one outside lane<br>(Work includes earthwork, modify existing drainage system and construct AC shoulder section.)<br><br>Asphalt Concrete Pavement  | \$1,000,000/Mile   |
| 2. Add one outside lane each direction<br>(Work includes earthwork, modify existing drainage system and construct AC shoulder section)<br><br>Asphalt Concrete Pavement<br>With Median Concrete Barrier<br>With Median Double Thrie Beam Barrier | \$2,000,000/Mile<br>\$2,200,000/Mile<br>\$2,300,000/Mile |

**Local Interchange Improvements**

|   |                              |
|---|------------------------------|
| 1. New Interchange<br><br>Urban Interchange   | \$10,000,000 to \$17,000,000 |
| Partial – Cloverleaf Interchange<br>(Work includes new OC structure, earthwork, signal) | \$6,000,000                  |
| Diamond Interchange<br>(Work includes new OC structure, earthwork, signal)              | \$5,000,000                  |

**Local Interchange Improvements CONT...**

|    |  |                        |
|----|--|------------------------|
| 2. | Reconstruct Existing Interchange   |                        |
|    | Realign and widen existing ramps (to 2 lanes)                            | \$750,000/Each Ramp    |
|    | Construct Loop on – ramps<br>(Does not include realigning existing ramp) | \$700,000/Each Ramp    |
|    | Upgrade existing Diamond IC to Partial – Cloverleaf                      | \$6,000,000            |
| 3. | Improve Existing Interchange   |                        |
|    | Widen ramps (From one to two lanes)                                      | \$350,000/Each Ramp    |
|    | Widen existing OC structure  | \$110/Sq. Ft.          |
|    | Signalize ramp intersection  | \$90,000/Location      |
|    | Upgrade existing signal at ramp terminal                                 | \$75,000/Intersection  |
|    | Upgrade existing signal at ramp terminal<br>(Add lights only)            | \$25,000/Each          |
| 4. | Ramp Metering System   | \$60,000/Each location |

**Intersection Improvements**

|    |   |                        |
|----|---|------------------------|
| 1. | Signalization of local intersection<br>(with some roadwork) | \$250,000              |
| 2. | Upgrade existing intersection signalization                 | \$75,000               |
| 3. | Upgrade existing Traffic Controller/Assembles               | \$40,000/Each          |
| 4. | Install new signal  | \$90,000/location      |
| 5. | Add signal heads  | \$25,000/Intersection  |
| 6. | Construct left – turn lane (240' long)                      | \$50,000/Each Location |
| 7. | Street widening (12' wide) (Pavement only)                  | \$180,000/Mile         |
| 8. | Curb and gutter (Type A2-8)                                 | \$15/LF                |

| <b>Other Improvements</b>  |   |
|--|---|
| 1. Construct new OC structure<br>(Does not include roadway work) | \$100/Sq. Ft.   |
| 2. Construct Retaining Walls (Type 1)                            | \$285/LF (H=8')<br>\$360/LF (H=10')<br>\$460/LF (H=12')<br>\$560/LF (H=14')   |
| 3. Construct Soundwall   | \$1,000,000/Mile (H=12')  |
| 4. Traffic Management Plan                                       | 10% of total construction costs   |
| <b>NOTE:</b>   | This cost estimate does not include the following items:  |
|  | <ol style="list-style-type: none"> <li>1. R/W engineering, appraisal, acquisition and utilities relocation costs.</li> <li>2. Minor items and supplemental work (10%).</li> <li>3. Mobilization (10%).</li> <li>4. Contingencies (25%).</li> <li>5. Landscaping costs.</li> </ol> |
| <b>General Note:</b>   | <b>When adding a through lane, the minimum distance is 600' approach and 600' departure to the next intersection.</b>   |



# KUNZMAN ASSOCIATES, INC.

OVER 35 YEARS OF EXCELLENT SERVICE

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