

4.8 TRAFFIC AND CIRCULATION

4.8.1 Introduction

This section of the EIR summarizes the results of a Traffic Impact Analysis entitled *Home Depot Traffic Impact Analysis* prepared by Fehr & Peers, August 12, 2011. Included in this section is a description of the existing circulation system that would provide access to and from the project site; identification of standards of significance; impact analysis; and recommendation of mitigation measures to reduce any potentially significant impacts. The Traffic Impact Analysis (TIA) is included in Appendix H.

4.8.2 Environmental Setting

The Proposed Project is located at the southwest corner of Arden Avenue & Highland Avenue in the City of San Bernardino. Interstate 210 (I-210) overpasses run diagonally adjacent to the project site, with two freeway ramps that provide direct access to the project site. South of the site is Col. Joseph C. Rodriguez Prep Academy and Emmerton Elementary School. Adjacent south is a large soccer complex that routinely hosts weekend soccer tournaments. Adjacent east is a large apartment complex.

The site is currently vacant. However, it previously contained 296 multi-family dwelling units. The Proposed Project is a shopping center anchored by a Home Depot (a retailer of home improvement and construction products and services store), retail shops, a gas station, a bank, and a fast food restaurant. The project will include approximately 214,000 square feet of leasable space. The project is anticipated to open in June 2013.

4.8.3 Applicable Policies, Plans and Policies

The City of San Bernardino General Plan includes the following goals and policies related to Traffic and Circulation that pertain to the Proposed Project (refer to page 6-23 of the General Plan):

Goal 6.2: Provide a well-maintained street system.

Policies

- 6.2.3 Keep traffic in balance with roadway capacity by requiring traffic studies to identify local roadway and intersection improvements necessary to mitigate the traffic impacts of new developments and land use changes. (LU-1)
- 6.2.5 Design roadways, monitor traffic flow, and employ traffic control measures (e.g. signalization, access control, exclusive right and left turn-turn lanes, lane stripping, and signage) to ensure City streets and roads continue to function within [the] Level of Service standards.
- 6.2.7 Install new signals as warranted.

Goal 6.3: Provide a safe circulation system.

Policies

- 6.3.4 Require appropriate right-of-way dedications of all new developments to facilitate construction of roadways shown on the Circulation Plan. (LU-1)
- 6.3.7 Require that adequate access be provided to all developments in the City including secondary access to facilitate emergency access and egress. (LU-1)

Goal 6.4: Minimize the impact of roadways on adjacent land uses and ensure compatibility between land uses and highway facilities to the extent possible.

Policies

- 6.4.8 Develop appropriate protection measures along routes frequently used by trucks to minimize noise impacts to sensitive land uses including but not limited to residences, hospitals, schools, parks, daycare facilities, libraries, and similar uses. (LU-1)

Goal 6.5: Develop a transportation system that reduces conflicts between commercial trucking, private/public transportation, and land uses.

Policies

- 6.5.4 Require that on-site loading areas minimize interference of truck loading activities with efficient traffic circulation on adjacent roadways. (LU-1)

Goal 6.6: Promote a network of multi-modal transportation facilities that are safe, efficient, and connected to various points of the City and the region.

Policies

- 6.6.1: Support the efforts of regional, state, and federal agencies to provide additional local and express bus service in the City.
- 6.6.2: In cooperation with Omnitrans, require new development to provide transit facilities, such as bus shelters and turnouts, as necessary and warranted by the scale of the development.
- 6.6.3: Encourage measures that will reduce the number of vehicle-miles traveled during peak periods, including the following examples of these types of measures:
- Incentives for car-pooling and vanpools
 - Preferential parking for car-pools and vanpools
 - An adequate, safe, and interconnected system of pedestrian and bicycle paths

4.8.4 Project Impact Analysis and Mitigation Measures

4.8.4.1 Thresholds of Significance

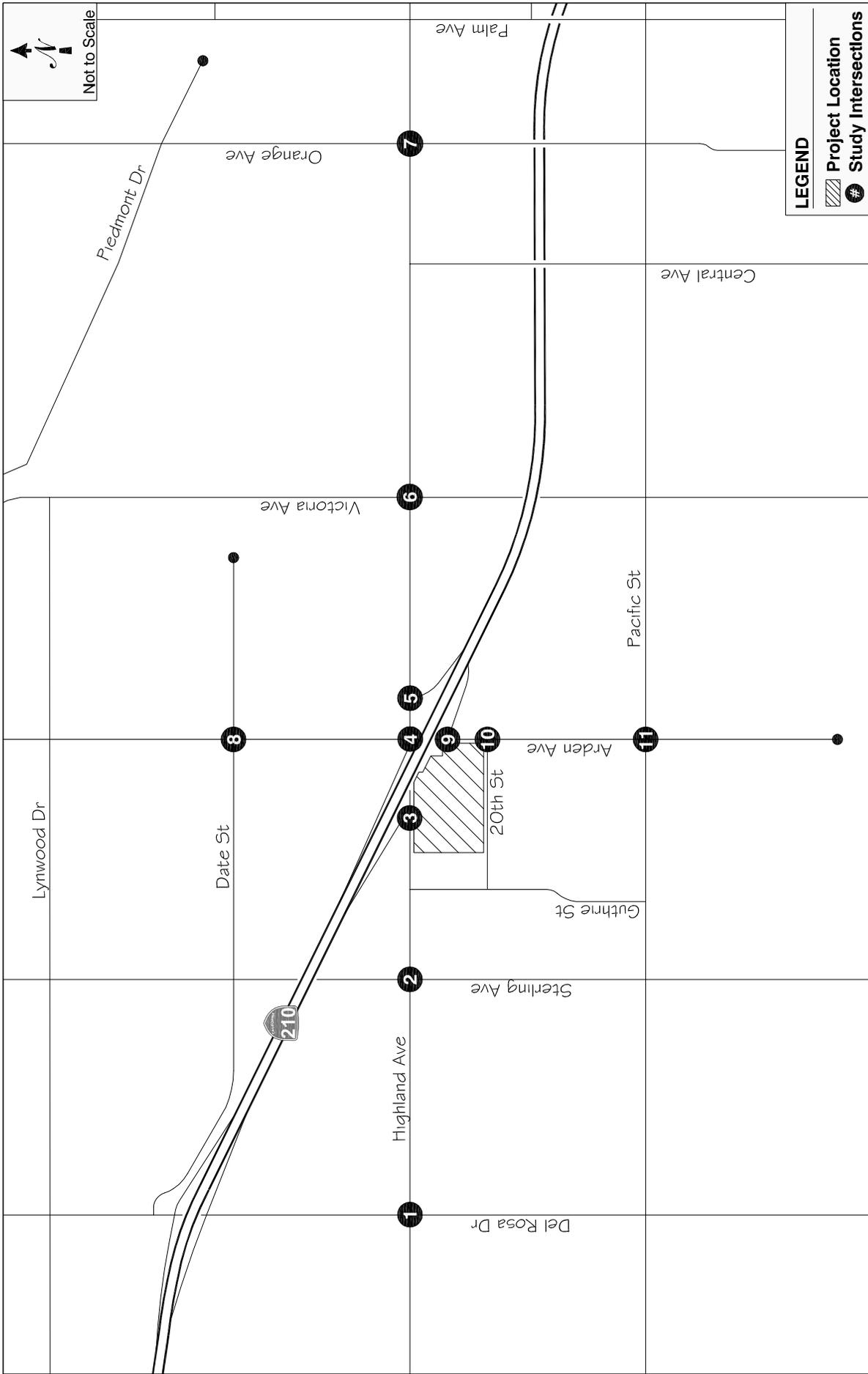
The Initial Study Checklist for the Proposed Project was completed and circulated with a Notice of Preparation (NOP) to identify potential environmental impacts that could occur as a result of the Proposed Project. The Checklist identifies the primary thresholds of significance relating to CEQA issues. The Proposed Project would result in a significant impact to transportation/circulation if it would:

- 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.
- 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 and highways.
- 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.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impact Analysis

As documented in the Project Scoping Form, 11 study intersections were evaluation in collaboration with City staff; refer to Appendix H for additional information. The study intersections are as follows and are shown on Figure 4.8-1:

1. Del Rosa Drive & Highland Avenue
2. Sterling Avenue & Highland Avenue
3. I-210 Eastbound Off-Ramp & Highland Avenue
4. Arden Avenue & Highland Avenue (including the westbound I-210 on-ramp)
5. I-210 Westbound Off-Ramp & Highland Avenue
6. Victoria Avenue & Highland Avenue
7. Orange Avenue & Highland Avenue
8. Arden Avenue & Date Street
9. Arden Avenue & I-210 Eastbound On-Ramp
10. Arden Avenue & 20th Street
11. Arden Avenue & Pacific Street



Source: Fehr & Peers, 2011.

PROJECT LOCATION and STUDY INTERSECTIONS

Highland Marketplace EIR
City of San Bernardino, California

FIGURE 4.8-1

The following scenarios are consistent with the City of San Bernardino Traffic Impact Analysis Guidelines and the requirements set forth in the San Bernardino County Congestion Management Program (CMP):

- Existing Conditions – Consists of existing (April and July 2011) counts collected at the study intersection locations. Existing counts were conducted on Tuesday, April 26, 2011 from 7:00 to 9:00 AM for the morning peak hour, 4:00 to 6:00 PM for the evening peak hour, and on Saturday, July 23, 2011 from 12:00 to 2:00 PM for the weekend peak hour.
- Project Opening Year (2013) Base Conditions – Consists of the Existing Conditions traffic volumes plus an annual growth factor of three percent per year over the two-year period between the existing counts and the project opening year.
- Project Opening Year (2013) With Project Conditions – Consists of Project Opening Year (2013) Base Conditions with traffic generated from the Proposed Project.
- Future Build-Out Year (2030) Base Conditions – Consists of Existing Conditions traffic volumes plus a three percent per year growth factor plus traffic generated from approved and pending projects in the Proposed Project's vicinity.
- Future Build-Out Year (2030) With Project Conditions – Consists of Future Build-Out Year (2030) Base Conditions with traffic generated from the Proposed Project.

These scenarios were evaluated during the weekday morning, weekday evening, and weekend mid-day peak hours. Refer to Appendix H for the intersection data sheets for all analyzed intersections.

Methodology

The analysis of the intersections methodology was based on empirical research conducted by the Transportation Research Board and other authorities. Signalized and unsignalized intersection operations were evaluated using methodologies provided in *Highway Capacity Manual* (HCM 2000) (Transportation Research Board), are considered the state-of-the-practice methodologies for evaluating intersection operations. This is consistent with the City of San Bernardino and CMP analysis requirements.

The HCM 2000 methodology for signalized and all-way stop-controlled intersections estimates the average control delay for the vehicle at the intersection. For side-street stop-controlled intersections, the methodology estimates the control delays for each turning movement and identifies the delay for the longest delayed approach (if there is a shared lane, delay is averaged for all turning movements from that lane). As the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS for signalized and unsignalized intersections are shown in Table 4.8-1.

**Table 4.8-1
Grades for Signalized and Unsignalized Intersections**

Level of Service	Description	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)	Volume-to-Capacity (V/C) Ratio
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 15.0	≤ 10.0	0.000-0.600
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 15.0 to 25.0	>10.0 to 15.0	0.601-0.700
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 25.0 to 35.0	>15.0 to 25.0	0.701-0.800
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	>25.0 to 35.0	0.801-0.900
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	>35.0 to 50.0	0.901-1.000
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	>50.0	Greater than 1.000

Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

Synchro software version 6.14 was used to calculate delays and associated LOS for signalized and unsignalized intersections,

Per the County CMP requirements, the following assumptions were included in the LOS assessment:

- 2% heavy vehicles at the study intersections
- Existing and Opening Year peak hour factor (PHF) was based on the counts collected
- Future Build-Out Year PHF is 0.95
- Existing and Opening Year saturation flow rates assumed to be:
 - 1800 for exclusive through and exclusive right
 - 1700 for exclusive left
 - 1600 for dual lefts
- Future Build-Out Year saturation flow rates assumed to be:
 - 1900 for exclusive through and exclusive right
 - 1800 for exclusive left
 - 1700 for dual lefts
- Existing signal timings based on timing data received from City staff and The California Department of Transportation (Caltrans).

- For Future Build-Out Year, timing splits were optimized and a maximum cycle length of 130 seconds was utilized

Travel Demand Forecasting

The San Bernardino Traffic Study guidelines contain the following language:

Use of the City's East Valley Travel Forecast Model or other approved model may be required to determine the future traffic volumes and growth. In the absence of traffic model information, the future build-out year base traffic volumes shall be estimated using an annual growth factor of 3 percent per year, unless a different rate can be justified and is approved and/or required by the City Engineer.

The use of a locally valid Travel Demand Forecasting (TDF) model estimates the change in volume of a roadway given changes in land use and changes in the transportation network. Therefore, the model developed for the City of San Bernardino's general plan, the East Valley travel forecasting model, and the Southern California Association of Governments (SCAG) model; all of which include the San Bernardino area were reviewed. Refer to Appendix H for additional information on methodology.

Consistent with the City's guidelines, a 3 percent per year growth rate was added to existing traffic volumes to reflect future traffic conditions. Trips from approved and pending projects in the project study area were also applied to future year forecasts.

Significance Criteria

The following significance criteria were used to determine if the project would cause significant traffic impacts. The criteria are based on the City's General Plan, the City's Traffic Impact Analysis Guidelines, and the County's CMP.

The City considers traffic impacts at intersections to be "significant" if the following volume-to-capacity (V/C) ratios occur between the "without project" and "with project" conditions. Refer to Table 4.8-2 for significance criteria.

**Table 4.8-2
Significance Criteria**

Level of Service	V/C Difference
C	> 0.0400
D	> 0.0200
E,F	> 0.0100

Source: City of San Bernardino Traffic Impact Study Guidelines (2004) and *Highway Capacity Manual* (Transportation Research Board, 2000).

For unsignalized intersections, a traffic impact is considered to be "significant" if the addition of project-generated traffic degrades operations below LOS C (i.e. LOS, D, E, and F) and the project adds traffic such that it satisfies the Peak Hour Signal Warrant.

Existing Conditions

Regional access to the project site is provided by I-210. Local access is provided by Highland Avenue, Arden Avenue, Del Rosa Drive, Sterling Avenue, Victoria Avenue, Orange Street, Date Street, and Pacific Street. A discussion of each of these roadways is as follows:

Regional Roads

- **I-210 Freeway** – I-210 begins in Pasadena and extends southeast through the City of San Bernardino before terminating at its junction with Interstate 10 (I-10) in the City of Redlands. Through the study area, I-210 is generally a two- to three-lane freeway. Access to the project site is provided at interchanges with Highland Avenue. The project proposes to position one of its driveways on the northern extent of the project directly across from the I-210 eastbound off-ramp. A driveway on the east extent directly across from the I-210 eastbound on-ramp, is also proposed.

Local Access Roads

- **Highland Avenue** – Highland Avenue is an east/west divided road with two lanes in each direction. It extends from Easton Street to the west and curves south, east of I-210 where into Weaver Street, and ends at Greenspot Road. I-210 has a freeway interchange at Highland Avenue to the project site. The posted speed limit on Highland Avenue is 40 miles per hour (mph). Highland Avenue is classified as a Major Arterial in the City of San Bernardino General Plan.
- **Arden Avenue** – Arden Avenue is north/south divided road with two lanes in the northbound direction and one lane in the southbound direction south of the I-210 eastbound on-ramp. Between Highland Avenue and the I-210 eastbound on-ramp, Arden Avenue is an undivided roadway with three lanes in each direction. North of Highland Avenue, Arden Avenue is an undivided roadway with one lane in each direction. It extends from Mesquite Drive to the north and ends south of Pacific Street to the south. The posted speed limit on Arden Avenue is 25 mph next to the project site and 35 mph at Date Street. Arden Avenue is classified as a Secondary Arterial in the City of San Bernardino General Plan.
- **Del Rosa Drive** – Del Rosa Drive is a north/south divided road with two lanes in each direction. It extends from Bonita Vista Drive to the north and ends at Harry Shepard Boulevard to the south. Del Rosa Drive is a direct connector to the I-210 northwest of the project site. The posted speed limit on Del Rosa Drive is 45 mph. Del Rosa Drive is classified as a Major Arterial in the City of San Bernardino General Plan.
- **Sterling Avenue** – Sterling Avenue is a north/south divided road with two lanes in each direction. It extends from Daley Canyon Road to the north and ends at 3rd Street to the south. The posted speed limit on Sterling Avenue is 40 mph. Sterling Avenue is classified as a Major Arterial in the City of San Bernardino General Plan.

- **Victoria Avenue** – Victoria Avenue is a north/south divided road with one lane in each direction north of Highland Avenue and two lanes in each direction south of Highland Avenue. It extends from Amber Hill Drive to the north and ends at 3rd Street to the south. The posted speed limit on Victoria Avenue is 40 mph. Victoria Avenue is classified as a Secondary Arterial in the City of San Bernardino General Plan.
- **Orange Street** – Orange Street is a north/south divided road with one lane in each direction. It extends from just north of Piedmont Drive to the north and ends at 13th Street to the south. The posted speed limit on Orange Street is 25 mph. Orange Street is classified as a Collector in the City of San Bernardino General Plan.
- **Date Street** – Date Street is an east/west divided road with two lanes in each direction. It extends west to Del Rosa Drive where it continues west, south of I-210 and ends east of Rockford Avenue. The posted speed limit on Date Street is 25 mph. Date Street is classified as a Collector in the City of San Bernardino General Plan.
- **Pacific Street** – Pacific Street is an east/west undivided residential road with one lane in each direction. It extends from Perris Hill Park Road to the west and continues east where it overpasses the I-210 and ends at Grove Avenue. The posted speed limit on Pacific Street is 25 mph. Pacific Street is classified as a Secondary Arterial in the City of San Bernardino General Plan.

Site Access

There are six (6) access points for the proposed shopping center as follows:

- **Highland Avenue accesses (3):**
 - The western access, a right-turn for both inbound and outbound vehicles.
 - A full access driveway located opposite to I-210 eastbound off-ramp. The northbound approach of this intersection is designed to prohibit vehicles from entering the off-ramp.
 - The eastern access is a right-turn only ingress driveway between Retail Pad 3 and Retail Pad 4. Refer to Figure 3-4, Conceptual Site Plan of Chapter 3, the Project Description for Pad locations.
- **Arden Avenue access (1)** – Full access driveway on Arden Avenue, forming the fourth leg of the Arden Avenue/I-210 eastbound on-ramp.
- **20th Street access (2)** - Two driveways provide passenger vehicle access to 20th Street.

Traffic Volumes and Lane Configurations

Traffic counts at the study intersections were collected in April 2011 during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak hours, and in July 2011 during the mid-day (12:00 to 2:00 PM) weekend peak hour. Refer to Figure 4.8-2 for the existing lane configurations

and traffic volumes at the study intersections. Refer to Appendix H for existing traffic counts data sheets.

Existing traffic volumes, lane configurations, and signal timing information were evaluated for the existing AM/PM, and weekend peak hour conditions. Refer to Table 4.8-3 for the summarized results. Refer to Appendix H for the technical calculations.

**Table 4.8-3
Existing Conditions
Intersection LOS**

Intersection	Control	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		Delay ¹	LOS	Delay	LOS	Delay	LOS
1. Del Rosa Drive & Highland Avenue ²	Signalized	27.2	C	31.7	C	25.7	C
2. Sterling Avenue & Highland Avenue ²	Signalized	28.1	C	32.4	C	27.8	C
3. I-210 Eastbound Off-Ramps & Highland Avenue ²	Signalized	38.5	D	41.5	D	60.5	E
4. I-210 Westbound On-Ramps/Arden Avenue & Highland Avenue ²	Signalized	42.8	D	23.4	C	24.4	C
5. I-210 Westbound Off-Ramps & Highland Avenue ²	Signalized	8.4	A	10.5	B	9.5	A
6. Victoria Avenue & Highland Avenue ²	Signalized	21.4	C	27.1	C	25.7	C
7. Orange Avenue & Highland Avenue	Signalized	19.4	B	11.1	B	10.5	B
8. Arden Avenue & Date Street	SSSC ⁴	19.8	C	17.0	C	14.7	B
9. Arden Avenue & I-210 Eastbound On-Ramps	Signalized	6.9	A	12.1	B	6.9	A
10. Arden Avenue & 20 th Street	Signalized	15.3	B	5.2	A	4.3	A
11. Arden Avenue & Pacific Street	Signalized	18.0	B	10.4	B	8.8	A

Notes:

1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.

2- CMP intersection

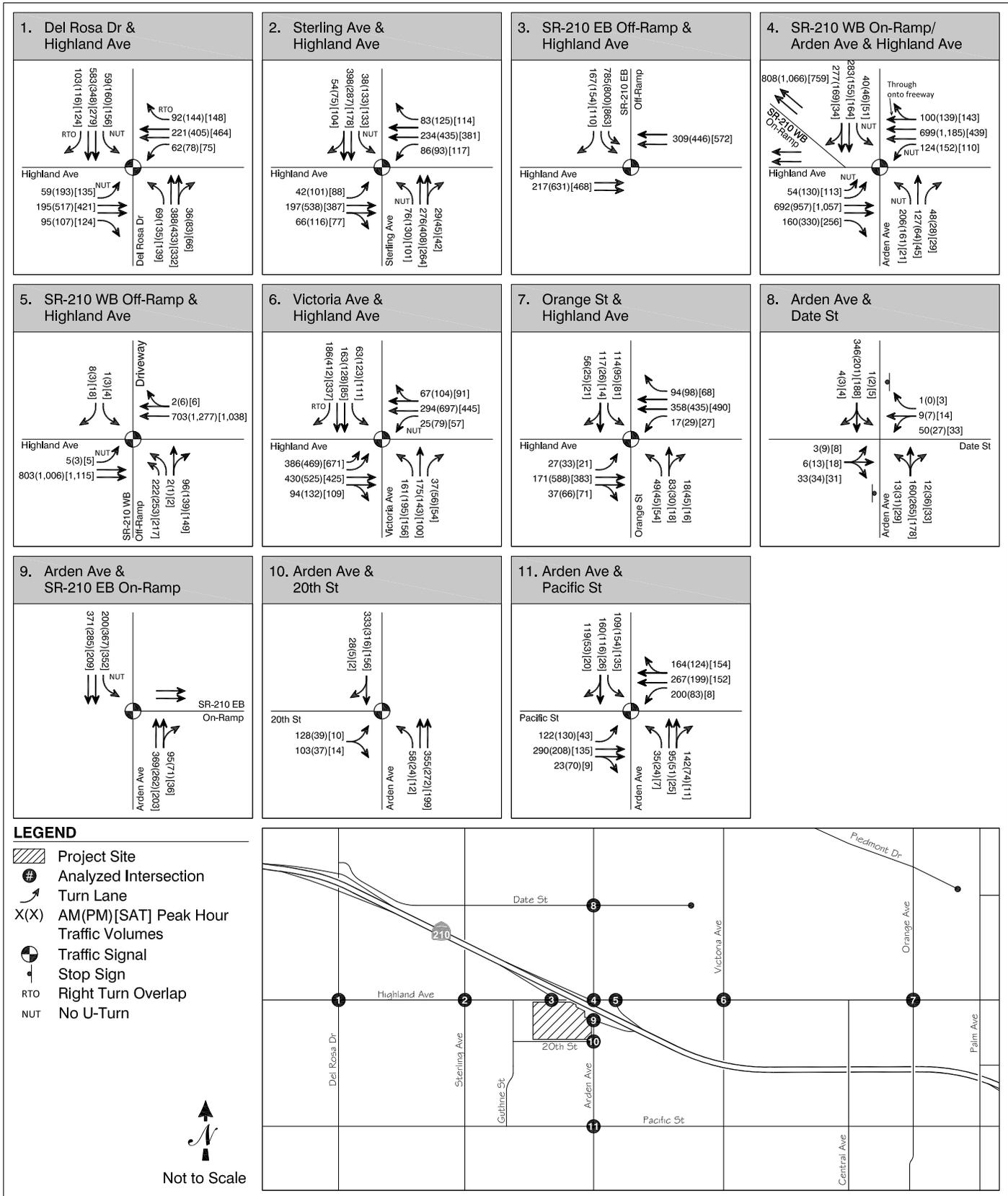
3- V/C = Volume to Capacity ratio. Note – V/C is not calculated for unsignalized intersections.

4- *Side street stop control.*

Source: *Fehr & Peers, 2011*

As shown in Table 4.8-3, most of the intersections operate at acceptable LOS C or better during the peak hours. However, the following intersections operate at LOS D during the peak hours:

- I-210 Eastbound Off Ramp/Highland Avenue – LOS D or E during the AM, PM and Saturday peak hours
- I-210 Westbound On-Ramp/Arden Avenue/Highland Avenue – LOS D during the AM peak hour



Source: Fehr & Peers, 2011.

EXISTING LANE CONFIGURATIONS and PEAK HOUR TRAFFIC VOLUMES

Highland Marketplace EIR
City of San Bernardino, California

FIGURE 4.8-2

4.8.4.2 Impacts Determined To Have No Impact

The Initial Study Checklist that was circulated with a Notice of Preparation (NOP) and identified the following threshold areas where no impacts would occur as a result of the Proposed Project. No additional information was received during the NOP review period to change the conclusions of the Initial Study.

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.

The Project Site does not occur in the San Bernardino International Airport Influence Area as shown in Figure LU-4 of the City's General Plan. No impacts to air traffic patterns, including either an increase in traffic levels or a change in location of air traffic would result and no further analysis in the EIR is warranted.

Result in inadequate emergency access.

Project implementation would not impact emergency access. Site plans are required to meet all City design standards and are reviewed by City Planning, Building & Safety, and Fire Departments to ensure adequate emergency access is provided. No impacts are anticipated.

Conflict with adopted policies plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

There are three transit lines that currently operate in the study area. There is currently a bus stop located at the Highland Avenue / Guthrie Street intersection which provides access from the project site to Route 3/4. Route 1 is accessible via a transit stop on Sterling Avenue at Highland Avenue, and Route 5 is accessible via a transit stop on Del Rosa Avenue at Highland Avenue. The lines, operated by Omnitrans, are described as follows:

- Route 1 – Route 1 (ARMC-San Bernardino-Del Rosa Route) provides service from Lynwood Drive diagonally southwest past the I-215 freeway to Valley Boulevard along various roads, connecting the City of San Bernardino and City of Colton. In the project study area, Route 1 travels from Sterling Avenue to Highland Avenue to Valencia Avenue where it proceeds to the City of Colton. Service is provided at 15- and 30-minute headways on weekdays and at 30-minute headways on weekends. Service runs from approximately 5AM-11 PM on weekdays and 6AM-7:30PM on weekends.
- Routes 3/4 – Routes 3/4 (Baseline – Highland-San Bernardino) run almost identical routes, but in the counter-clockwise direction on Route 3 and in the clockwise direction on Route 4. The bus route provides round-trip service along various roads in the City of San Bernardino that include Highland Avenue to the north, 2nd Street and Baseline Street to the south, Medical Center Drive to the west and Boulder Avenue to the east. In the project study area, the route travels along Highland Avenue from Medical Center Drive to Boulder Avenue. Service is provided at 20-minute headways every day. Route 3, service runs from approximately 4:30AM-11PM on weekdays and 6AM-7PM on

weekends, while Route 4 runs from 4:30AM-11PM on weekdays and 6:30AM-7:30PM on weekends.

- **Route 5** – Bust Route 5 (San Bernardino-Del Rosa-Cal State) provides service from Cal State University of San Bernardino diagonally southeast to Del Rosa Drive then southwest toward the Carousel Mall on E Street along various roads. In the project study area, Bus Route 5 travels along Del Rosa Drive from Eureka Street to the north to Pacific Street to the south. Service is provided at 30-minute headways on weekdays and at 60-minute headways on weekends. Service runs from approximately 5AM-10:30PM on weekdays and 7AM-6:30PM on Saturdays and 6:30AM-7:30PM on Sundays.

The City of San Bernardino General Plan contains several references to public transit in the policy statements including Policies 6.6.1, 6.6.2, and 6.6.3. The project is consistent with these policy statements through existing bus stops located along Highland Avenue and preferential parking for carpools and alternative fuel vehicles. The pedestrian network in the study area consists of sidewalks and pedestrian crosswalks, with appropriate pedestrian crossing controls, at signalized intersections.

The Proposed Project would not conflict with existing policies regarding alternative transportation, and no increased hazards to bicyclists or pedestrians would result. No impact is anticipated.

4.8.4.3 Impacts Determined To Have Potentially Significant Impacts

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.

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 and highways.

Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact TC-1:

The Proposed Project would increase vehicle trips, and impact the level of service along arterial streets, highways and intersections. This would be a potentially significant impact.

Opening Year (2013) No Project

Opening Year (2013) analyzes the intersection conditions with the addition of ambient growth per year from the existing volumes to 2013. Opening Year (2013) also includes traffic from the previous 296 unit multi-family use. A 3% ambient growth per year (equal to 6.09%) was applied to the existing conditions volumes per City of San Bernardino Traffic Impact Study Guidelines. Opening year (2013) with the multi-family use, peak hour traffic volumes for the study intersections are shown on Figure 4.8-3. Intersection LOS analysis for Opening Year (2013) are shown in Table 4.8-4. Refer to Appendix H for analysis data sheets. As shown in Table 4.8-4, most of the study intersections will continue to operate at LOS C or better, with the exception of the following three intersections:

- Sterling Avenue/Highland Avenue – LOS D during the PM peak hour
- I-210 Eastbound Off Ramp/Highland Avenue – LOS D during the AM and PM peak hours; LOS E during the weekend peak hour
- I-210 Westbound On-Ramp/Arden Avenue/Highland Avenue – LOS D during the AM peak hour

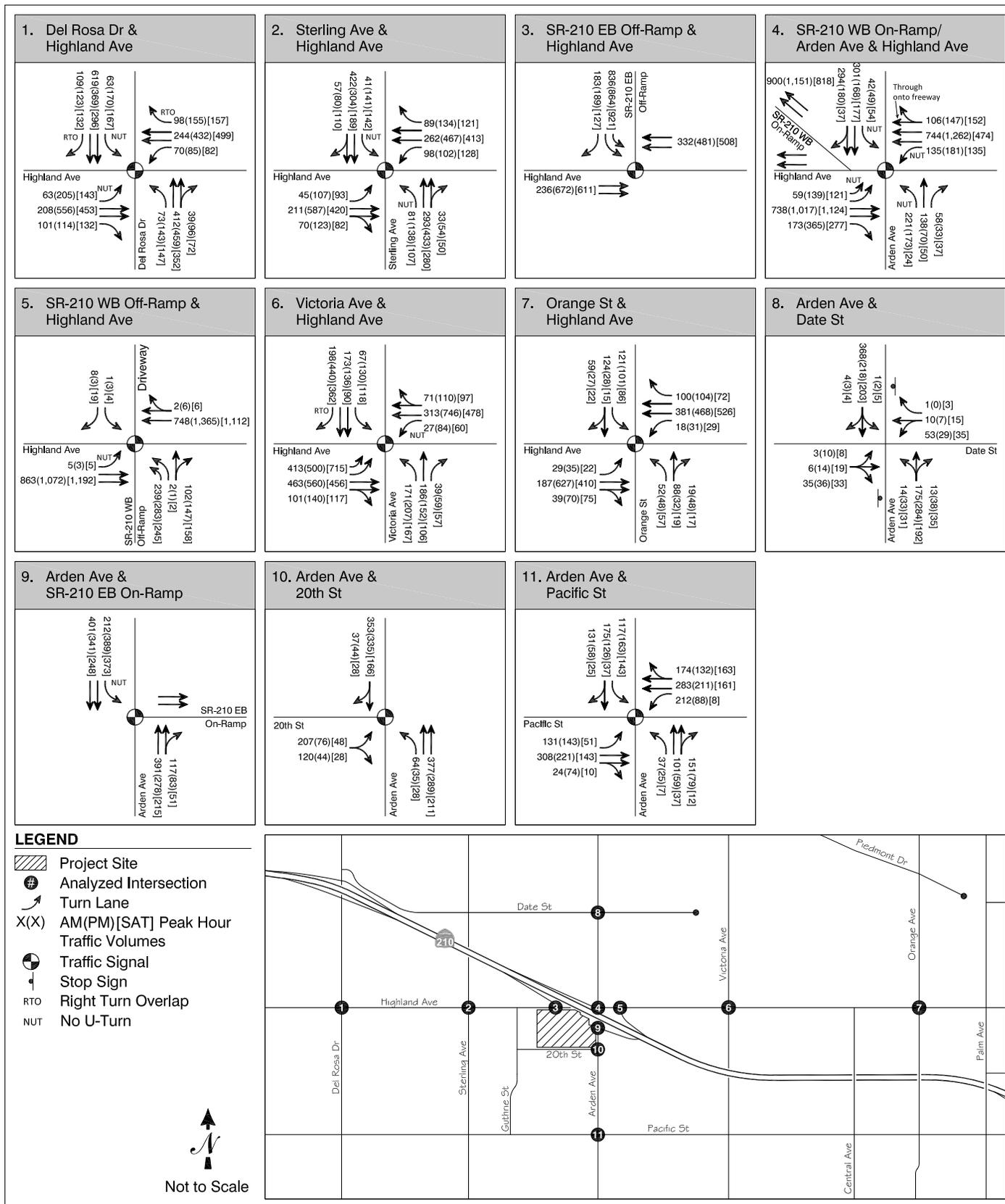
Table 4.8-4
Opening Year (2013) No Project
Intersection LOS

Intersection	Control	AM Peak Hour			PM Peak Hour			Weekend Peak Hour		
		Delay ¹	LOS	V/C ³	Delay ¹	LOS	V/C ³	Delay	LOS	V/C
1. Del Rosa Drive & Highland Avenue ²	Signalized	27.8	C	0.42	32.4	C	0.61	27.5	C	0.56
2. Sterling Avenue & Highland Avenue ²	Signalized	28.5	C	0.50	36.2	D	0.62	27.7	C	0.49
3. I-210 Eastbound Off-Ramps & Highland Avenue ²	Signalized	43.4	D	0.53	49.6	D	0.73	76.6	E	0.75
4. I-210 Westbound On-Ramps/Arden Avenue & Highland Avenue ²	Signalized	49.6	D	0.83	26.5	C	0.65	30.4	C	0.71
5. I-210 Westbound Off-Ramps & Highland Avenue ²	Signalized	8.6	A	0.44	11.5	B	0.62	10.9	B	0.55
6. Victoria Avenue & Highland Avenue ²	Signalized	23.3	C	0.55	29.2	C	0.65	32.6	C	0.61
7. Orange Avenue & Highland Avenue	Signalized	19.1	B	0.36	11.3	B	0.37	8.6	A	0.28
8. Arden Avenue & Date Street	SSSC ⁴	21.9	C	n/a	18.3	C	n/a	15.6	C	n/a
9. Arden Avenue & I-210 Eastbound On-Ramps	Signalized	7.2	A	0.45	12.0	B	0.40	13.3	B	0.38
10. Arden Avenue & 20 th Street	Signalized	33.8	C	0.90	7.0	A	0.39	6.4	A	0.22
11. Arden Avenue & Pacific Street	Signalized	19.8	B	0.70	10.5	B	0.36	9.1	A	0.27

Notes:

- 1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
- 2- CMP intersection
- 3- V/C = Volume to Capacity ratio. Note – V/C is not calculated for unsignalized intersections.
- 4- Side street stop control.

Source: *Fehr & Peers, 2011*



Source: Fehr & Peers, 2011.

OPENING YEAR (2013) NO PROJECT LANE CONFIGURATIONS and PEAK HOUR TRAFFIC VOLUMES

Highland Marketplace EIR
 City of San Bernardino, California

The Proposed Project was assumed to consist of the following uses:

- Home Depot Store – The Home Depot store is 136,090 square feet (sf) and includes a garden center.
- Retail Shops – 57,670 sf of leasable floor area will be occupied by retail shops.
- Gas Station with Convenience Market – The gas station is 2,900 sf with three islands totaling 12 fueling stations.
- Bank with Drive-Thru – The bank is 4,560 sf and has three drive-thru lanes.
- Fast-food with Drive-Thru Window – The fast-food restaurant is 3,500 sf with one drive-thru lane that wraps around the building.

Trip Distribution

The project trip distributions reflect the likely approach and departure routes to the project site, as determined by the location of complementary land uses and existing traffic volumes on study area roadways. Refer to Figure 4.8-4 for distributions of project trips.

Trip Assignment

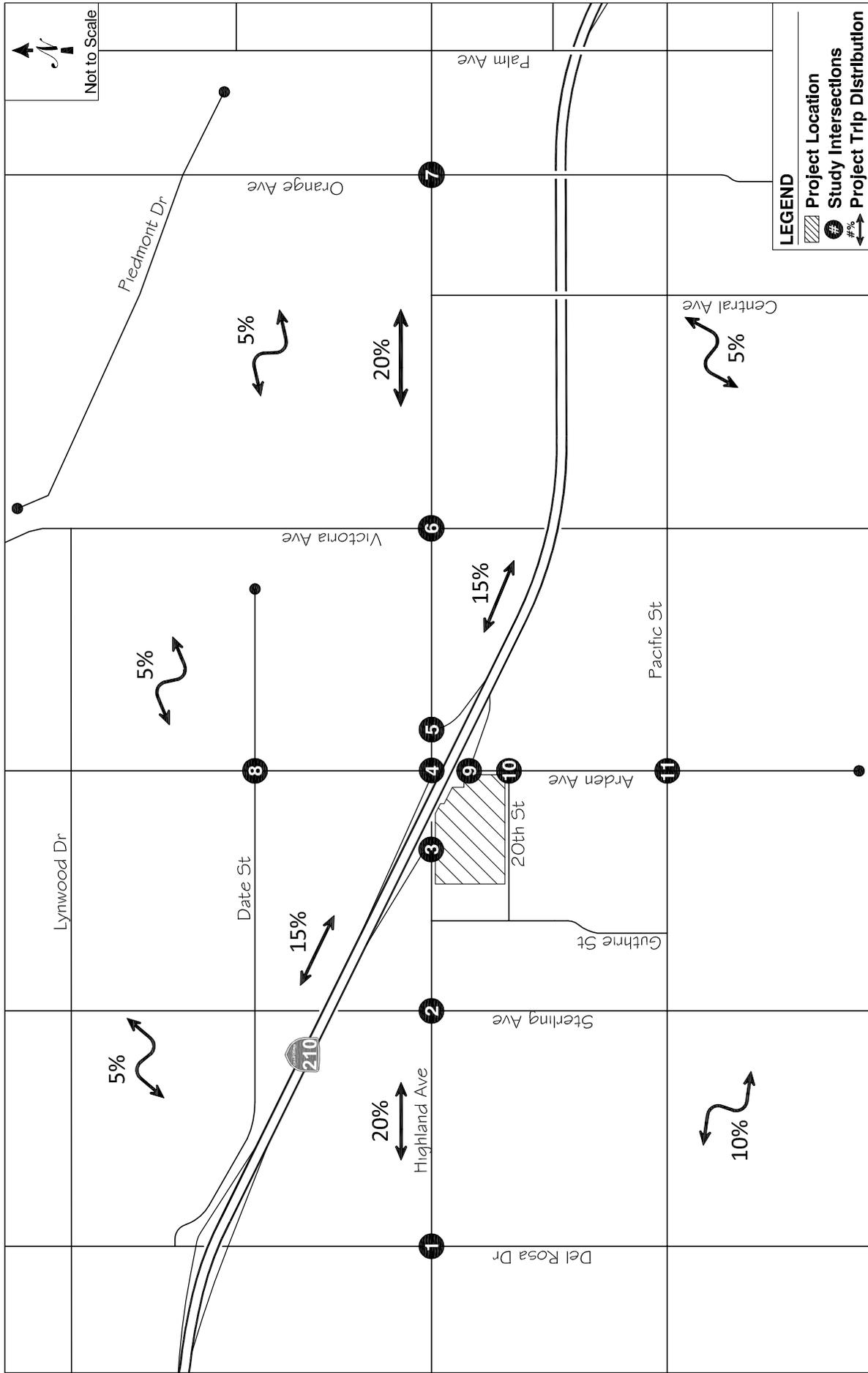
Based on the trip distribution, project trips were assigned to the study area roadways and intersections. Refer to Figure 4.8-5 for Opening Year (2013) With Project Condition Volumes and Lane Configurations.

Project Roadway Design Improvements

The Proposed Project includes the following intersection improvements:

- **Highland Avenue/I-210 eastbound off-ramp** – The addition of a fourth southern leg to the intersection forming a project-site driveway including the addition of a westbound left-turn lane to provide access to the project site.
- **Highland Avenue/Arden Avenue** – Addition of a second westbound left-turn lane.
- **Arden Avenue/I-210 eastbound on-ramp** – The addition of a fourth western leg to the intersection forming a project-site driveway.

These referenced improvements were included in the “with project” conditions assessment. Refer to Table 4.8-6 for intersection LOS results and Appendix H for calculations worksheets.

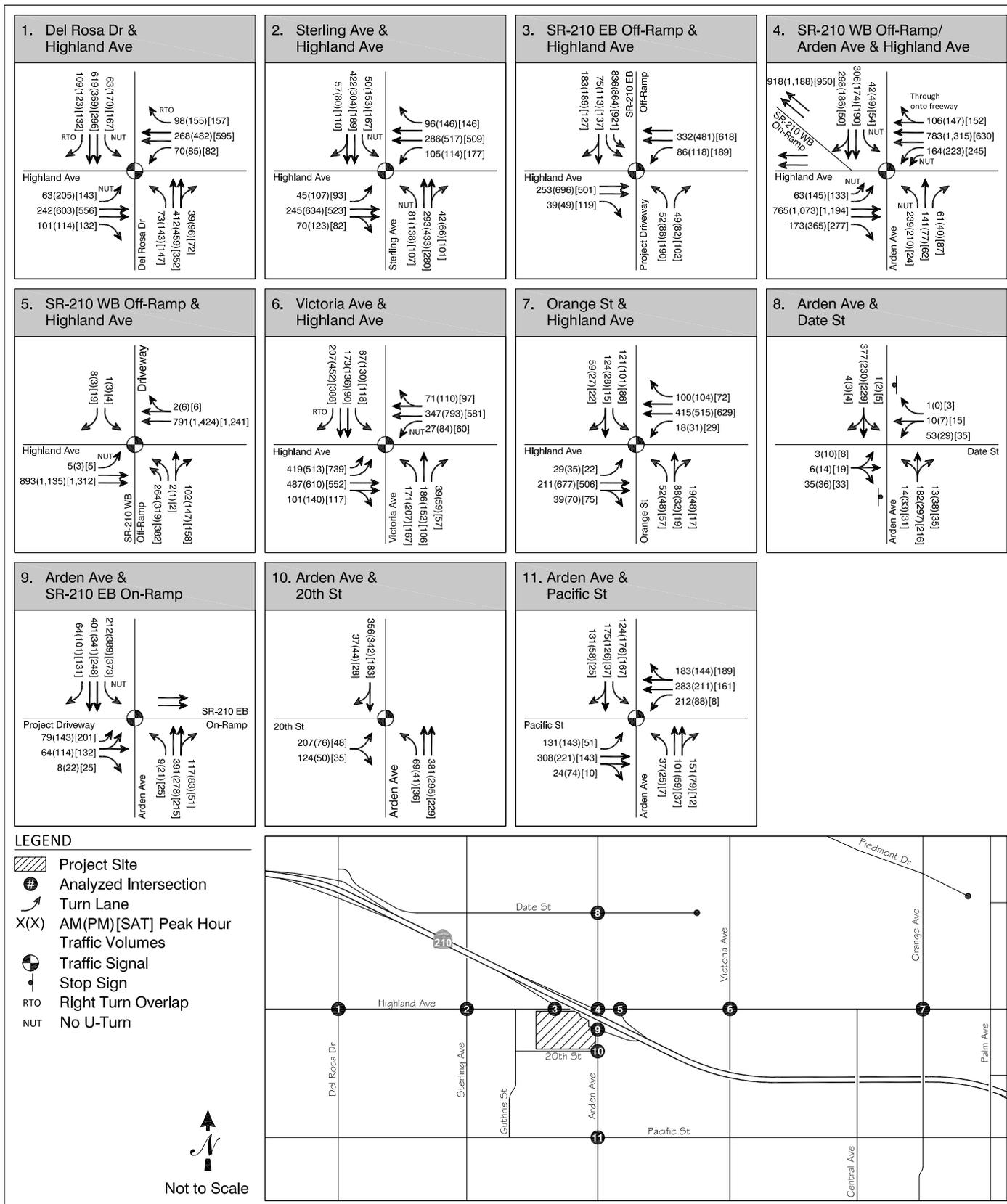


Sources: Fehr & Peers, 2011.

PROJECT TRIP DISTRIBUTION

Highland Marketplace EIR
 City of San Bernardino, California

FIGURE 4.8-4



Source: Fehr & Peers, 2011.

OPENING YEAR (2013) PLUS PROJECT LANE CONFIGURATIONS and PEAK HOUR TRAFFIC VOLUMES

Highland Marketplace EIR
City of San Bernardino, California

**Table 4.8-6
Opening Year (2013) With Project
Intersection LOS**

Intersection	Control	AM Peak Hour			PM Peak Hour			Weekend Peak Hour		
		Delay ¹	LOS	V/C ³	Delay ¹	LOS	V/C ³	Delay	LOS	V/C
1. Del Rosa Drive & Highland Avenue ²	Signalized	27.6	C	0.41	32.2	C	0.61	27.1	C	0.59
2. Sterling Avenue & Highland Avenue ²	Signalized	29.0	C	0.51	28.0	C	0.63	25.4	C	0.58
3. I-210 Eastbound Off-Ramps & Highland Avenue ²	Signalized	47.2	D	0.67	31.7	C	0.68	69.7	E	0.82
4. I-210 Westbound On-Ramps/Arden Avenue & Highland Avenue ²	Signalized	49.7	D	0.83	29.0	C	0.64	47.5	D	0.87
5. I-210 Westbound Off-Ramps & Highland Avenue ²	Signalized	8.9	A	0.46	12.3	B	0.64	14.0	B	0.65
6. Victoria Avenue & Highland Avenue ²	Signalized	23.7	C	0.56	30.5	C	0.67	38.2	D	0.66
7. Orange Avenue & Highland Avenue	Signalized	18.6	B	0.37	10.9	B	0.39	8.0	A	0.32
8. Arden Avenue & Date Street	SSSC ⁴	22.4	C	n/a	18.8	C	n/a	16.7	C	n/a
9. Arden Avenue & I-210 Eastbound On-Ramps	Signalized	15.9	B	0.50	23.3	C	0.50	25.0	C	0.51
10. Arden Avenue & 20 th Street	Signalized	22.2	C	0.80	5.6	A	0.34	6.3	A	0.24
11. Arden Avenue & Pacific Street	Signalized	20.0	B	0.72	10.8	B	0.37	9.2	A	0.31

Notes:

- 1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
- 2- CMP intersection
- 3- V/C = Volume to Capacity ratio. Note – V/C is not calculated for unsignalized intersections.
- 4- Side street stop control.

Source: *Fehr & Peers, 2011*

Impact Assessment

Table 4.8-7 compares the change in volume-to-capacity (V/C) ratios at intersections that operate at LOS C, D, E, or F to determine project impacts for AM peak hour, PM peak hour, and Saturday (SAT) mid-day peak hour. The V/C changes are compared to the allowable change shown in Table 4.8-2.

As shown in Table 4.8-7, the Proposed Project would significantly impact the following intersections:

- Sterling Avenue/Highland Avenue – Saturday Peak Hour
- I-210 Eastbound Off-Ramp/Highland Avenue – AM and Saturday Peak Hour
- I-210 Westbound On-Ramp/Arden Avenue & Highland Avenue – Saturday Peak Hour
- Victoria Avenue & Highland Avenue – Saturday Peak Hour

**Table 4.8-7
Impacts Opening Year (2013) With Project
Signalized Intersection**

Intersection	LOS	Allowable	No	With	Δ V/C
	AM (PM) [SAT]	Δ V/C AM (PM) [SAT]	Project AM (PM) [SAT]	Project AM (PM) [SAT]	AM (PM) [SAT]
1. Del Rosa Dr & Highland Ave ²	C	0.04	0.42	0.41	0.01
	(C)	(0.04)	0.61	0.61	0.00
	[C]	[0.04]	0.56	0.59	0.03
2. Sterling Ave & Highland Ave ²	C	0.04	0.50	0.51	0.01
	(D)	(0.02)	0.62	0.63	0.01
	[C]	[0.04]	0.49	0.58	0.09
3. I-210 Eastbound Off-Ramp & Highland Ave ²	D	0.02	0.53	0.67	0.14
	(D)	(0.02)	0.73	0.68	-0.05
	[E]	[0.01]	0.75	0.82	0.07
4. I-210 Westbound On-Ramp/Arden Ave & Highland Ave ²	D	0.02	0.83	0.83	0.00
	(C)	(0.04)	0.65	0.64	-0.01
	[C]	[0.04]	0.71	0.86	0.15
5. I-210 Westbound Off-Ramps & Highland Ave ²	A				
	(B)				
	[B]				
6. Victoria Ave & Highland Ave ²	C	0.04	0.55	0.56	0.01
	(C)	(0.04)	0.65	0.67	0.02
	[D]	[0.02]	0.61	0.66	0.05
7. Orange Ave & Highland Ave	B				
	(B)				
	[A]				
8. Arden Avenue & Date St	C				
	(C)	N/A ²	N/A ²	N/A ²	N/A ²
	[C]				
9. Arden Ave & I-210 Eastbound On-Ramps	A				
	(B)				
	[B]				
10. Arden Ave & 20 th St	C	0.04	0.90	0.80	-0.10
	(A)				
	[A]				
11. Arden Ave & Pacific St	B				
	(B)				
	[A]				

Notes:

1- V/C = Volume to Capacity ratio. Calculated using the Synchro 6 software package.

Shaded cells indicate where intersections operate at LOS A or B.

Bold-Italicized type indicates potential significant project impact.

2-Side street stop control. Not a signalized intersection..

Source: Fehr & Peers, 2011.

Queuing Assessment Year 2013

At the request of Caltrans a queuing or traffic back-up assessment was prepared for the freeway ramp intersections being modified as part of the Proposed Project.

Ramp queuing was assessed using Synchro version 6.14. The 95th percentile queue length is reported and compared against the available queue length measured from aerials or from the site plan. This information is provided to assist with the Caltrans encroachment permits and therefore only focuses on left-turn storage for Caltrans-controlled intersections.

The results of the queuing assessment indicated that the following intersections will have insufficient queuing storage (refer to Table 4.8-8 for the results of peak hour queuing analysis):

- **I-210 Eastbound Off-Ramp & Highland Avenue** – Westbound Left-Turn exceeds available storage by 125’ during the weekend peak hour. Queuing also exceeds storage for the Northbound Left-Turn by 275’ during the weekend peak hour.
- **I-210 Westbound On-Ramp/Arden Avenue/Highland Avenue** – Northbound Left-Turn exceeds available storage by 50’ – 300’ during the peak hours. Queuing also exceeds storage for the Westbound Left-Turn by 30’ during the weekend peak hour.
- **I-210 Eastbound On-Ramp/Arden Avenue** – Southbound left-turn exceeds the available storage by approximately 65’ - 90’ during the PM peak hour.

Table 4.8-8
Caltrans Queuing Analysis
Opening Year (2013) With Project

Intersection/Movement	Available Storage (ft)	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
<i>3.I-210 Eastbound Off-Ramp & Highland Ave</i>				
Westbound Left-Turn	175’	172’	167’	300’
Northbound Left-Turn	145’	122’	184’	418’
Northbound Right-Turn	145’	40’	51’	56’
Southbound Left-Turn ¹	985’	462’	408’	527’
Southbound Right-Turn ¹	985’	310’	195’	204’
<i>4. I-210 Westbound On-Ramp/Arden Ave & Highland Ave²</i>				
Eastbound Left-Turn	250’	56’	104’	106’
Eastbound Right-Turn	220’	86’	209’	210’
Westbound Left-Turn	140’	122’	140’	171’
Northbound Left-Turn	275’	386’	324’	574’
Northbound Right-Turn	275’	25’	36’	45’
Southbound Left-Turn	115’	70’	69’	77’
<i>9. I-210 Eastbound On-Ramp & Arden Ave²</i>				
Eastbound Left-Turn	130’	70’	111’	143’
Eastbound Right-Turn	130’	25’	25’	25’
Northbound Left-Turn	320’	25’	34’	38’
Southbound Left-Turn	275’	150’	360’	335’
Southbound Right-Turn	75’	25’	25’	47’

Notes:

1- Approximate length to the freeway gore (road) point is 1,350’. Per AASHTO *A Policy on Geometric Design of Highways and Streets*, a stopping sight distance for facilities with a 65 MPH design speed requires at least 365’ of stopping sight distance. Therefore, the queue storage is estimated to be 985 feet.

Bold-Italicized type indicates insufficient storage.

Minimum reported queue is 25’.

Source: *Fehr & Peers, 2011.*

Future Year Buildout (2030) Traffic Conditions

A 3% annual growth rate was applied to existing traffic counts to develop 2030 traffic volumes. A list of pending and approved projects was also used to determine the amount of traffic generated from related projects which were added to the traffic volumes. Refer to Appendix H for the location of these projects.

Future Year Buildout (2030) No Project peak hour traffic volumes for the study intersections are shown on Figure 4.8-6 and Future Year Buildout (2030) With Project peak hour volumes shown on Figure 4.8-7.

Intersection Operations LOS

The LOS results are summarized in Table 4.8-9 for the Future Year Buildout (2030) No Project Condition. Table 4.8-10 summarizes the results for the Future Year Buildout (2030) With Project Conditions. Refer to Appendix H for the calculation sheets.

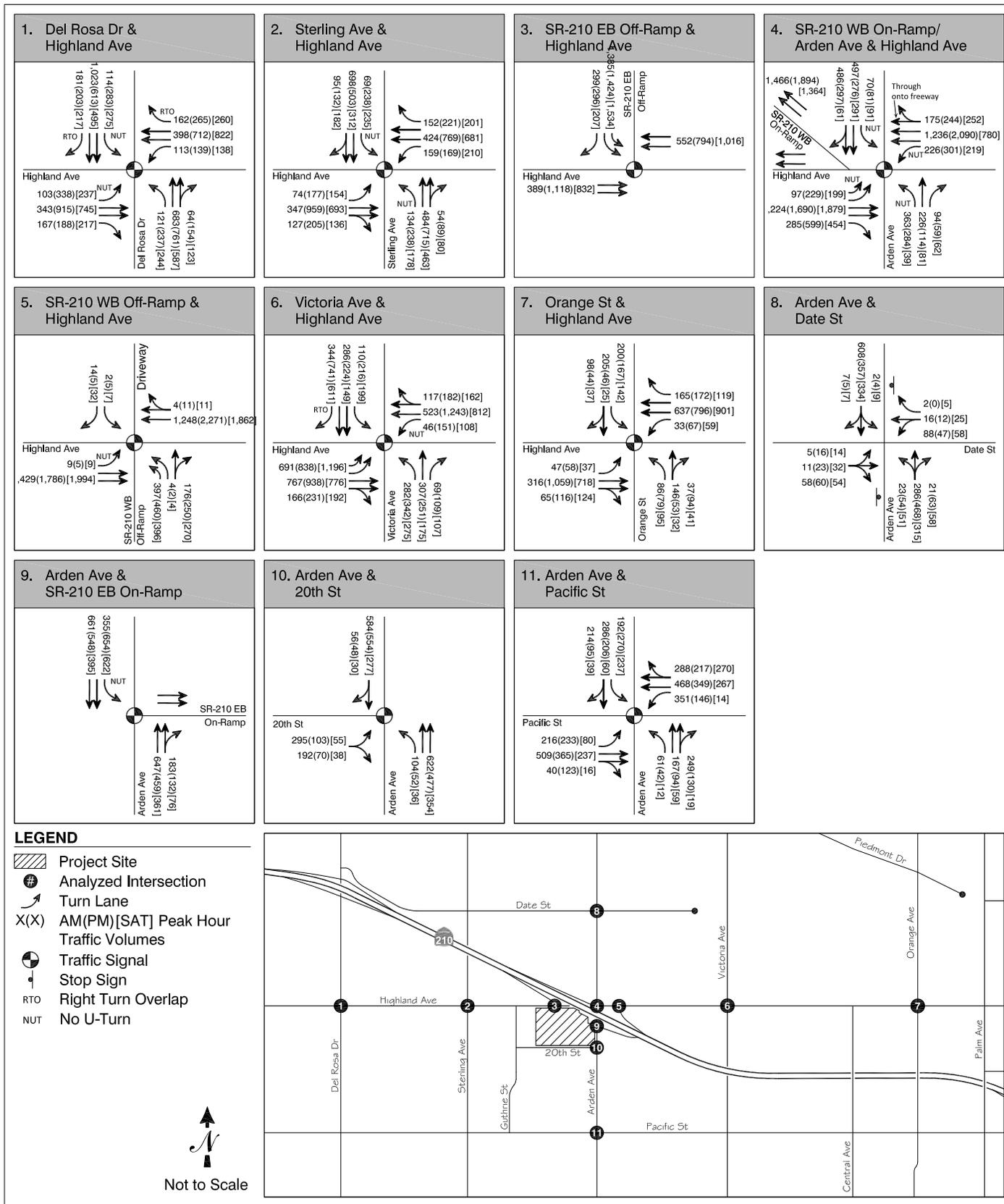
Table 4.8-9
Intersection LOS
Future Buildout (2030) No Project

Intersection	Control	AM Peak Hour			PM Peak Hour			Weekend Peak Hour		
		Delay ¹	LOS	V/C ³	Delay ¹	LOS	V/C ³	Delay ¹	LOS	V/C ³
1. Del Rosa Dr & Highland Ave ²	Signalized	31.1	C	0.59	64.8	E	0.97	40.6	D	0.83
2. Sterling Ave & Highland Ave ²	Signalized	30.1	C	0.59	72.6	E	0.88	46.9	D	0.73
3. I-210 Eastbound Off-Ramps & Highland Ave ²	Signalized	34.1	C	0.79	187.7	F	1.09	134.8	F	1.11
4. I-210 Westbound On-Ramps/Arden Ave & Highland Ave ²	Signalized	67.8	E	0.98	118.3	F	1.07	104.4	F	1.04
5. I-210 Westbound Off-Ramps & Highland Ave ²	Signalized	12.8	B	0.61	36.2	D	0.93	20.4	C	0.77
6. Victoria Ave & Highland Ave ²	Signalized	45.7	D	0.75	152.8	F	1.27	234.3	F	1.13
7. Orange Ave & Highland Ave	Signalized	14.4	B	0.43	10.8	B	0.56	8.7	A	0.41
8. Arden Ave & Date St	SSSC ⁴	57.5	F	n/a	40.8	E	n/a	30.4	D	n/a
9. Arden Ave & I-210 Eastbound On-Ramps	Signalized	11.9	B	0.49	19.1	B	0.61	20.3	C	0.54
10. Arden Ave & 20 th St	Signalized	14.7	B	0.73	6.9	A	0.48	5.1	A	0.24
11. Arden Ave & Pacific St	Signalized	17.8	B	0.65	13.6	B	0.58	10.2	A	0.38

Notes:

- 1- Delay for intersections based on application of 2000 *Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
- 2- CMP intersection
- 3- V/C = Volume to Capacity ratio. Note – V/C is not calculated for unsignalized intersections.
- 4- Side street stop control.

Source: *Fehr & Peers, 2011*

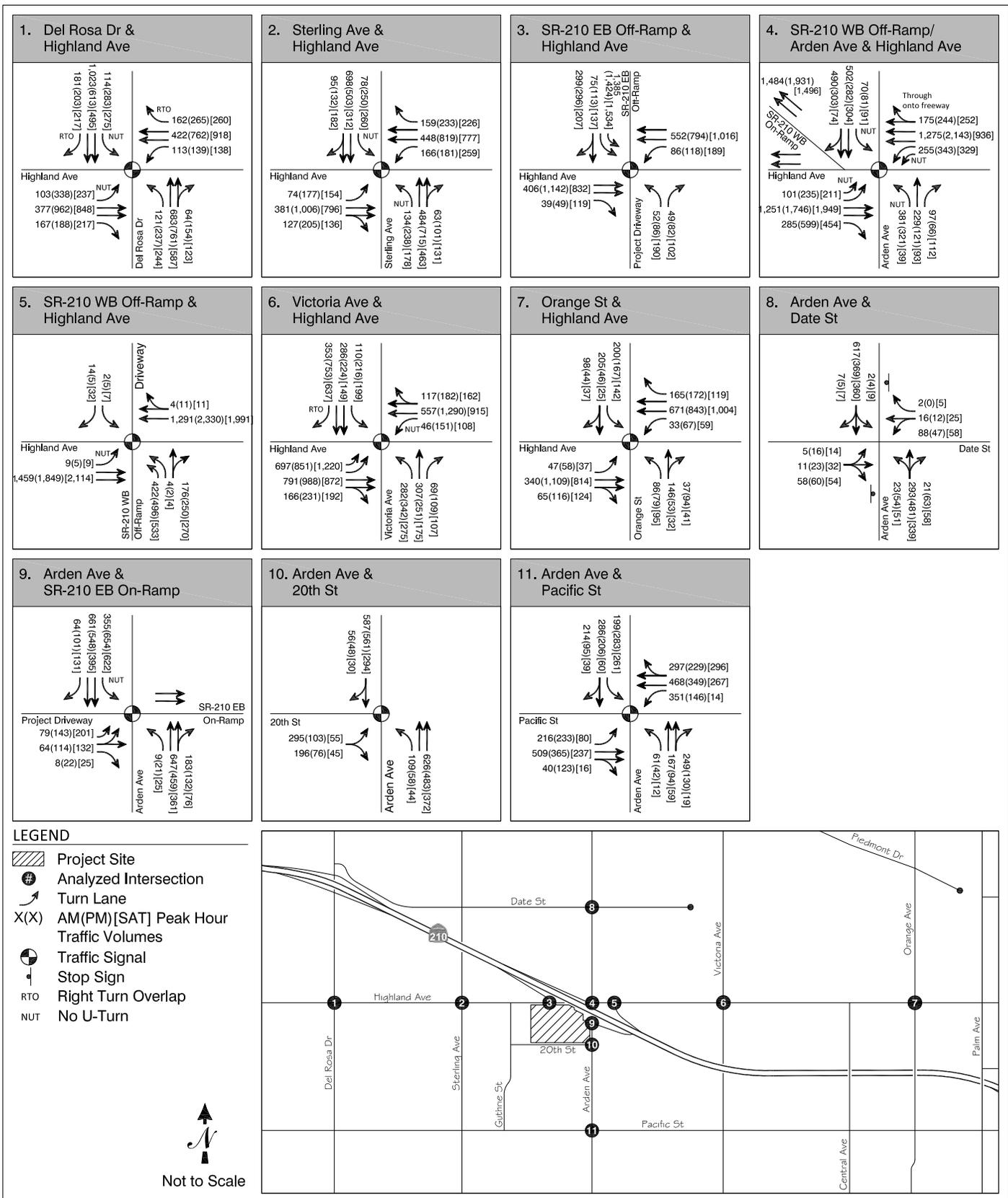


Source: Fehr & Peers, 2011.

FUTURE BUILD-OUT YEAR (2030) LANE CONFIGURATIONS and PEAK HOUR TRAFFIC VOLUMES

Highland Marketplace EIR
City of San Bernardino, California

FIGURE 4.8-6



Source: Fehr & Peers, 2011.

FUTURE BUILD-OUT YEAR (2030) PLUS PROJECT LANE CONFIGURATIONS and PEAK HOUR TRAFFIC VOLUMES

Highland Marketplace EIR
City of San Bernardino, California

**Table 4.8-10
Intersection LOS
Future Buildout (2030) With Project**

Intersection	Control	AM Peak Hour			PM Peak Hour			Weekend Peak Hour		
		Delay ¹	LOS	V/C ³	Delay ¹	LOS	V/C ³	Delay	LOS	V/C
1. Del Rosa Drive & Highland Avenue ²	Signalized	30.9	C	0.59	64.9	E	0.98	39.5	D	0.84
2. Sterling Avenue & Highland Avenue ²	Signalized	30.3	C	0.61	78.8	E	0.93	58.1	E	0.83
3. I-210 Eastbound Off-Ramps & Highland Avenue ²	Signalized	24.8	C	0.71	75.3	E	0.98	95.5	F	1.07
4. I-210 Westbound On-Ramps/Arden Avenue & Highland Avenue ²	Signalized	72.4	E	1.01	126.4	F	1.05	148.5	F	1.18
5. I-210 Westbound Off-Ramps & Highland Avenue ²	Signalized	13.3	B	0.62	41.2	D	0.95	28.9	C	0.85
6. Victoria Avenue & Highland Avenue ²	Signalized	45.1	D	0.75	155.0	F	1.28	73.3	E	1.02
7. Orange Avenue & Highland Avenue	Signalized	17.3	B	0.44	10.8	B	0.57	8.6	A	0.44
8. Arden Avenue & Date Street	SSSC ⁴	59.9	F	N/A	42.6	E	N/A	40.1	E	n/a
9. Arden Avenue & I-210 Eastbound On-Ramps	Signalized	19.6	B	0.54	27.6	C	0.69	30.7	C	0.65
10. Arden Avenue & 20 th Street	Signalized	12.3	B	0.68	6.3	A	0.42	5.3	A	0.25
11. Arden Avenue & Pacific Street	Signalized	17.9	B	0.65	14.0	B	0.59	10.6	B	0.41

Notes:

1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.

2- CMP intersection

3- V/C = Volume to Capacity ratio. Note – V/C is not calculated for unsignalized intersections.

4- Side street stop control.

Source: *Fehr & Peers, 2011*

Impact Assessment

Table 4.8-11 compares the change in V/C ratios at intersections that operate at LOS C, D, E, or F to determine project impacts for AM peak hour, PM peak hour, and Saturday (SAT) mid-day peak hour. These V/C changes are compared to the allowable change shown in Table 4.8-2.

As shown in Table 4.8-11, the Proposed Project would significantly impact the following locations:

- Sterling Avenue/Highland Avenue – PM and Weekend Peak Hour
- I-210 Westbound On-Ramp/Arden Avenue & Highland Avenue – AM Peak Hour
- Arden Avenue/I-210 Eastbound On-Ramp – PM and Weekend Peak Hour

**Table 4.8-11
Impacts For Signalized Intersections
Future Buildout (2030) With Project**

Intersection	<u>LOS</u>	<u>Allowable</u>	<u>No</u>	<u>With</u>	<u>ΔV/C</u>
	AM (PM) [SAT]	Δ V/C AM (PM) [SAT]	Project AM (PM) [SAT]	Project AM (PM) [SAT]	AM (PM) [SAT]
1. Del Rosa Dr & Highland Ave ²	C	0.04	0.59	0.59	0.00
	(E)	(0.01)	0.97	0.98	0.01
	[D]	[0.02]	0.83	0.84	0.01
2. Sterling Ave & Highland Ave ²	C	0.04	0.59	0.61	0.02
	(E)	(0.01)	0.88	0.93	0.05
	[E]	[0.01]	0.73	0.83	0.10
3. I-210 Eastbound Off-Ramp & Highland Ave ²	C	0.04	0.79	0.71	-0.08
	(E)	(0.01)	1.09	0.98	-0.11
	[F]	[0.01]	1.11	1.07	-0.04
4. I-210 Westbound On-Ramp/Arden Ave & Highland Ave ²	E	0.01	0.98	1.01	0.03
	(F)	(0.01)	1.07	1.05	-0.02
	[F]	[0.01]	1.04	1.02	-0.02
5. I-210 Westbound Off-Ramps & Highland Ave ²	B				
	(D)	0.02	0.93	0.95	0.02
	[C]	0.04	0.82	0.85	0.03
6. Victoria Ave & Highland Ave ²	D	0.02	0.75	0.75	0.00
	(F)	(0.01)	1.27	1.28	0.01
	[E]	[0.01]	1.13	1.02	-0.11
7. Orange Ave & Highland Ave	B				
	(B)				
	[A]				
8. Arden Ave & Date St	F				
	(E)	N/A ²	N/A ²	N/A ²	N/A ²
	[E]				
9. Arden Ave & I-210 Eastbound On-Ramps	B				
	(C)	0.04	0.61	0.69	0.08
	[C]	0.04	0.54	0.65	0.11
10. Arden Ave & 20 th St	B				
	(A)				
	[A]				
11. Arden Avenue & Pacific Street	B				
	(B)				
	[B]				

Notes:

1- V/C = Volume to Capacity ratio. Calculated using the Synchro 6 software package.

Shaded cells indicate where intersections operate at LOS A or B.

2-Side street stop control. Not a signalized intersection.

Bold-Italicized type indicates project impact.

Source: Fehr & Peers, 2011.

Queuing Assessment Year 2030

Table 4.8-12 summarizes the results of peak hour queuing analysis. The results of the queuing assessment indicate that the following movements will have insufficient queuing storage:

- I-210 Eastbound Off-Ramp & Highland Avenue
 - Westbound Left-Turn – Weekend Peak Hour

Table 4.8-12
Caltrans Queuing Analysis
Future Buildout (2030) With Project

Intersection/Movement	Available Storage (ft)	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
<i>3. I-210 Eastbound Off-Ramp & Highland Avenue</i>				
Westbound Left-Turn	175'	156'	156'	<i>264'</i>
Northbound Left-Turn	145'	127'	140'	<i>339'</i>
Northbound Right-Turn	145'	50'	70'	55'
Southbound Left-Turn ¹	985'	894'	548'	<i>1017'</i>
Southbound Right-Turn ¹	985'	283'	129'	270'
<i>4. I-210 Westbound On-Ramp/Arden Avenue & Highland Avenue²</i>				
Eastbound Left-Turn	250'	75'	213'	176'
Eastbound Right-Turn	220'	166'	<i>552'</i>	<i>350'</i>
Westbound Left-Turn	140'	157'	<i>220'</i>	<i>212'</i>
Northbound Left-Turn	275'	<i>608'</i>	<i>484'</i>	<i>650'</i>
Northbound Right-Turn	275'	47'	43'	58'
Southbound Left-Turn	115'	87'	88'	95'
<i>9. I-210 Eastbound On-Ramp & Arden Avenue²</i>				
Eastbound Left-Turn	130'	87'	<i>156'</i>	<i>198'</i>
Eastbound Right-Turn	130'	25'	25'	25'
Northbound Left-Turn	320'	25'	42'	48'
Southbound Left-Turn	275'	<i>314'</i>	<i>543'</i>	<i>502'</i>
Southbound Right-Turn	75'	25'	25'	15'

Notes:

- 1- Approximate length to the freeway gore (road) point is 1,350'. Per AASHTO *A Policy on Geometric Design of Highways and Streets*, a stopping sight distance for facilities with a 65 MPH design speed requires at least 365' of stopping sight distance. Therefore, the queue storage is estimated to be 985 feet.

Bold-Italicized type indicates insufficient storage.

Minimum reported queue is 25'.

Source: *Fehr & Peers, 2011.*

- Northbound Left-Turn – Weekend Peak Hour
- Southbound Left-Turn – Weekend Peak Hour

Westbound Left-Turn exceeds available storage by 125' during the weekend peak hour, which would queue back to the I-210 Westbound On-Ramp/Arden Avenue/Highland Avenue intersection. Queuing also exceeds storage for the

Northbound Left-Turn by 275' during the weekend peak hour, which would interfere with operations inside the project site. The Southbound Left-Turn queuing exceeds the storage on the Off-Ramp. This is the result of significant increase in volume exiting the freeway to reach the San Manuel Casino. This is not classified as a project impact. The City is currently investigating construction of an interchange at Victoria Avenue that would service the casino and alleviate congestion at this intersection.

- Arden Avenue/Highland Avenue/I-210 Eastbound On-Ramp
 - Eastbound Right-Turn – PM and Weekend Peak Hour
 - Westbound Left-Turn – PM and Weekend Peak Hour
 - Northbound Left-turn – AM, PM and Weekend Peak Hours

Northbound Left-Turn exceeds available storage by 210' – 375' during the peak hours, which would queue through the I-210 Eastbound On-Ramp/Arden Avenue intersection. Queuing also exceeds storage for the Westbound Left-Turn by 80' during the PM and weekend peak hour, and for the Eastbound Right-Turn by 130' – 330'.

- I-210 Eastbound On-Ramp/Arden Avenue
 - Eastbound Left-Turn – PM and Weekend Peak Hour
 - Southbound Left-Turn – AM, PM and Weekend Peak Hours

Operations would improve with optimized signal timings and signal coordination. The optimized timings would reduce the eastbound queue to 126'. A signal interconnect with appropriate coordination timing plans would “meter” southbound traffic from the upstream intersection such that queues would be controlled and would not interfere with traffic operations.

Project Fair Share Assessment

Fair share calculations were developed for the proposed project and its associated impacts. These calculations include the City's local circulation fee, the regional circulation fee, and the calculated fair-share contribution for the proposed project.

The local and regional circulation fees are based on adopted fee programs, were provided by the City of San Bernardino. These circulation fees were applied to calculate the fees for the proposed project. Refer to Table 4.8-13 for Traffic Impact Fees.

Project Fair share was calculated using the Caltrans' fair share calculation methodology. Refer to Table 4.8-14 for project fair share calculations.

**Table 4.8-13
Traffic Impact Fees**

Land Use Designation	Size	Fee Obligation	Estimated Fee
Local Fee Program			
Home Improvement Store	107,979 sq. ft.	\$0.252 / sq. ft	\$27,210.71
Garden Area	28,111 sq. ft.	\$0.252 / sq. ft	\$7,083.97
Shopping Center	43,830 sq. ft.	\$0.252 / sq. ft	\$11,045.16
Gas Station with Convenience Market	2,900 sq. ft.	\$0.252 / sq. ft	\$730.80
Remaining 5 Pads	24,800 sq. ft.	\$0.252 / sq. ft	\$6,249.6
Total Local Fee Obligation:			\$52,320.24
Regional Fee Program			
Home Improvement Store	107,979 sq. ft.	\$2.625 / sq. ft	\$283,444.88
Garden Area	28,111 sq. ft.	\$2.625 / sq. ft	\$73,791.38
Shopping Center	43,830 sq. ft.	\$2.625 / sq. ft	\$115,053.75
Gas Station with Convenience Market	2,900 sq. ft.	\$2.625 / sq. ft	\$7,612.50
Remaining 5 Pads	24,800 sq. ft.	\$2.625 / sq. ft	\$65,100
Total Regional Fee Obligation:			\$545,002.50

Source: City of San Bernardino Development Impact Fees, July 15, 2010.
Fehr & Peers 2011

**Table 4.8-14
Project Fair Share**

Location/Impact	Peak Hour	Existing Volume	Project Volume	Year 2030 With Project Volume	Total New Traffic	Project Fair Share Percentage
Sterling Ave./ Highland Ave.	PM	2,486	145	4,560	2,074	7%
	Weekend	1,986	349	3,874	1,888	18%
Arden Ave./ Highland Ave.	AM	2,810	132	5,111	2,301	6%
Date St./ Arden Ave.	PM	628	25	1,134	506	5%
SR-210 Eastbound On-Ramp/ Arden Ave.	PM	985	401	2,194	1,209	33%
	Weekend	800	514	1,968	1,168	44%

Source: Fehr & Peers 2011

Implementation of the Proposed Project would result in potentially significant impacts at study intersections. Therefore, the following mitigation measures are recommended to reduce impacts:

Mitigation Measures

Project Opening Year (2013)

Mitigation Measure TC-1:

Sterling Avenue/Highland Avenue (Weekend Peak Hour): The east/west left-turn phasing shall be modified from protected phase to permitted/protected phasing. Intersection timing splits shall be optimized.

Mitigation Measure TC-2:

I-210 Eastbound Off-Ramp at Highland Avenue (AM and Weekend Peak Hour): The applicant shall work with Caltrans staff to optimize intersection timing splits.

Mitigation Measure TC-3:

I-210 Westbound On-Ramp/Arden Avenue at Highland Avenue (Weekend peak hour): The northbound middle-through lane shall be changed to a left-turn lane to increase left turn capacity per cycle. The current northbound right turn lane shall become a through/right-turn lane. As this is a Caltrans-controlled intersection, Caltrans shall be consulted for approving and implementing the identified improvements.

Mitigation Measure TC-4:

Highland Avenue at Victoria Avenue (Weekend peak hour): The applicant shall work with City staff to optimize intersection timing splits.

Future Year Buildout (2030)

Mitigation Measure TC-5:

Sterling Avenue/Highland Avenue (PM and Weekend peak hour): The applicant shall contribute a fair-share contribution to optimize signal timings by modifying the cycle length to 105 seconds and optimizing the timing parameters.

Mitigation Measure TC-6:

I-210 Westbound On-Ramp/Arden Avenue at Highland Avenue (AM peak hour): The applicant shall contribute a fair-share contribution to modify the northbound middle-through lane to a left turn lane to increase left turn capacity per cycle. The current northbound right turn lane would be restriped as a through/right-turn lane. As this is a Caltrans-controlled intersection, Caltrans shall be consulted for approving the identified modifications.

Mitigation Measure TC-7:

Date Street at Arden Avenue (PM peak hour): The applicant will be responsible to contribute a fair share contribution toward a traffic signal.

Mitigation Measure TC-8:

I-210 Eastbound On-Ramp at Arden Avenue (PM and Weekend peak hour): The north/south left-turn phasing shall be modified from protected phase to permitted/protected phasing. As this is a Caltrans-controlled intersection, Caltrans shall be consulted for approving and implementing the phasing modification. Note, it may not be appropriate to provide protected/permitted phasing to over 600 southbound left-turns at this location. Alternatively, a second southbound left-turn lane shall be required.

Fair Share Contributions: The applicant's payment of the City's Traffic Impact Fees and contribution of fair-share contributions for cumulative traffic and circulation impacts of the project as set forth above in Mitigation Measures TC-5, TC-6, TC-7 and TC-8 shall be based on the calculations set forth in Tables 4.8-13 and 4.8-14, and shall be made a condition of project approval.

Queuing***Project Opening Year (2013)*****Mitigation Measure TC-9:**

I-210 Eastbound Off-Ramp & Highland Avenue, I-210 Westbound On-Ramp/Arden Avenue/Highland Avenue, and I-210 Eastbound On-Ramp/Arden Avenue – The applicant shall coordinate with Caltrans to provide a signal interconnect between the intersections and coordinate them to coordinate the southbound, northbound, and southbound approaches and “hold” the queue at the upstream intersection, respectively.

Future Year Buildout (2030)**Mitigation Measure TC-10:**

Arden Avenue/Highland Avenue/I-210 Eastbound On-Ramp Signals - Northbound Left-Turn exceeds available storage by 210' – 375' during the peak hours, the Westbound Left-Turn exceeds available storage by 80' during the PM and weekend peak hour, and the Eastbound Right-Turn exceeds available storage by 130' – 330'. The applicant shall coordinate with Caltrans to provide a signal interconnect between the two intersections and coordinate them to synchronize the northbound approaches and “hold” the queue at the upstream intersection and implement an eastbound right-turn overlap phase and implement coordination through the corridor.

Level of Significance After Mitigation

With implementation of the proposed mitigation measures and fair-share contributions toward circulation improvements, LOS would be C or better which is determined to be less than significant.