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Alliance California Gateway South Building 3

Air Quality Impact Analysis

City of San Bernardino, California

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JN:08766-03 AQ REPORT
HQ:SA

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ALLIANCE CALIFORNIA GATEWAY SOUTH BUILDING 3
AIR QUALITY IMPACT ANALYSIS
CITY OF SAN BERNARDINO, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) for the proposed Alliance California Gateway South Building 3 Project (Project) generally located at the southeast corner of Waterman Avenue and Orange Show Road in the City of San Bernardino as shown on Exhibit 1-1.

The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the Project and recommend measures to mitigate impacts considered significant in comparison to established regulatory thresholds.

1.1 PROJECT OVERVIEW

The Project is proposed to consist of approximately 1,199,360 square feet (sf) of high-cube distribution warehouse use within a single building. For the purposes of this AQIA, it is assumed that the Project will be constructed and at full occupancy by 2015.

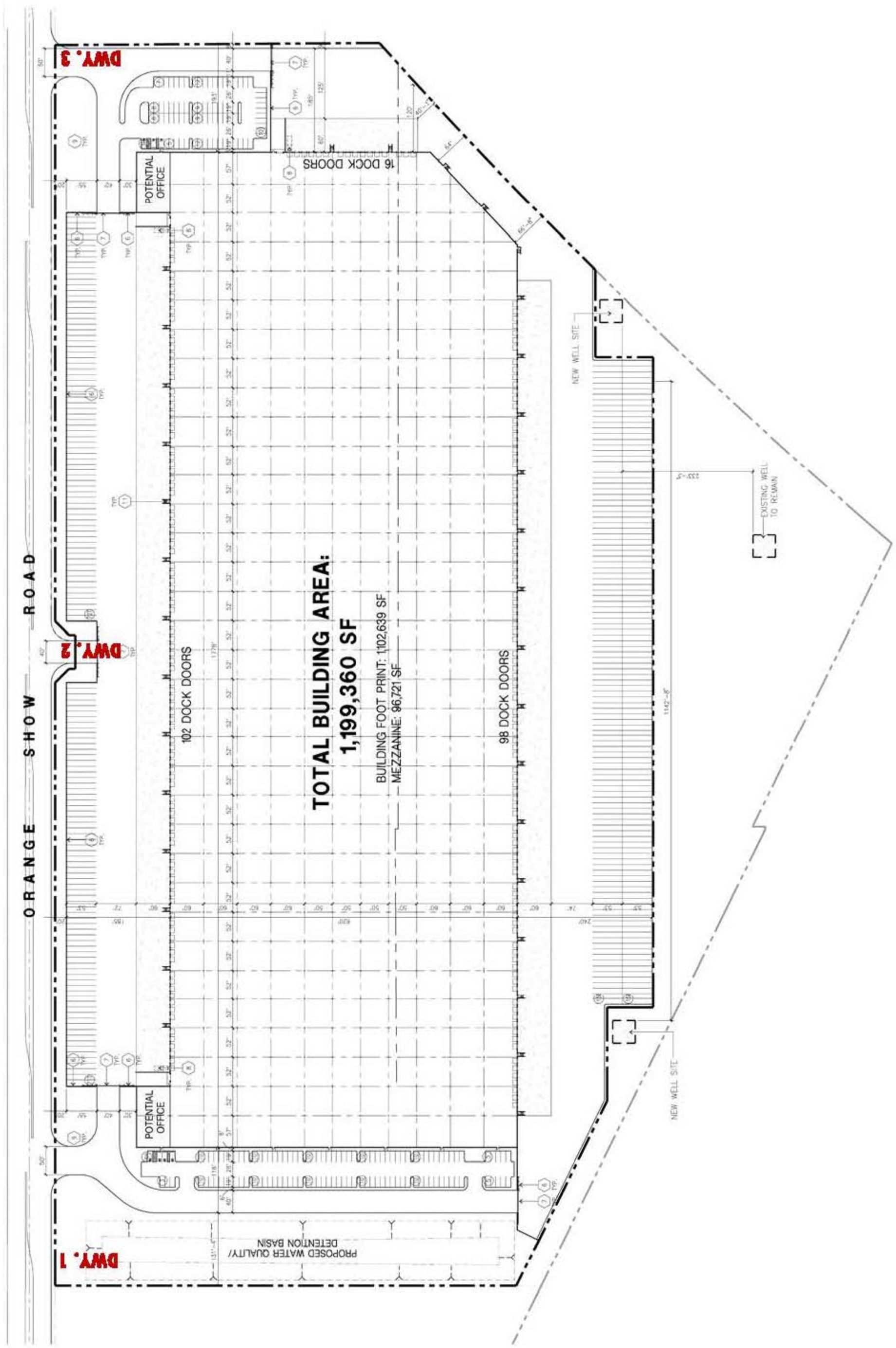
1.2 SUMMARY OF FINDINGS

<u>Construction-Source Emissions</u>
Without mitigation, Project construction-source emissions will exceed applicable regional thresholds of significance established by the SCAQMD for VOCs and NOx. Mitigation measures (MM AQ-1 through MM AQ-4) will reduce this impact to less than significant. Thus, construction activity emissions will not exceed applicable regional thresholds established by the SCAQMD for construction activity after the implementation of MM AQ-1 through MM AQ-4 and a less than significant impact will occur.

Similarly, for localized emissions without mitigation, Project construction-source emissions will exceed applicable regional thresholds of significance established by the SCAQMD for PM10 and PM2.5. After implementation of MM AQ-1 through MM AQ-4, the Project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD and a less than significant impact will occur.

EXHIBIT 1-1

SITE PLAN



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

Project operational-source emissions will exceed applicable SCAQMD regional thresholds of significance for emissions of VOCs and NOx during both summer and winter conditions. Even after implementation of MM AQ-5 through MM AQ-8, Project operational-source emissions will exceed the numerical thresholds established by the SCAQMD for emissions of VOCs NOx and are therefore considered significant and unavoidable; no feasible mitigation measure exists that would reduce these emissions to levels that are less-than-significant.

Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the operational LSTs section of this report. Additionally, Project traffic will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots). 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 AQMP.

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous commercial refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Potential operational-source odor impacts are therefore considered less-than-significant.

1.3 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES (BACMS)

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings); Rule 431.2 (Low Sulfur Fuel); Rule 403 (Fugitive Dust); and Rule 1186 / 1186.1 (Street Sweepers). In order to facilitate monitoring and compliance with SCAQMD Rule 403 (Fugitive Dust) during construction activity, Rule 403 is restated as a mitigation measure.

MM AQ-1

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403:

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.

- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less

Additional regulatory requirements that are in effect during Project construction include the following:

MM AQ-2

Plans, specifications and contract documents shall note that a sign shall be posted on-site stating that construction workers shall not idle diesel engines in excess of five minutes.

1.4 CONSTRUCTION ACTIVITY MITIGATION MEASURES

In addition to the above-cited SCAQMD regulatory requirements and BACMs, the following construction activity mitigation measures are required, and shall be noted on plans, specifications and contract documents:

MM AQ-3

Only “Zero-Volatile Organic Compounds” paints (no more than 125 gram/liter of VOC) and/or High Pressure Low Volume (HPLV) applications consistent with South Coast Air Quality Management District Rule 1113 shall be used.

MM AQ-4

During construction activity, all off-road diesel construction equipment (≥ 100 horsepower) shall be California Air Resources Board (CARB) Tier 3 Certified or better.

MM AQ-5

During construction activity, the operating time of all pieces of off-road diesel powered equipment shall not exceed a combined total of 147 operating hours per day.

MM AQ-6

During site grading, no more than five (5) acres (surface area) of land or its topsoil shall be actively disturbed on any given day. This includes, but is not limited to: surface area disturbance to clear, excavate, or level the land or to deposit any stockpiled material to fill or cover the land.

1.5 OPERATIONAL ACTIVITY MITIGATION MEASURES

MM AQ-7

The truck access gates and loading docks within the truck court on the Project site shall be posted with signs which state:

- **a)** Truck drivers shall turn off engines when not in use;
- **b)** Diesel trucks servicing the Project shall not idle for more than five (5) minutes[1]; and
- **c)** Telephone numbers of the building facilities manager and the CARB to report violations.

MM AQ-8

In order to reduce Project-related air pollutant and greenhouse gas (GHG) emissions, and promote sustainability through conservation of energy and other natural resources, building and site plan designs shall ensure that the Project energy efficiencies surpass (exceed) applicable (2008) California Title 24 Energy Efficiency Standards by a minimum of 20 percent. Verification of increased energy efficiencies shall be shall be documented in Title 24 Compliance Reports provided by the Applicant, and reviewed and approved by the City prior to the issuance of the first building permit. Example of measures that reduce energy consumption include, but are not limited to, the following (it being understood that the items listed below are not all required and merely present examples; the list is not all-inclusive and other features that reduce energy consumption also are acceptable):

a) Increase in insulation such that heat transfer and thermal bridging is minimized;

[1] While restricted idling is required per MM AQ-5, the analysis presented here takes no quantified credit or reduction in emissions for restricted idling, and reflects an assumed 15-minute “worst case” idling condition.

b) Limit air leakage through the structure and/or within the heating and cooling distribution system;

c) Use of energy-efficient space heating and cooling equipment;

d) Installation of electrical hook-ups at loading dock areas;

e) Installation of dual-paned or other energy efficient windows;

f) Use of interior and exterior energy efficient lighting that exceeds the 2008 California Title 24 Energy Efficiency performance standards;

g) Installation of automatic devices to turn off lights where they are not needed;

h) Application of a paint and surface color palette that emphasizes light and off-white colors that reflect heat away from buildings;

i) Design of buildings with "cool roofs" using products certified by the Cool Roof Rating Council, and/or exposed roof surfaces using light and off-white colors;

j) Design of buildings to accommodate photo-voltaic solar electricity systems or the installation of photo-voltaic solar electricity systems;

k) Installation of ENERGY STAR-qualified energy-efficient appliances, heating and cooling systems, office equipment, and/or lighting products; and/or

MM AQ-9

To reduce energy demand associated with potable water conveyance, the Project shall implement the following:

- Landscaping palette emphasizing drought tolerant plants;
- Use of water-efficient irrigation techniques;
- U.S. EPA Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.

MM AQ-10

The Project will reduce vehicle miles traveled and emissions associated with trucks and vehicles by implementing the following measures:

- Pedestrian and bicycle connections shall be provided to surrounding areas consistent with the City's General Plan.
- Implement a voluntary trip reduction program, for which all employees shall be eligible to participate.
- Implement a voluntary ride sharing program, for which all employees shall be eligible to participate.

2.0 EXISTING CONDITIONS

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the SCAB within the jurisdiction of SCAQMD. The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As discussed above, the Project site is located within the South Coast Air Basin, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bound by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bound by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bound by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s (degrees Fahrenheit). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14-1/2 hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NO_X and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

Wind speed and direction data is monitored by the SCAQMD for the Project area (Source Receptor Area (SRA) 34) this data was obtained from Central San Bernardino Valley 2 monitoring station, located approximately 1.96 miles north of the Project site. As shown in the following wind rose exhibit (Exhibit 2-1), the prevailing winds move predominately from the northwest to southeast and west to east with an average wind speed of 1.41 meters per second (m/s) or 3.51 miles per hour (mph).

2.4 EXISTING AIR QUALITY

Existing air quality is measured based upon ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect, as well health effects of each pollutant regulated under these standards are shown in Table 2-1.

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-1. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than

EXHIBIT 2-1

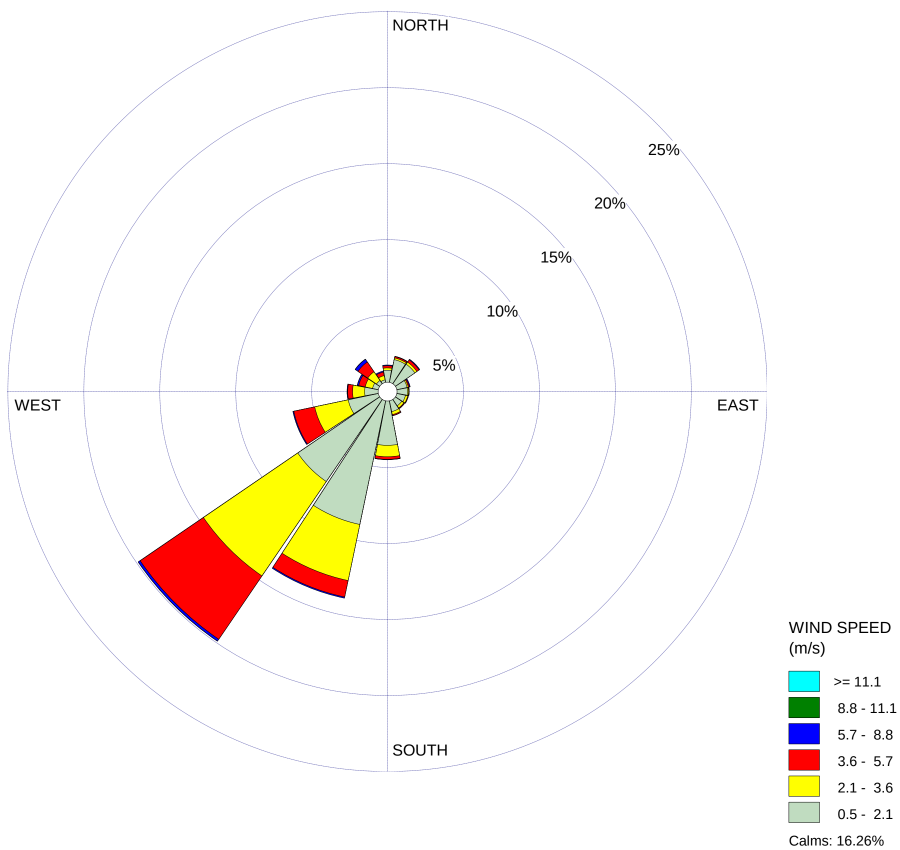
WIND ROSE

WIND ROSE PLOT:

Central San Bernardino Valley 2 (SRA 34) Meteorological Station

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2005 - 00:00** **End Date: 12/31/2009 - 23:00**	COMPANY NAME: **Urban Crossroads, Inc.**	
		MODELER: **S.A.**	URBAN CROSSROADS
	CALM WINDS: **16.26%**	TOTAL COUNT: **43478 hrs.**	
	AVG. WIND SPEED: **1.41 m/s**	DATE: **8/16/2013**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

TABLE 2-1 (PAGE 1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 μg/m^3)		0.075 ppm (147 μg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 μg/m^3	Gravimetric or Beta Attenuation	150 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m^3	Gravimetric or Beta Attenuation	15 μg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 μg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 μg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 μg/m3)		0.053 ppm (100 μg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 μg/m^3)	Ultraviolet Fluorescence	75 ppb (196 μg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 μg/m^3)	
	24 Hour	0.04 ppm (105 μg/m^3)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 μg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 μg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 μg/m^3		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 μg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 μg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (6/7/12)

TABLE 2-1 FOOTNOTES (PAGE 2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

9. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

   Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (6/7/12)**

O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

2.5 REGIONAL AIR QUALITY

The SCAQMD monitors levels of various criteria pollutants at 30 monitoring stations throughout the air district. In 2012, the federal and state standards were exceeded on one or more days for ozone, PM_{10}, and $PM_{2.5}$ at most monitoring locations. No areas of the SCAB exceeded federal or state standards for SO_2, CO, or sulfates. See Table 2-2 for attainment designations for the SCAB.

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Inhalable Particulates (PM_{10}) and Ultra-Fine Particulates ($PM_{2.5}$) is the South Coast Air Quality Management District Central San Bernardino Valley 2 monitoring station, located approximately 1.96 miles north of the Project site in San Bernardino (SRA 34).

The three (3) years of data in Table 2-3 shows the number of days standards were exceeded for the study area, which was chosen to be representative of the local air quality at the Project site. Additionally, data for SO_2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO_2 concentrations.

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Examples of sources and effects of the criteria pollutants are identified below:

- Carbon Monoxide (CO): Is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

TABLE 2-2

ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN (SCAB)

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	No Standard
Ozone - 8 hour standard	Nonattainment	Extreme Nonattainment[1]
PM_{10}	Nonattainment	Serious Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment/Maintenance
Nitrogen Dioxide	Nonattainment[2]	Attainment/Maintenance
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment/Nonattainment[3]	Attainment/Nonattainment[4]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board 2010 (http://www.arb.ca.gov/regact/2010/area10/area10.htm, http://www.arb.ca.gov/desig/feddesig.htm)

[1] The USEPA approved redesignation from Severe 17 to Extreme Nonattainment on May 5, 2010 to be effective June 4, 2010.

[2] The SCAB was reclassified from attainment to nonattainment for nitrogen dioxide on March 25, 2010.

[3] Los Angeles County was reclassified from attainment to nonattainment for lead on March 25, 2010; the remainder of the SCAB is in attainment of the State Standard.

[4] The Los Angeles County portion of the SCAB is classified as nonattainment; the remainder of the SCAB is in attainment of the State Standard.

TABLE 2-3

PROJECT AREA AIR QUALITY MONITORING SUMMARY 2010-2012

POLLUTANT	STANDARD	YEAR		
		2010	2011	2012
Ozone (O_3)				
Maximum 1-Hour Concentration (ppm)		0.129	0.135	0.124
Maximum 8-Hour Concentration (ppm)		0.105	0.121	0.109
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	27	40	41
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	63	66	77
Number of Days Exceeding Federal 1-Hour Standard	> 0.12 ppm	1	2	0
Number of Days Exceeding Federal 8-Hour Standard	> 0.075 ppm	40	39	54
Number of Days Exceeding Health Advisory	≥ 0.15 ppm	0	0	0
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration (ppm)		2	2.3	3.1
Maximum 8-Hour Concentration (ppm)		1.7	1.7	1.7
Number of Days Exceeding State 1-Hour Standard	> 20 ppm	0	0	0
Number of Days Exceeding Federal / State 8-Hour Standard	> 9.0 ppm	0	0	0
Number of Days Exceeding Federal 1-Hour Standard	> 35 ppm	0	0	0
Nitrogen Dioxide (NO_2)				
Maximum 1-Hour Concentration (ppm)		0.0692	0.0619	0.067
Annual Arithmetic Mean Concentration (ppm)		0.0188	0.0169	--
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})				
Maximum 24-Hour Concentration (μg/m^3)		63	56	53
Number of Samples		59	58	55
Number of Samples Exceeding State Standard	> 50 μg/m^3	3	3	--
Number of Samples Exceeding Federal Standard	> 150 μg/m^3	0	0	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)				
Maximum 24-Hour Concentration (μg/m^3)		39.3	65.0	34.8
Annual Arithmetic Mean (μg/m^3)		11.1	12.2	11.8
Number of Samples Exceeding Federal 24-Hour Standard	> 35 μg/m^3	2	2	0

Source: South Coast AQMD (www.aqmd.gov)
http://www.epa.gov/airdata/

- Sulfur Dioxide (SO_2): Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

- Nitrogen Oxides (Oxides of Nitrogen, or NO_x): Nitrogen oxides (NO_x) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.

- Ozone (O_3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.

- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.

- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.

- Reactive Organic Gases (ROG): Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms ROG and VOC (see previous) interchangeably.

- Lead (Pb): Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in communities with high ozone levels.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with longterm exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM10 and PM2.5.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb 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 Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause odors poses a big challenge. Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.7 REGULATORY BACKGROUND

2.7.1 FEDERAL REGULATIONS

The U.S. EPA is responsible for setting and enforcing the NAAQS for O_3, CO, $NO_{x,}$ SO_2, PM_{10}, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955, and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions).

Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NO_x). NO_x is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

2.7.2 CALIFORNIA REGULATIONS

The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS.

Local air quality management districts, such as the SCAQMD, regulate air emissions from commercial and light industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;

- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_x, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

2.7.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.8.

2.8 EXISTING PROJECT SITE AIR QUALITY CONDITIONS

The Project site is currently vacant, and therefore does not generate quantifiable emissions. Existing air quality conditions at the Project site would generally reflect ambient monitored conditions as presented previously at Table 2-3.

3.0 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would:

(1) Conflict with or obstruct implementation of the applicable air quality plan.

(2) Violate any air quality standard or contribute to an existing or projected air quality violation.

(3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).

(4) Expose sensitive receptors to substantial pollutant concentrations.

(5) Create objectionable odors affecting a substantial number of people.

Within the context of the above threshold considerations, and based on the SCAQMD's CEQA Air Quality Handbook (1993), a project's localized CO emissions impacts would be significant if they exceed the following California standards for localized CO concentrations:

- 1-hour CO standard of 20.0 parts per million (ppm)
- 8-hour CO standard of 9.0 ppm.

The SCAQMD has also developed regional and localized significance thresholds for other regulated pollutants, as summarized at Table 3-1. The SCAQMD's CEQA Air Quality Significance Thresholds (March 2009) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1

MAXIMUM DAILY EMISSIONS THRESHOLDS (REGIONAL THRESHOLDS)		
Pollutant	**Construction**	**Operational**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
MAXIMUM DAILY EMISSIONS THRESHOLDS (LOCALIZED THRESHOLDS)		
Pollutant	**Construction**	**Operational**
NO_x	270 lbs/day	270 lbs/day
CO	1,746 lbs/day	1,746 lbs/day
PM_{10}	14 lbs/day	4 lbs/day
$PM_{2.5}$	8 lbs/day	2 lbs/day

3.3 PROJECT-RELATED SOURCES OF POTENTIAL IMPACT

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On July 26, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2. The purpose of this model is to more accurately calculate construction-source and opertational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality impacts. Output from the model runs for both construction and operational activity are provided in Appendix "A".

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of CO, VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Paving
- Building Construction
- Architectural Coatings (Painting)
- Construction Workers Commuting

Applicant provided construction commencement dates, number and type of construction equipment, and daily operational hours (each piece of equipment is assumed to operate for a maximum of 7 hours per day) for construction activity were entered into the CalEEMod model and are summarized on Tables 3-2 and 3-3. Construction equipment horsepower and load factors are based on the CalEEMod model defaults. Please refer to specific detailed modeling input/outputs contained in Appendix "A" of the analysis for further information.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod™ model was utilized to calculate fugitive dust emissions resulting from this phase of activity.

TABLE 3-2 CONSTRUCTION SCHEDULE

Phase	# Days
Site Preparation	20
Grading	40
Paving	20
Building Construction	150
Architectural Coating	50

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were based on CalEEMod™ model defaults.

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

Assuming the scenario for construction activity outlined in Section 3.4, the estimated maximum daily construction emissions are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix "A". Under the assumed scenarios, emissions resulting from Project construction will exceed criteria pollutant thresholds established by the SCAQMD for VOCs and NOx. Mitigation Measures MM AQ-1 through MM AQ-4 are recommended to reduce construction impacts to the maximum extent possible.

IMPACTS WITH MITIGATION

After the implementation of applicable mitigation measures (MM AQ-1 through MM AQ-4), emissions during construction activity will be reduced to less than significant levels and are summarized on Table 3-5.

TABLE 3-3 CONSTRUCTION EQUIPMENT ASSUMPTIONS

Operation	Scraper	Grader	Rubber Tired Dozer	Tractor / Loader / Backhoe	Excavator	Pavers	Paving Equipment	Rollers	Forklift	Cranes	Air Compressor	Generator Set	Welder	Water Truck
Site Preparation	3	1	2	4										2
Grading	6	2	2	2	1									2
Paving						2	2	2						1
Building Construction									5	2		2	2	1
Architectural Coating											2			

TABLE 3-4 EMISSIONS SUMMARY OF OVERALL CONSTRUCTION (MAXIMUM DAILY EMISSIONS) (WITHOUT MITIGATION)

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**103.59**	**171.28**	**108.08**	**0.18**	**24.14**	**13.68**
SCAQMD Regional Threshold	75	100	550	150	150	55
Significant?	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**

Note: Please refer to Appendix A for the CalEEMod™ output files and additional hand calculations for the estimated emissions.

TABLE 3-5 EMISSIONS SUMMARY OF OVERALL CONSTRUCTION (MAXIMUM DAILY EMISSIONS) (WITH MITIGATION)

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**64.60**	**90.77**	**109.61**	**0.18**	**11.77**	**6.23**
SCAQMD Regional Threshold	75	100	550	150	150	55
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Note: Please refer to Appendix A for the CalEEMod™ output files and additional hand calculations for the estimated emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the Project will result in emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Vehicles
- Combustion Emissions Associated with Natural Gas and Electricity
- Fugitive dust related to vehicular travel
- Consumer Products
- Architectural coatings

3.5.1 VEHICLES

Trip characteristics available from the report, Alliance California Gateway South Building 3 Traffic Impact Analysis (Urban Crossroads, Inc., 2013) were utilized in this analysis. Project-related operational air quality impacts derive predominantly from mobile sources. It should be noted that the Project's traffic study presents the total Project vehicle trips in terms of Passenger Car Equivalents (PCEs) in an effort to recognize and acknowledge the effects of heavy vehicles at the study area intersections. Notwithstanding, for purposes of the air quality study, the PCE trips were not used. Rather, to more accurately estimate and model vehicular-source emissions, the actual number of vehicles, by vehicle classification (e.g., passenger cars (including light trucks), heavy trucks) were used in the analysis. The vehicle fleet mix, in terms of actual vehicles, as derived from the traffic study for the Project is comprised of approximately 79.57% passenger

(1,603 vehicles) and approximately 20.43% total trucks (411 vehicles). The Project was input as a single category or type of land-use (Warehouse – No Rail) in the CalEEMod™ emissions inventory model and an opening year of 2015 was selected. The resulting estimated vehicle-source emissions are summarized at Table 3-6.

The SCAQMD has recently commented on numerous warehouse projects calling for the use of an inflated trip generation rate based on the 95th percentile of all high-cube warehouses, which the SCAQMD asserts is most appropriate according to a meta-analysis prepared by the SCAQMD as part of the CalEEMod™ emissions inventory model release[2], use of this inflated rate would mean that the Project would have a trip rate equivalent to the busiest 5% of all warehouses in the study conducted by the SCAQMD, and thus, would significantly overestimate total trips. The Project-generated daily passenger car and truck trips utilized in this analysis were obtained from the Project's traffic impact analysis report and are derived from trip generation rates specified in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition, 2012. Use of the ITE rates are standard industry practice for the calculation of projected traffic volumes in traffic studies supporting CEQA documents throughout the State of California.

Furthermore, it is important to note that six (6) of the seven (7) trip generation studies included in the SCAQMD meta-analysis were also included as part of the dataset for estimating the daily and peak hour trip generation rates for ITE Land Use: 152 (high-cube warehouse) in ITE's 8th Edition of the *Trip Generation* manual. In addition, ITE also includes data from three (3) additional studies performed in Livermore, California, Manalapan, New Jersey and Tampa, Florida for the purposes of estimating peak hour trip rates, which further expands the number of buildings included in the sample.

The SCAQMD Study acknowledges that a lack historical photographic coverage and/or business history make it difficult to discern the degree of correlation between the variation in site specific observations and the conclusion that the ITE rates may be understated. In addition, the use of a 95th percentile trip generation rate is not standard traffic engineering practice nor required by CEQA, as this approach will tend to significantly overstate site specific vehicle trips estimates and associated emissions. Therefore, it was determined that the trip generation rates for high cube warehouse use (Land Use 152) as published in the 9th Edition of ITE's *Trip Generation* manual, and currently widely accepted throughout Riverside and San Bernardino Counties, are the most appropriate trip rates to be utilized to calculate vehicle trips for the Project.

Similarly, the City of Perris has provided a comprehensive response to the SCAQMD for a similar comment that was provided on the Stratford Ranch Environmental Impact Report (State Clearinghouse No. 2012011037), July 27, 2013. Appendix L-3 to the Stratford Ranch DEIR,

[2] CalEEMod™ *Appendix E Technical Source Documentation: Analysis of Warehouse Trip Generation Rates by SCAQMD*

includes a December 2011 study by Crain & Associates that identifies numerous technical flaws in the SCAQMD Study, essentially discrediting it as a viable reference for trip generation rates of high-cube warehouses. A copy of the Crain & Associates study is appended to this technical study for purposes of the administrative record (See Appendix "C").

The vehicle fleet mix utilized in the Traffic Study for the General Light Industrial and High-Cube Warehouse land uses are based upon the *City of Fontana Truck Trip Generation Study,* which provides vehicle fleet mix for two, three, and four-axle trucks based on surveyed data. This same methodology is employed in analyses for similar projects in the City and other jurisdictions within the County, and is considered by the Lead Agency to be appropriate and accurate.

3.5.1.1 Trip Length

Background

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and vehicle miles traveled (VMT). VMT for a given project is calculated by the total number of vehicle trips to/from the Project x average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the over-estimation and double-counting of emissions because, for a distribution warehouse center such as the Project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the Project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within the Basin. As such, the estimation of the Gateway South Building 3 Project's vehicular-source emissions is likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

Provided below is a summary of the VMT recommendations of the SCAQMD and SCAG, followed by a description of the methodology used to calculate the VMT rates used in this AQIA.

SCAQMD Recommendation

Over the last several years, the SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects[3]. The SCAQMD asserts that the model-default trip length in CalEEMod™ and the URBan EMISsions (URBEMIS) 2007 model (version 9.2.4) would underestimate emissions. The SCAQMD asserts that for warehouse/distribution center and industrial land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles (POLA and POLB) and/or to destinations outside of California. The SCAQMD states that for this reason, the model default trip length (approximately 12.6 miles) would not be representative of activities at like facilities. The SCAQMD generally recommends the use of a 40-mile one-way trip length.

[3] e.g, SCAQMD's *Review of the Draft Environmental Impact Report (Draft EIR) for the Oakmont Olive Grove Project (*http://www.aqmd.gov/ceqa/igr/2010/June/DEIROakmont.pdf).

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENT (SCAG) HEAVY DUTY TRUCK MODEL

SCAG is comprised of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California, and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also consists of 14 subregional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the 2003 Regional Model, SCAG indicates the average internal truck trip length for the SCAG region is 5.92 miles for Light Duty Trucks, 13.06 miles for Medium Duty Trucks, and 24.11 miles for Heavy Duty Trucks.

APPROACH FOR ANALYSIS OF THE PROJECT

Trip lengths and VMT estimates employed in this AQIA report generate vehicular-source emissions that would represent a maximum impact scenario. Other Environmental Impact Reports (EIRs) for similar land use projects within the region[4] have utilized these same or similar estimates. To maintain analytic consistency and establish the maximum impact scenario noted above, the following approach has been utilized in calculating emissions associated with vehicles accessing the Project.

For passenger car trips, a one-way trip length of 13.3 miles was assumed based on CalEEMod defaults which relies on data provided by SCAG for average trip length. For heavy duty trucks, an average trip length was derived from distances from the Project site to the far edges of the South Coast Air Basin (SCAB) based on the Project Traffic Study's Trip Distribution Patterns. It is appropriate to stop the VMT calculation at the boundary of the SCAB because any activity beyond that boundary would be speculative at best (the SCAB encompasses 6,745 square miles) and is not required under the provisions of CEQA (which requires Projects to evaluate impacts that are reasonable and foreseeable – not speculative), this approach is also consistent with professional industry practice. Further, the applicable regional emissions thresholds are relative to the air basin in which emissions occur – in other words, there are different emission thresholds for different air basins and it would be speculative to take trips outside of the air basin since the ultimate destinations are unknown and different thresholds would apply in other air basins.

- Project site to the Port of Los Angeles/Long Beach: 74 miles;
- Project site to Rail Yard: 5 miles;
- Project site to I-10 East to the edge of the SCAB: 40 miles;

[4] Environmental Impact Report (EIR) Highland Fairview Corporate Park & Environmental Impact Report (EIR) West Ridge Commerce Center.

Assuming that 55 percent of all delivery trips will travel to and from the Project and the Port of Los Angeles/Long Beach, 10% go to rail yard immediately northwest of the Project site, and the remainder of the distribution trips go east on the I-10 freeway to the edge of the SCAB, the average truck trip length is calculated to 55.19 miles. For analysis purposes, as a conservative measure, the average truck trip length was rounded to 60 miles. An overall weighted-average trip length for the Project was calculated using the percentage of trips associated with passenger cars (including light duty trucks) versus heavy trucks, the passenger car trip length of 13.3 miles and truck trip length of 60 miles is calculated. The resulting weighted average trip length of 22.84 miles was entered into the CalEEMod™ model calculations.

In order to convert the axle based fleet mix to the vehicle classes utilized by EMFAC, the SCAQMD recommends[5] the following method: 4+ axles = Heavy-Heavy-Duty Truck (HHDT), 3 axles = Medium-Heavy-Duty Truck (MHDT), 2 axles = Light-Heavy-Duty Truck 1 (LHDT1), all others Light-Duty Auto (LDA).

The estimated emissions resulting from vehicle operations are summarized in Table 3-5 (presented later in this report.) Detailed emission calculations are provided in Appendix "A".

3.5.2 COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using the CalEEMod™ model. Detailed emission calculations are provided in Appendix "A".

3.5.3 FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of PM_{10} and $PM_{2.5}$ emissions due to the generation of road dust, break/tire-wear particulates, and road-wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod™ model. Detailed emission calculations are provided in Appendix "A".

3.5.4 LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers,

[5] CalEEMod™ *Appendix E Technical Source Documentation: Analysis of Warehouse Trip Generation Rates by SCAQMD*

shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod™ model. Detailed emission calculations are provided in Appendix "A".

3.5.5 ARCHITECTURAL COATINGS

Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using the CalEEMod™ model. Detailed emission calculations are provided in Appendix "A".

3.5.6 OPERATIONAL EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

The Project-related summer and winter operations emissions summaries are presented at Table 3-6. Project operational-source VOC and NO_x emissions will exceed applicable SCAQMD regional thresholds during both winter and summer conditions. Mitigation Measures MM AQ-5 through MM AQ-8 are recommended to reduce operational impacts to the maximum extent feasible.

IMPACTS WITH MITIGATION

As shown on Table 3-7, even after the implementation of applicable mitigation measures (MM's AQ-5 through MM AQ-7), emissions during operational activity for both summer and winter conditions will not be reduced to less than significant levels for VOC and NOx. Thus, Project operational-source VOC and NOx emissions will exceed the applicable SCAQMD regional threshold; no feasible mitigation measure exist that would reduce these emissions to levels that are less-than0significant. Therefore, impacts are considered significant and unavoidable.

TABLE 3-6

SUMMARY OF PEAK OPERATIONAL EMISSIONS (SUMMER) (POUNDS PER DAY) (WITHOUT MITIGATION)[1]

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	26.18	1.23e-3	0.13	1.00e-5	4.60e-4	4.60e-4
Energy Source Emissions [b]	0.08	0.69	0.58	4.14e-3	0.05	0.05
Mobile Emissions [c]	45.87	113.11	189.92	0.54	35.63	10.87
Maximum Daily Emissions	**72.13**	**113.80**	**190.62**	**0.55**	**35.68**	**10.93**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**

SUMMARY OF PEAK OPERATIONAL EMISSIONS (WINTER) (POUNDS PER DAY) (WITHOUT MITIGATION)

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	26.18	1.23e-3	0.13	1.00e-5	4.60e-4	4.60e-4
Energy Source Emissions [b]	0.08	0.69	0.58	4.14e-3	0.05	0.05
Mobile Emissions [c]	49.06	117.82	175.72	0.52	35.64	10.88
Maximum Daily Emissions	**75.32**	**118.52**	**176.42**	**0.52**	**35.69**	**10.93**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**

Note: Please refer to Appendix B for the CalEEMod™ output files and additional supporting information for the estimated emissions.

[1] Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as "x 10^{b}") and is followed by the value of the exponent

[a] Includes emissions of landscape maintenance equipment and architectural coatings emissions

[b] Includes emissions of natural gas consumption

[c] Includes emissions of vehicle emissions and fugitive dust related to vehicular travel

TABLE 3-7

SUMMARY OF PEAK OPERATIONAL EMISSIONS (SUMMER) (POUNDS PER DAY) (WITH MITIGATION)[1]

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	24.97	1.23e-3	0.13	1.00e-5	4.60e-4	4.60e-4
Energy Source Emissions [b]	0.06	0.55	0.46	3.32e-3	0.04	0.04
Mobile Emissions [c]	45.48	112.13	188.55	0.54	35.30	10.77
Maximum Daily Emissions	**70.51**	**112.68**	**189.14**	**0.54**	**35.34**	**10.82**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**

SUMMARY OF PEAK OPERATIONAL EMISSIONS (WINTER) (POUNDS PER DAY) (WITH MITIGATION)

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	24.97	1.23e-3	0.13	1.00e-5	4.60e-4	4.60e-4
Energy Source Emissions [b]	0.06	0.55	0.46	3.32e-3	0.04	0.04
Mobile Emissions [c]	48.64	116.80	174.55	0.51	35.30	10.78
Maximum Daily Emissions	**73.67**	**117.35**	**175.14**	**0.51**	**35.35**	**10.82**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**

Note: Please refer to Appendix B for the CalEEMod™ output files and additional supporting information for the estimated emissions.

[1] Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as "x 10^{b}") and is followed by the value of the exponent

[a] Includes emissions of landscape maintenance equipment and architectural coatings emissions

[b] Includes emissions of natural gas consumption

[c] Includes emissions of vehicle emissions and fugitive dust related to vehicular travel

3.6 LOCALIZED SIGNIFICANCE – CONSTRUCTION ACTIVITY

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (SCAQMD, June 2003). As previously discussed, the SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below State standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$; both of which are non-attainment pollutants.

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (SCAQMD, June 2003).

The SCAQMD issued guidance on applying CalEEMod™ to LSTs. Since CalEEMod™ calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following table is used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 7 hour day	Operating Hours per Day	Acres graded per day
Grading	Tractors	2	0.4375	7	0.875
	Graders	2	0.4375	7	0.875
	Rubber Tired Dozers	2	0.4375	7	0.875
	Scrapers	6	0.875	7	5.25
				Total acres graded per day	7.875
				Applicable LST Mass Rate Look-up Table	5 acres

Based on this table, the proposed Project will result in a maximum of 7.875 acres would be disturbed during the peak construction activity on any given day. This estimate is based on the construction equipment assumptions embedded in the CalEEMod™ model defaults and represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction. For purposes of LSTs using a 5.0 acre disturbance area is more conservative than if a larger area was disturbed, this is due to the fact that emissions become more localized in a smaller area than they would be spread out over a larger area.

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the East San Bernardino Valley area (SRA 34). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$).

EMISSIONS CONSIDERED

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should NOT be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis only emissions included in the CalEEMod "on-site" emissions outputs were considered.

RECEPTORS

The nearest sensitive receptor land use (defined as a place where an individual could remain for 24-hours) would be the existing residential unit located approximately ~140.58 feet/42.85 meters north of the Project site. There is also a residential unit located approximately ~196.85 feet/60 meters east of the Project site.

Although a business park is not typically considered to be a sensitive receptor, for analysis purposes as a conservative measure, the business park located approximately 63.94 feet/19.49 meters southwest of the Project site are considered in the LST analysis for localized emissions.

Notwithstanding, the *Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.*" Accordingly, LSTs for receptors at 25 meters are utilized in this analysis for localized emissions and provide for a conservative i.e. "health protective" standard of care as any receptors located further away would be exposed to a lesser impact.

IMPACTS WITHOUT MITIGATION

Without mitigation, emissions during construction activity will exceed the SCAQMD's localized significance thresholds for PM10 and PM2.5. Table 3-8 identifies the unmitigated localized impacts at the nearest receptor location in the vicinity of the Project. It should be noted that the impacts without mitigation do not take credit for reductions achieved through best management practices (BMPs) and standard regulatory requirements (SCAQMD's Rule 403).

TABLE 3-8

LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITHOUT MITIGATION)

Grading	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**171.01**	**103.52**	**24.72**	**13.56**
SCAQMD Localized Threshold	270.00	1,746.00	14.00	8.00
Significant?	**NO**	**NO**	**YES**	**YES**

NOTE: PLEASE REFER TO ATTACHMENT "A" FOR CALEEMOD™ OUTPUT FILES FOR THE ESTIMATED EMISSIONS.

IMPACTS WITH MITIGATION

After the implementation of applicable mitigation measures (BMPs for watering), PM_{10} and $PM_{2.5}$ emissions during construction activity will not exceed SCAQMD's localized significance thresholds and would be reduced to less than significant levels/. Table 3-9 identifies the mitigated localized impacts at the nearest receptor location in the vicinity of the Project.

TABLE 3-9

LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH MITIGATION)

Grading	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**73.82**	**71.37**	**9.85**	**6.11**
SCAQMD Localized Threshold	270.00	1,746.00	14.00	8.00
Significant?	**NO**	**NO**	**NO**	**NO**

NOTE: PLEASE REFER TO ATTACHMENT "A" FOR CALEEMOD™ OUTPUT FILES FOR THE ESTIMATED EMISSIONS.

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

Table 3-10 shows the calculated emissions for the Project's operational activities compared with the applicable LSTs. The LST analysis includes on-site sources only; however, the CalEEMod™ model outputs do not separate on-site and off-site emissions from mobile sources. In an effort to establish a maximum potential impact scenario for analytic purposes, the emissions shown on Table 3-10 represent all on-site Project-related stationary (area) sources and five percent (5%) of the Project-related mobile sources. Considering that the weighted trip length used in CalEEMod™ for the Project is approximately 22.84 miles, 5% of this total would represent an on-site travel distance for each car and truck of approximately 1 mile or 5,280 feet, thus the 5% assumption is conservative and would tend to overstate the actual impact. Modeling based on these assumptions demonstrates that even within broad encompassing parameters, Project operational-source emissions would not exceed applicable LSTs.

The operational LSTs for sensitive receptors located 63.94 feet/19.49 meters of a five-acre project site within SRA 34 are shown in Table 3-1 (previously presented). If emissions exceed the LST for a five-acre site, then dispersion modeling needs to be conducted. Use of a five-acre site for operational activities at the project site would result in more stringent LSTs because emissions would occur in a more concentrated area and closer to the nearest sensitive receptors than in reality.

Notwithstanding, the *Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.*" Accordingly, LSTs for receptors at 25 meters are utilized in this analysis for localized emissions and provide for a conservative i.e. "health protective" standard of care as any receptors located further away would be exposed to a lesser impact.

TABLE 3-10

LOCALIZED SIGNIFICANCE SUMMARY OPERATIONS (WITHOUT MITIGATION)

Operational Activity	NO_x	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	**6.58**	**10.20**	**1.83**	**0.60**
SCAQMD Localized Threshold	270.00	1,746.00	4.00	2.00
Significant?	**NO**	**NO**	**NO**	**NO**

NOTE: PLEASE REFER TO ATTACHMENT "A" FOR CALEEMOD™ OUTPUT FILES FOR THE ESTIMATED EMISSIONS.

As shown on Table 3-10, operational emissions would not exceed the LST thresholds for the nearest sensitive receptor. Therefore, the Project will have a less than significant localized impact during operational activity.

3.8 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially significant CO "hot spots." Further, a Project-specific carbon monoxide (CO) "hot spots" analysis is not needed to reach this conclusion.

It has long been recognized that CO exceedances ("hot spots") are caused by vehicular emissions, primarily when idling at intersections. Vehicle emissions standards have become increasingly more stringent in the last twenty years. Currently, the CO standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels and implementation of control technology on industrial facilities, CO concentrations in the Project vicinity have steadily declined, as shown based on historical data presented on Table 2-3.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard.

The analysis prepared for CO attainment in the SCAB by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the

1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Blvd. and Imperial Highway (Lynwood); Wilshire Blvd. and Veteran Ave. (Westwood); Sunset Blvd. and Highland Ave. (Hollywood); and La Cienega Blvd. and Century Blvd. (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the Wilshire Blvd. /Veteran Ave. intersection, and found it to be Level E at peak morning traffic and Level F at peak afternoon traffic. Reflecting these results, the South Coast Air Basin has been designated as attainment for CO since 2007 (SCAQMD 2007) and even very busy intersections do not result in exceedances of the CO standard as shown on Table 3-11.

TABLE 3-11

CO MODELING RESULTS FROM THE 1992 CO PLAN/2003 AQMP (PPM)

Intersection Location	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	4.2
Sunset-Highland	4.0	4.5	3.9
La Cienega-Century	3.7	3.1	5.8
Long Beach-Imperial	3.0	3.1	9.3

Notes: ppm = parts per million. Federal 1-hour standard is 35 ppm and the federal 8- hour standard is 9.0 ppm.

To determine the relative potential for the Project to result in potential CO hot spots, traffic volumes from the four highest-volume intersections recorded in the 1992 CO Plan/2003 AQMP CO hot spot analysis (Table 3-14), and the four highest-volume intersections reflected in the Project Traffic Impact Analysis (Table 3-15) were compared.

Although the Project's traffic volumes may be slightly greater than those identified in the 1992 CO Plan/2003AQMP modeling analysis (Table 3-14), emission factors for CO from tailpipe emissions have dramatically been reduced since the modeling for the 2003 AQMP was conducted and thus, any incremental increase in volume of vehicles would be offset by the reduced CO emission factors from tailpipe emissions. Consequently, at buildout of the Project none of the intersections in the vicinity of the Project would result in higher CO concentrations than those identified in the 1992 CO Plan/2003 AQMP analysis.

Based on the comparative reduction in peak hour traffic volumes, and paralleling conclusions of the 1992 CO Plan/ 2003 AQMP, significant concentrations of CO emissions would not occur under the Project. Nor would there be any reason unique to Project area meteorology or other factors to conclude that the Project Study Area intersections would yield higher CO concentrations if modeled in detail. Based on the preceding, the Project will not result in or contribute to any CO hot spot violations, and a less than significant impact will occur.

TABLE 3-14

TRAFFIC VOLUMES USED IN THE 2003 AQMP

Intersection Location	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Wilshire-Veteran	560/933	721/1,400	4,951/2,069	1,830/3,317	8,062/7,719
Sunset-Highland	1,551/2,238	2,304/1,832	1,417/1,764	1,342/1,540	6,614/7,374
La Cienega-Century	821/1,674	1,384/2,029	2,540/2,243	1,890/2,728	6,635/8,674
Long Beach-Imperial	756/1,150	479/944	1,217/2,020	1,760/1,400	4,212/5,514

Source: SCAQMD AQMP 2003.

TABLE 3-15

PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Opening Year Cumulative (2015) with Project + Ambient Growth + Cumulative					
Waterman Ave.-Orange Show Rd.	1,632/1,941	1,373/1,777	1,110/1,331	901/1,143	5,016/6,192
Waterman Ave.-Hospitality Ln.	3,207/3,994	1,697/2,295	1,142/1,621	2,056/1,980	8,102/9,890
Waterman Ave.-I-215 On-Ramp (E-W)	3,284/3,674	3,173/3,823	435/849	0/0	6,982/8,346
Carnegie Dr.-I-10 WB Ramps-Hospitality Ln.	1,389/1,897	1,021/1,500	1,774/1,046	558/1,795	4,742/6,238

Source: *Alliance California Gateway South Building 3 Traffic Impact Analysis* (Urban Crossroads, Inc., 2013).

3.9 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 12,000 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the Basin. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

The Final 2012 AQMP was adopted by the AQMD Governing Board on Decemeber 7, 2012. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories.

Similar to the 2007 AQMP, the 2012 AQMP was based on assumptions provided by both CARB and SCAG in the latest available EMFAC model for the most recent motor vehicle and demographics information, respectively. The air quality levels projected in the 2012 AQMP are based on several assumptions. For example, the 2012 AQMP has assumed that development associated with general plans, specific plans, residential projects, and wastewater facilities will be constructed in accordance with population growth projections identified by SCAG in its 2012 RTP. The 2012 AQMP also has assumed that such development projects will implement strategies to reduce emissions generated during the construction and operational phases of development. The Project's consistency with the 2012 AQMP is discussed as follows:

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993). These indicators are discussed below:

- Consistency Criterion No. 1: The Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Construction Impacts

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) were exceeded. As evaluated as part of the Project LST analysis (previously presented), the Project's mitigated regional and localized construction-source emissions will not exceed applicable LSTs, and a less than significant impact is expected. Therefore, the Project would not conflict with the AQMP according to this criterion for construction activity.

Operational Impacts

The Project LST analysis demonstrates that Project operational-source emissions would not exceed applicable LSTs, and are therefore less-than-significant. Although, Project operational-source emissions would result in exceedances of certain SCAQMD regional thresholds, these emissions are accounted for in the AQMP and the AQMP air quality attainment goals. That is, land uses and development proposed by the Project are consistent with land uses and development intensities reflected in the currently adopted City General Plan, and consequently, within the scope of air quality considerations reflected in the AQMP. Moreover, the location of the Project proximate to local and regional transportation facilities acts to reduce vehicle miles traveled and associated mobile-source (vehicular) emissions. Additionally, Project incorporation of contemporary energy-efficient technologies and operational programs, and compliance with SCAQMD emissions reductions and control requirements act to reduce stationary-source air emissions. These Project attributes and features are consistent with and support AQMP air pollution reduction strategies and promote timely attainment of AQMP air quality standards.

On the basis of the preceding discussion, the Project is determined to be consistent with the first criterion.

- Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

Construction and Operational Impacts

Assumptions of the AQMP used in projecting future emissions levels are based in part on land use data provided by lead agency general plan documentation. Projects that propose general plan amendments and changes of zone may increase the intensity of use and/or result in higher traffic volumes, thereby resulting in increased stationary area source emissions and/or vehicle source emissions when compared to the AQMP assumptions. If however, a project does not exceed the growth projections in the applicable local General Plan, then the project is considered to be consistent with the growth assumptions in the AQMP.

The Project site is currently designated as "Industrial", and uses proposed by the Project are consistent with this designation. The Project also does not plan to increase the development intensity beyond that which is allowed under the General Plan. Because the land use proposed by the Project is consistent with the currently adopted land use designation the Project is in compliance with Consistency Criterion No. 2.

AQMP Consistency Conclusion

For the reasons stated above, the proposed Project will not result in a significant impact with respect to AQMP consistency.

3.10 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors.

As discussed in the LST analysis previously presented in this report, for analysis purposes, sensitive receptors were placed at a distance ~63.94 feet/19.49 meters southwest of the Project site, as a conservative measure. *Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.*" Accordingly, LSTs for receptors at 25 meters are utilized in this analysis for localized emissions and provide for a conservative i.e. "health protective" standard of care as any receptors located further away would be exposed to a lesser impact.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds and a less than significant impact is expected during construction and operational activity. Therefore sensitive receptors would not be subject to a significant air quality impact during Project construction or operations.

The Project would not result in a significant CO "hotspot" as a result of Project related traffic during ongoing operations, thus a less than significant impact to sensitive receptors during operational activity is expected.

3.11 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities, and the temporary storage of typical solid waste (refuse) associated with the Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts resulting from construction activity. It should be noted that any construction odor emissions generated would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction activity and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City of San Bernardino solid waste regulations. The Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the Project construction and operations would be less than significant and no mitigation is required.

3.12 CUMULATIVE IMPACTS

The Project area is designated as an extreme non-attainment area for ozone and a non-attainment area for PM_{10} and $PM_{2.5}$.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (August 2003). In this report the AQMD clearly states (Page D-3):

> *"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR...*
>
> *…Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."*

Criterion 1; *Regional Analysis*

Construction Impacts

Germane to this non-attainment status, the Project-specific evaluation of emissions presented in the preceding analysis demonstrates that after application of mitigation measures, construction of the Project will not result in exceedances of regional thresholds. Thus, a less than significant cumulative impact is expected during construction activity.

Operational Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that after application of mitigation measures, operation of the Project will result in exceedances of regional thresholds for VOC and NOx emissions. Thus, a significant cumulative impact is expected during operational activity.

Criterion 2; *List Approach*

A list approach is used, in accordance with Section 15130(b) of the CEQA Guidelines, which states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

It should be noted that that there is typically insufficient information to quantitatively evaluate the cumulative contributions of multiple projects because each project applicant has no control over nearby projects and site specific information is not readily available for all Project's. Notwithstanding, the potential cumulative impacts from the Project and other projects are discussed below within a qualitative context consistent with recommendations by the SCAQMD for determining cumulative impacts. A cumulative project list was developed for this analysis and is shown in Table 3-12 this cumulative project list was obtained from the Project's traffic impact analysis and relates to the cumulative operational (mobile source) impacts.

TABLE 3-12

CUMULATIVE DEVELOPMENT LIST

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
1	CUP 12-04	Religious Facility Addition	0.714	TSF
2	CUP 12-06	Commercial Retail	9.180	TSF
		Fast Food w/ Drive Thru	2.400	TSF
3	CUP 12-12	K-6 Charter School	300	STU
4	CUP 12-13	Auditorium, Community Center	20.000	TSF
5	CUP 12-14	Discount Store	9.026	TSF
6	CUP 12-20	Discount Store	10.500	TSF
7	CUP 12-22	Auditorium, Banquet Hall	5.233	TSF
		Restaurant	0.800	TSF
8	CUP 13-01	Discount Store	26.907	TSF
9	CUP 13-07	Discount Store	12.500	TSF
10	CUP 13-14	Gas Station w/ Convenience Market	2.789	TSF
11	DP2 12-02	Warehousing	345.802	TSF
12	DP2 12-03	Automobile Parts and Service Center	24.953	TSF
13	DP2 12-09	Industrial Park	1,789.990	TSF
14	DP2 12-10	General Light Industrial	480.570	TSF
15	DP2 12-14	General Light Industrial	871.900	TSF
16	DP2 12-18	Automobile Dealership	30.300	TSF
17	DP-D13-01	Shipping Container Storage Yard	12	AC
18	DP-D13-02	Discount Store	12.406	TSF
19	DP-D13-05	Commercial Retail	9.180	TSF
20	Spring Trails Specific Plan	SFDR	304	DU
21	Soil Safe Land Improvement Project	Soil Safe Project	19	AC
22	Education/Office Building	General Office	114.071	TSF
23	Pacific Rail - Metal Shredder	Metal Shredder	1	MS
24	Steel Road/Santa Ana Redevelopment	Industrial Park	159.276	TSF
25	National Orange Show Industrial	High-Cube Warehouse	616.000	TSF
		General Light Industrial	57.750	TSF
		Warehousing	78.960	TSF

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; STU = Students; AC = Acres; MS = Metal Shredder
Source: Urban Crossroad, Alliance California Gateway South Building 3 Traffic Impact Analysis (Aug 27, 2013)

Related projects could contribute to an existing or projected air quality exceedance because the Basin is currently nonattainment for ozone, PM10, and PM2.5. With regard to determining the significance of the contribution from the Project, the SCAQMD recommends that any given project's potential contribution to cumulative impacts should be assessed using the same significance criteria as for project-specific impacts. Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the

SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a commutatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

On the basis of the preceding discussion, since project-specific operational emissions exceed regional thresholds for VOC and NOx emissions, a significant cumulative impact would occur for operational activity.

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5.0 REFERENCES

1. California Air Resources Board, 2007. *California Air Resources Board Almanac.*

2. California Air Resources Board, 2007. *EMFAC 2007.*

3. California Integrated Waste Management Board, 2011. *Estimated Solid Waste Generation Rates for Industrial Establishments:* http://www.calrecycle.ca.gov/wastechar/WasteGenRates/Industrial.htm

4. South Coast Air Quality Management District (SCAQMD), 1993. *CEQA Air Quality Handbook.*

5. South Coast Air Quality Management District (SCAQMD), 2011. *California Emissions Estimator Model (CalEEMod™).*

6. South Coast Air Quality Management District (SCAQMD), March 2009. *CEQA Air Quality Significance Thresholds.*

7. South Coast Air Quality Management District (SCAQMD), 2003. *Final Localized Significance Threshold Methodology.*

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APPENDIX A

CalEEMod™ Input/Output
Construction and Operational Emissions

Orange Show Road High-Cube Distribution Warehouse

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,199.36	1000sqft	27.53	1,199,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on a 2015 operational year and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Grading -

Architectural Coating - Based on site plan

Vehicle Trips - TR based on traffic study. Truck TL based on the truck distribution from the TS. PC TL based on CalEEMod default

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Area Coating - Interior/Exterior square footage based on site plan

Water And Wastewater - Water usage based on 700 gallons per day x acres of building space and landscaped area for indoor/outdoor water usage.

Construction Off-road Equipment Mitigation - Added Tier 3 mitigation to all construction equipment greater than 100 HP (except off high way trucks)

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - Use low VOC Paints (125 g/L) on interior and exterior

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
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tblAreaCoating	Area_Nonresidential_Interior	1799040	163456
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tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	125
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
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tblConstructionPhase	PhaseEndDate	11/18/2014	4/22/2014
tblConstructionPhase	PhaseStartDate	4/23/2014	10/1/2014
tblConstructionPhase	PhaseStartDate	10/22/2014	3/26/2014
tblOffRoadEquipment	HorsePower	400.00	189.00

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tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.12
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tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDT1	0.07	0.00
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tblVehicleEF	LDT2	0.17	0.00
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tblVehicleEF	LHD2	9.1200e-003	0.00
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tblVehicleEF	SBUS	7.2300e-004	0.00
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tblVehicleTrips	CNW_TL	6.90	22.84
tblVehicleTrips	CW_TL	16.60	22.84
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68

tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	277,352,000.00	7,036,470.00
tblWater	OutdoorWaterUseRate	0.00	1,055,471.00

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					
2014	101.7092	171.2617	111.5738	0.1889	17.4590	7.6856	25.1446	6.6069	7.0707	13.6776	0.0000	18,403.1117	18,403.1117	4.0693	0.0000	18,488.5660
Total	**101.7092**	**171.2617**	**111.5738**	**0.1889**	**17.4590**	**7.6856**	**25.1446**	**6.6069**	**7.0707**	**13.6776**	**0.0000**	**18,403.1117**	**18,403.1117**	**4.0693**	**0.0000**	**18,488.5660**

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					
2014	100.6095	89.8945	113.0972	0.1889	8.0002	4.3184	11.7656	2.6454	4.1457	6.2266	0.0000	18,396.2115	18,396.2115	4.0655	0.0000	18,481.5879
Total	**100.6095**	**89.8945**	**113.0972**	**0.1889**	**8.0002**	**4.3184**	**11.7656**	**2.6454**	**4.1457**	**6.2266**	**0.0000**	**18,396.2115**	**18,396.2115**	**4.0655**	**0.0000**	**18,481.5879**

	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	N20	CO2e
Percent Reduction	**1.0812**	**47.5104**	**-1.3654**	**0.0371**	**54.1774**	**43.8116**	**53.2081**	**59.9600**	**41.3685**	**54.4758**	**0.0000**	**0.0375**	**0.0375**	**0.0912**	**0.0000**	**0.0377**

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	26.1826	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Energy	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128
Mobile	45.8677	113.1097	189.9191	0.5430	33.6022	2.0268	35.6291	9.0112	1.8635	10.8747		50,402.3636	50,402.3636	1.2997		50,429.6565
Total	**72.1261**	**113.8003**	**190.6248**	**0.5472**	**33.6022**	**2.0797**	**35.6819**	**9.0112**	**1.9163**	**10.9276**		**51,229.9042**	**51,229.9042**	**1.3163**	**0.0152**	**51,262.2477**

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	24.9712	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Energy	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
Mobile	45.4781	112.1296	188.5459	0.5381	33.2895	2.0082	35.2977	8.9274	1.8464	10.7738		49,940.2206	49,940.2206	1.2881		49,967.2708
Total	**70.5101**	**112.6843**	**189.1374**	**0.5414**	**33.2895**	**2.0508**	**35.3403**	**8.9274**	**1.8889**	**10.8163**		**50,604.6250**	**50,604.6250**	**1.3016**	**0.0122**	**50,635.7330**

	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	N20	CO2e
Percent Reduction	**2.2405**	**0.9807**	**0.7803**	**1.0582**	**0.9307**	**1.3911**	**0.9575**	**0.9307**	**1.4319**	**1.0186**	**0.0000**	**1.2205**	**1.2205**	**1.1153**	**19.7100**	**1.2222**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2014	1/28/2014	5	20	
2	Grading	Grading	1/29/2014	3/25/2014	5	40	
3	Building Construction	Building Construction	3/26/2014	10/21/2014	5	150	
4	Paving	Paving	3/26/2014	4/22/2014	5	20	
5	Architectural Coating	Architectural Coating	10/1/2014	12/9/2014	5	50	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	2	7.00	78	0.48
Site Preparation	Scrapers	3	7.00	361	0.48
Site Preparation	Graders	1	7.00	174	0.41
Grading	Excavators	1	7.00	162	0.38
Building Construction	Cranes	2	7.00	226	0.29
Building Construction	Forklifts	5	7.00	89	0.20
Building Construction	Generator Sets	2	7.00	84	0.74
Paving	Pavers	2	7.00	125	0.42
Paving	Rollers	2	7.00	80	0.38
Site Preparation	Off-Highway Trucks	2	7.00	189	0.50
Grading	Rubber Tired Dozers	2	7.00	255	0.40
Paving	Off-Highway Trucks	1	7.00	189	0.50
Grading	Graders	2	7.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Paving Equipment	2	7.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	7.00	174	0.41
Grading	Scrapers	6	7.00	361	0.48
Building Construction	Welders	2	7.00	46	0.45
Grading	Off-Highway Trucks	2	7.00	189	0.50
Building Construction	Off-Highway Trucks	2	7.00	189	0.50
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37

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
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	13	504.00	197.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	101.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

Acres of Grading: 61.25

	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					13.7864	0.0000	13.7864	6.1436	0.0000	6.1436			0.0000			0.0000
Off-Road	9.5868	109.4715	59.0403	0.0803		5.4518	5.4518		5.0157	5.0157		8,527.4012	8,527.4012	2.5199		8,580.3199
Total	**9.5868**	**109.4715**	**59.0403**	**0.0803**	**13.7864**	**5.4518**	**19.2383**	**6.1436**	**5.0157**	**11.1593**		**8,527.4012**	**8,527.4012**	**2.5199**		**8,580.3199**

3.2 Site Preparation - 2014

Unmitigated Construction Off-Site

Acres of Grading: 61.25

	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	0.7076	0.1965	2.5559	4.2000e-003	0.3353	2.7800e-003	0.3381	0.0889	2.5400e-003	0.0915		374.2854	374.2854	0.0208		374.7218
Total	**0.7076**	**0.1965**	**2.5559**	**4.2000e-003**	**0.3353**	**2.7800e-003**	**0.3381**	**0.0889**	**2.5400e-003**	**0.0915**		**374.2854**	**374.2854**	**0.0208**		**374.7218**

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					5.3767	0.0000	5.3767	2.3960	0.0000	2.3960			0.0000			0.0000
Off-Road	4.0536	54.4587	47.1485	0.0803		2.7315	2.7315		2.7913	2.7913	0.0000	8,519.577 8	8,519.577 8	2.5176		8,572.447 9
Total	**4.0536**	**54.4587**	**47.1485**	**0.0803**	**5.3767**	**2.7315**	**8.1082**	**2.3960**	**2.7913**	**5.1873**	**0.0000**	**8,519.577 8**	**8,519.577 8**	**2.5176**		**8,572.447 9**

3.2 Site Preparation - 2014

Mitigated Construction Off-Site

Acres of Grading: 61.25

	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	0.7076	0.1965	2.5559	4.2000e-003	0.3353	2.7800e-003	0.3381	0.0889	2.5400e-003	0.0915		374.2854	374.2854	0.0208		374.7218
Total	**0.7076**	**0.1965**	**2.5559**	**4.2000e-003**	**0.3353**	**2.7800e-003**	**0.3381**	**0.0889**	**2.5400e-003**	**0.0915**		**374.2854**	**374.2854**	**0.0208**		**374.7218**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 245

	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					17.0342	0.0000	17.0342	6.4943	0.0000	6.4943			0.0000			0.0000
Off-Road	14.1966	171.0128	103.5235	0.1289		7.6821	7.6821		7.0675	7.0675		13,681.1441	13,681.1441	4.0429		13,766.0455
Total	**14.1966**	**171.0128**	**103.5235**	**0.1289**	**17.0342**	**7.6821**	**24.7163**	**6.4943**	**7.0675**	**13.5618**		**13,681.1441**	**13,681.1441**	**4.0429**		**13,766.0455**

3.3 Grading - 2014

Unmitigated Construction Off-Site

Acres of Grading: 245

	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	0.8963	0.2489	3.2375	5.3200e-003	0.4248	3.5300e-003	0.4283	0.1127	3.2200e-003	0.1159		474.0949	474.0949	0.0263		474.6477
Total	**0.8963**	**0.2489**	**3.2375**	**5.3200e-003**	**0.4248**	**3.5300e-003**	**0.4283**	**0.1127**	**3.2200e-003**	**0.1159**		**474.0949**	**474.0949**	**0.0263**		**474.6477**

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					6.6433	0.0000	6.6433	2.5328	0.0000	2.5328			0.0000			0.0000
Off-Road	4.7305	73.8244	71.3717	0.1288		3.2115	3.2115		3.5780	3.5780	0.0000	13,668.5924	13,668.5924	4.0392		13,753.4159
Total	**4.7305**	**73.8244**	**71.3717**	**0.1288**	**6.6433**	**3.2115**	**9.8548**	**2.5328**	**3.5780**	**6.1108**	**0.0000**	**13,668.5924**	**13,668.5924**	**4.0392**		**13,753.4159**

3.3 Grading - 2014

Mitigated Construction Off-Site

Acres of Grading: 245

	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	0.8963	0.2489	3.2375	5.3200e-003	0.4248	3.5300e-003	0.4283	0.1127	3.2200e-003	0.1159		474.0949	474.0949	0.0263		474.6477
Total	**0.8963**	**0.2489**	**3.2375**	**5.3200e-003**	**0.4248**	**3.5300e-003**	**0.4283**	**0.1127**	**3.2200e-003**	**0.1159**		**474.0949**	**474.0949**	**0.0263**		**474.6477**

3.4 Building Construction - 2014

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	6.4335	54.4426	27.2012	0.0466		3.2444	3.2444		3.0682	3.0682		4,705.1945	4,705.1945	1.1949		4,730.2873
Total	**6.4335**	**54.4426**	**27.2012**	**0.0466**		**3.2444**	**3.2444**		**3.0682**	**3.0682**		**4,705.1945**	**4,705.1945**	**1.1949**		**4,730.2873**

3.4 Building Construction - 2014

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	4.2026	22.2575	23.9884	0.0427	1.2377	0.4466	1.6843	0.3534	0.4106	0.7640		4,369.4024	4,369.4024	0.0380		4,370.2000
Worker	11.8878	3.3012	42.9394	0.0705	5.6335	0.0468	5.6803	1.4940	0.0427	1.5367		6,287.9948	6,287.9948	0.3491		6,295.3268
Total	**16.0904**	**25.5587**	**66.9278**	**0.1132**	**6.8712**	**0.4934**	**7.3646**	**1.8474**	**0.4533**	**2.3007**		**10,657.3972**	**10,657.3972**	**0.3871**		**10,665.5268**

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	5.3348	43.1957	26.9211	0.0466		2.6912	2.6912		2.6218	2.6218	0.0000	4,700.8777	4,700.8777	1.1938		4,725.9476
Total	**5.3348**	**43.1957**	**26.9211**	**0.0466**		**2.6912**	**2.6912**		**2.6218**	**2.6218**	**0.0000**	**4,700.8777**	**4,700.8777**	**1.1938**		**4,725.9476**

3.4 Building Construction - 2014

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	4.2026	22.2575	23.9884	0.0427	1.2377	0.4466	1.6843	0.3534	0.4106	0.7640		4,369.4024	4,369.4024	0.0380		4,370.2000
Worker	11.8878	3.3012	42.9394	0.0705	5.6335	0.0468	5.6803	1.4940	0.0427	1.5367		6,287.9948	6,287.9948	0.3491		6,295.3268
Total	**16.0904**	**25.5587**	**66.9278**	**0.1132**	**6.8712**	**0.4934**	**7.3646**	**1.8474**	**0.4533**	**2.3007**		**10,657.3972**	**10,657.3972**	**0.3871**		**10,665.5268**

3.5 Paving - 2014

Unmitigated Construction On-Site

Acres of Paving: 0

	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	2.7701	30.7600	15.9113	0.0265		1.6142	1.6142		1.4850	1.4850		2,815.9488	2,815.9488	0.8321		2,833.4238
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.7701**	**30.7600**	**15.9113**	**0.0265**		**1.6142**	**1.6142**		**1.4850**	**1.4850**		**2,815.9488**	**2,815.9488**	**0.8321**		**2,833.4238**

3.5 Paving - 2014

Unmitigated Construction Off-Site

Acres of Paving: 0

	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	0.4246	0.1179	1.5336	2.5200e-003	0.2012	1.6700e-003	0.2029	0.0534	1.5200e-003	0.0549		224.5712	224.5712	0.0125		224.8331
Total	**0.4246**	**0.1179**	**1.5336**	**2.5200e-003**	**0.2012**	**1.6700e-003**	**0.2029**	**0.0534**	**1.5200e-003**	**0.0549**		**224.5712**	**224.5712**	**0.0125**		**224.8331**

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	1.7226	21.0223	17.7148	0.0265		1.1322	1.1322		1.0690	1.0690	0.0000	2,813.3653	2,813.3653	0.8314		2,830.8243
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7226**	**21.0223**	**17.7148**	**0.0265**		**1.1322**	**1.1322**		**1.0690**	**1.0690**	**0.0000**	**2,813.3653**	**2,813.3653**	**0.8314**		**2,830.8243**

3.5 Paving - 2014

Mitigated Construction Off-Site

Acres of Paving: 0

	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	0.4246	0.1179	1.5336	2.5200e-003	0.2012	1.6700e-003	0.2029	0.0534	1.5200e-003	0.0549		224.5712	224.5712	0.0125		224.8331
Total	**0.4246**	**0.1179**	**1.5336**	**2.5200e-003**	**0.2012**	**1.6700e-003**	**0.2029**	**0.0534**	**1.5200e-003**	**0.0549**		**224.5712**	**224.5712**	**0.0125**		**224.8331**

3.6 Architectural Coating - 2014

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	75.7619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.0412	6.4805	4.4836	6.9300e-003		0.5720	0.5720		0.5720	0.5720		656.7121	656.7121	0.0936		658.6778
Total	**76.8030**	**6.4805**	**4.4836**	**6.9300e-003**		**0.5720**	**0.5720**		**0.5720**	**0.5720**		**656.7121**	**656.7121**	**0.0936**		**658.6778**

3.6 Architectural Coating - 2014

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	2.3823	0.6616	8.6049	0.0141	1.1289	9.3800e-003	1.1383	0.2994	8.5500e-003	0.3080		1,260.0942	1,260.0942	0.0700		1,261.5635
Total	**2.3823**	**0.6616**	**8.6049**	**0.0141**	**1.1289**	**9.3800e-003**	**1.1383**	**0.2994**	**8.5500e-003**	**0.3080**		**1,260.0942**	**1,260.0942**	**0.0700**		**1,261.5635**

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	75.7619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.0402	6.4745	4.4795	6.9300e-003		0.5715	0.5715		0.5715	0.5715	0.0000	656.1096	656.1096	0.0935		658.0735
Total	**76.8021**	**6.4745**	**4.4795**	**6.9300e-003**		**0.5715**	**0.5715**		**0.5715**	**0.5715**	**0.0000**	**656.1096**	**656.1096**	**0.0935**		**658.0735**

3.6 Architectural Coating - 2014

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	2.3823	0.6616	8.6049	0.0141	1.1289	9.3800e-003	1.1383	0.2994	8.5500e-003	0.3080		1,260.0942	1,260.0942	0.0700		1,261.5635
Total	**2.3823**	**0.6616**	**8.6049**	**0.0141**	**1.1289**	**9.3800e-003**	**1.1383**	**0.2994**	**8.5500e-003**	**0.3080**		**1,260.0942**	**1,260.0942**	**0.0700**		**1,261.5635**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

Implement Trip Reduction Program

Provide Riade Sharing Program

Category	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
	lb/day										lb/day					
Mitigated	45.4781	112.1296	188.5459	0.5381	33.2895	2.0082	35.2977	8.9274	1.8464	10.7738		49,940.2206	49,940.2206	1.2881		49,967.2708
Unmitigated	45.8677	113.1097	189.9191	0.5430	33.6022	2.0268	35.6291	9.0112	1.8635	10.8747		50,402.3636	50,402.3636	1.2997		50,429.6565

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	2,014.92	2,014.92	2014.92	15,623,068	15,477,665
Total	2,014.92	2,014.92	2,014.92	15,623,068	15,477,665

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Unrefrigerated Warehouse-No Rail	22.84	8.40	22.84	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.795700	0.000000	0.000000	0.000000	0.034600	0.000000	0.046400	0.123300	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Category	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
	lb/day										lb/day					
NaturalGas Mitigated	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
NaturalGas Unmitigated	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	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
	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	7031.86	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128
Total		**0.0758**	**0.6894**	**0.5791**	**4.1400e-003**		**0.0524**	**0.0524**		**0.0524**	**0.0524**		**827.2781**	**827.2781**	**0.0159**	**0.0152**	**832.3128**

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 Rail	5.64521	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
Total		**0.0609**	**0.5535**	**0.4649**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.1420**	**664.1420**	**0.0127**	**0.0122**	**668.1838**

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	24.9712	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Unmitigated	26.1826	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784

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	2.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	23.7473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0125	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Total	**26.1826**	**1.2300e-003**	**0.1267**	**1.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**		**0.2625**	**0.2625**	**7.6000e-004**		**0.2784**

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	1.2114					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	23.7473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0125	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Total	**24.9712**	**1.2300e-003**	**0.1267**	**1.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**		**0.2625**	**0.2625**	**7.6000e-004**		**0.2784**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

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

Orange Show Road High-Cube Distribution Warehouse

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,199.36	1000sqft	27.53	1,199,360.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 32

Climate Zone 10 **Operational Year** 2015

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on a 2015 operational year and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Grading -

Architectural Coating - Based on site plan

Vehicle Trips - TR based on traffic study. Truck TL based on the truck distribution from the TS. PC TL based on CalEEMod default

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Area Coating - Interior/Exterior square footage based on site plan

Water And Wastewater - Water usage based on 700 gallons per day x acres of building space and landscaped area for indoor/outdoor water usage.

Construction Off-road Equipment Mitigation - Added Tier 3 mitigation to all construction equipment greater than 100 HP (except off high way trucks)

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - Use low VOC Paints (125 g/L) on interior and exterior

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	599,680.00	163,456.00

tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,799,040.00	163,456.00
tblAreaCoating	Area_Nonresidential_Interior	1799040	163456
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	125
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	125
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	35.00	50.00
tblConstructionPhase	NumDays	440.00	150.00
tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	PhaseEndDate	7/1/2014	12/9/2014
tblConstructionPhase	PhaseEndDate	11/18/2014	4/22/2014
tblConstructionPhase	PhaseStartDate	4/23/2014	10/1/2014
tblConstructionPhase	PhaseStartDate	10/22/2014	3/26/2014
tblOffRoadEquipment	HorsePower	400.00	189.00

tblOffRoadEquipment	HorsePower	255.00	174.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.40	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00

tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
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tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03

tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00
tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleTrips	CNW_TL	6.90	22.84
tblVehicleTrips	CW_TL	16.60	22.84
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68

tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	277,352,000.00	7,036,470.00
tblWater	OutdoorWaterUseRate	0.00	1,055,471.00

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					
2014	103.5876	171.2791	108.0829	0.1820	17.4590	7.6856	25.1446	6.6069	7.0707	13.6776	0.0000	17,788.8952	17,788.8952	4.0693	0.0000	17,874.3495
Total	**103.5876**	**171.2791**	**108.0829**	**0.1820**	**17.4590**	**7.6856**	**25.1446**	**6.6069**	**7.0707**	**13.6776**	**0.0000**	**17,788.8952**	**17,788.8952**	**4.0693**	**0.0000**	**17,874.3495**

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					
2014	102.4880	90.7746	109.6063	0.1820	8.0002	4.3242	11.7714	2.6454	4.1510	6.2266	0.0000	17,781.9949	17,781.9949	4.0655	0.0000	17,867.3713
Total	**102.4880**	**90.7746**	**109.6063**	**0.1820**	**8.0002**	**4.3242**	**11.7714**	**2.6454**	**4.1510**	**6.2266**	**0.0000**	**17,781.9949**	**17,781.9949**	**4.0655**	**0.0000**	**17,867.3713**

	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	N20	CO2e
Percent Reduction	**1.0616**	**47.0020**	**-1.4095**	**0.0330**	**54.1774**	**43.7357**	**53.1849**	**59.9600**	**41.2927**	**54.4758**	**0.0000**	**0.0388**	**0.0388**	**0.0912**	**0.0000**	**0.0390**

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	26.1826	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Energy	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128
Mobile	49.0633	117.8245	175.7183	0.5160	33.6022	2.0336	35.6358	9.0112	1.8697	10.8809		48,110.1891	48,110.1891	1.3017		48,137.5252
Total	**75.3217**	**118.5152**	**176.4240**	**0.5201**	**33.6022**	**2.0864**	**35.6887**	**9.0112**	**1.9225**	**10.9338**		**48,937.7297**	**48,937.7297**	**1.3183**	**0.0152**	**48,970.1165**

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	24.9712	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Energy	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
Mobile	48.6428	116.7987	174.5517	0.5112	33.2895	2.0150	35.3045	8.9274	1.8526	10.7800		47,668.8021	47,668.8021	1.2902		47,695.8956
Total	**73.6749**	**117.3534**	**175.1433**	**0.5146**	**33.2895**	**2.0575**	**35.3470**	**8.9274**	**1.8951**	**10.8225**		**48,333.2066**	**48,333.2066**	**1.3037**	**0.0122**	**48,364.3578**

	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	N20	CO2e
Percent Reduction	2.1863	0.9803	0.7259	1.0671	0.9307	1.3866	0.9573	0.9307	1.4273	1.0180	0.0000	1.2353	1.2353	1.1143	19.7100	1.2370

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2014	1/28/2014	5	20	
2	Grading	Grading	1/29/2014	3/25/2014	5	40	
3	Building Construction	Building Construction	3/26/2014	10/21/2014	5	150	
4	Paving	Paving	3/26/2014	4/22/2014	5	20	
5	Architectural Coating	Architectural Coating	10/1/2014	12/9/2014	5	50	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	2	7.00	78	0.48
Site Preparation	Scrapers	3	7.00	361	0.48
Site Preparation	Graders	1	7.00	174	0.41
Grading	Excavators	1	7.00	162	0.38
Building Construction	Cranes	2	7.00	226	0.29
Building Construction	Forklifts	5	7.00	89	0.20
Building Construction	Generator Sets	2	7.00	84	0.74
Paving	Pavers	2	7.00	125	0.42
Paving	Rollers	2	7.00	80	0.38
Site Preparation	Off-Highway Trucks	2	7.00	189	0.50
Grading	Rubber Tired Dozers	2	7.00	255	0.40
Paving	Off-Highway Trucks	1	7.00	189	0.50
Grading	Graders	2	7.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Paving Equipment	2	7.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Site Preparation	Rubber Tired Dozers	2	7.00	174	0.41
Grading	Scrapers	6	7.00	361	0.48
Building Construction	Welders	2	7.00	46	0.45
Grading	Off-Highway Trucks	2	7.00	189	0.50
Building Construction	Off-Highway Trucks	2	7.00	189	0.50
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37

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
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	13	504.00	197.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	101.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

Acres of Grading: 61.25

	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					13.7864	0.0000	13.7864	6.1436	0.0000	6.1436			0.0000			0.0000
Off-Road	9.5868	109.4715	59.0403	0.0803		5.4518	5.4518		5.0157	5.0157		8,527.4012	8,527.4012	2.5199		8,580.3199
Total	**9.5868**	**109.4715**	**59.0403**	**0.0803**	**13.7864**	**5.4518**	**19.2383**	**6.1436**	**5.0157**	**11.1593**		**8,527.4012**	**8,527.4012**	**2.5199**		**8,580.3199**

3.2 Site Preparation - 2014

Unmitigated Construction Off-Site

Acres of Grading: 61.25

	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	0.7885	0.2103	2.1986	3.8200e-003	0.3353	2.7800e-003	0.3381	0.0889	2.5400e-003	0.0915		341.0747	341.0747	0.0208		341.5111
Total	**0.7885**	**0.2103**	**2.1986**	**3.8200e-003**	**0.3353**	**2.7800e-003**	**0.3381**	**0.0889**	**2.5400e-003**	**0.0915**		**341.0747**	**341.0747**	**0.0208**		**341.5111**

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					5.3767	0.0000	5.3767	2.3960	0.0000	2.3960			0.0000			0.0000
Off-Road	4.0536	54.4587	47.1485	0.0803		2.7315	2.7315		2.7913	2.7913	0.0000	8,519.577 8	8,519.577 8	2.5176		8,572.447 9
Total	**4.0536**	**54.4587**	**47.1485**	**0.0803**	**5.3767**	**2.7315**	**8.1082**	**2.3960**	**2.7913**	**5.1873**	**0.0000**	**8,519.577 8**	**8,519.577 8**	**2.5176**		**8,572.447 9**

3.2 Site Preparation - 2014

Mitigated Construction Off-Site

Acres of Grading: 61.25

	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	0.7885	0.2103	2.1986	3.8200e-003	0.3353	2.7800e-003	0.3381	0.0889	2.5400e-003	0.0915		341.0747	341.0747	0.0208		341.5111
Total	**0.7885**	**0.2103**	**2.1986**	**3.8200e-003**	**0.3353**	**2.7800e-003**	**0.3381**	**0.0889**	**2.5400e-003**	**0.0915**		**341.0747**	**341.0747**	**0.0208**		**341.5111**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 245

	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					17.0342	0.0000	17.0342	6.4943	0.0000	6.4943			0.0000			0.0000
Off-Road	14.1966	171.0128	103.5235	0.1289		7.6821	7.6821		7.0675	7.0675		13,681.1441	13,681.1441	4.0429		13,766.0455
Total	**14.1966**	**171.0128**	**103.5235**	**0.1289**	**17.0342**	**7.6821**	**24.7163**	**6.4943**	**7.0675**	**13.5618**		**13,681.1441**	**13,681.1441**	**4.0429**		**13,766.0455**

3.3 Grading - 2014

Unmitigated Construction Off-Site

Acres of Grading: 245

	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	0.9988	0.2664	2.7849	4.8400e-003	0.4248	3.5300e-003	0.4283	0.1127	3.2200e-003	0.1159		432.0279	432.0279	0.0263		432.5808
Total	**0.9988**	**0.2664**	**2.7849**	**4.8400e-003**	**0.4248**	**3.5300e-003**	**0.4283**	**0.1127**	**3.2200e-003**	**0.1159**		**432.0279**	**432.0279**	**0.0263**		**432.5808**

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					6.6433	0.0000	6.6433	2.5328	0.0000	2.5328			0.0000			0.0000
Off-Road	4.7305	73.8244	71.3717	0.1288		3.2115	3.2115		3.5780	3.5780	0.0000	13,668.5924	13,668.5924	4.0392		13,753.4159
Total	**4.7305**	**73.8244**	**71.3717**	**0.1288**	**6.6433**	**3.2115**	**9.8548**	**2.5328**	**3.5780**	**6.1108**	**0.0000**	**13,668.5924**	**13,668.5924**	**4.0392**		**13,753.4159**

3.3 Grading - 2014

Mitigated Construction Off-Site

Acres of Grading: 245

	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	0.9988	0.2664	2.7849	4.8400e-003	0.4248	3.5300e-003	0.4283	0.1127	3.2200e-003	0.1159		432.0279	432.0279	0.0263		432.5808
Total	**0.9988**	**0.2664**	**2.7849**	**4.8400e-003**	**0.4248**	**3.5300e-003**	**0.4283**	**0.1127**	**3.2200e-003**	**0.1159**		**432.0279**	**432.0279**	**0.0263**		**432.5808**

3.4 Building Construction - 2014

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	6.4335	54.4426	27.2012	0.0466		3.2444	3.2444		3.0682	3.0682		4,705.1945	4,705.1945	1.1949		4,730.2873
Total	**6.4335**	**54.4426**	**27.2012**	**0.0466**		**3.2444**	**3.2444**		**3.0682**	**3.0682**		**4,705.1945**	**4,705.1945**	**1.1949**		**4,730.2873**

3.4 Building Construction - 2014

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	4.4490	22.8976	26.7144	0.0424	1.2377	0.4524	1.6901	0.3534	0.4160	0.7694		4,333.0523	4,333.0523	0.0390		4,333.8708
Worker	13.2474	3.5328	36.9368	0.0642	5.6335	0.0468	5.6803	1.4940	0.0427	1.5367		5,730.0547	5,730.0547	0.3491		5,737.3868
Total	**17.6964**	**26.4305**	**63.6513**	**0.1066**	**6.8712**	**0.4992**	**7.3704**	**1.8474**	**0.4587**	**2.3061**		**10,063.1071**	**10,063.1071**	**0.3881**		**10,071.2576**

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	5.3348	43.1957	26.9211	0.0466		2.6912	2.6912		2.6218	2.6218	0.0000	4,700.8777	4,700.8777	1.1938		4,725.9476
Total	**5.3348**	**43.1957**	**26.9211**	**0.0466**		**2.6912**	**2.6912**		**2.6218**	**2.6218**	**0.0000**	**4,700.8777**	**4,700.8777**	**1.1938**		**4,725.9476**

3.4 Building Construction - 2014

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	4.4490	22.8976	26.7144	0.0424	1.2377	0.4524	1.6901	0.3534	0.4160	0.7694		4,333.052 3	4,333.052 3	0.0390		4,333.870 8
Worker	13.2474	3.5328	36.9368	0.0642	5.6335	0.0468	5.6803	1.4940	0.0427	1.5367		5,730.054 7	5,730.054 7	0.3491		5,737.386 8
Total	**17.6964**	**26.4305**	**63.6513**	**0.1066**	**6.8712**	**0.4992**	**7.3704**	**1.8474**	**0.4587**	**2.3061**		**10,063.10 71**	**10,063.10 71**	**0.3881**		**10,071.25 76**

3.5 Paving - 2014

Unmitigated Construction On-Site

Acres of Paving: 0

	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	2.7701	30.7600	15.9113	0.0265		1.6142	1.6142		1.4850	1.4850		2,815.948 8	2,815.948 8	0.8321		2,833.423 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.7701**	**30.7600**	**15.9113**	**0.0265**		**1.6142**	**1.6142**		**1.4850**	**1.4850**		**2,815.948 8**	**2,815.948 8**	**0.8321**		**2,833.423 8**

3.5 Paving - 2014

Unmitigated Construction Off-Site

Acres of Paving: 0

	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	0.4731	0.1262	1.3192	2.2900e-003	0.2012	1.6700e-003	0.2029	0.0534	1.5200e-003	0.0549		204.6448	204.6448	0.0125		204.9067
Total	**0.4731**	**0.1262**	**1.3192**	**2.2900e-003**	**0.2012**	**1.6700e-003**	**0.2029**	**0.0534**	**1.5200e-003**	**0.0549**		**204.6448**	**204.6448**	**0.0125**		**204.9067**

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	1.7226	21.0223	17.7148	0.0265		1.1322	1.1322		1.0690	1.0690	0.0000	2,813.3653	2,813.3653	0.8314		2,830.8243
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7226**	**21.0223**	**17.7148**	**0.0265**		**1.1322**	**1.1322**		**1.0690**	**1.0690**	**0.0000**	**2,813.3653**	**2,813.3653**	**0.8314**		**2,830.8243**

3.5 Paving - 2014

Mitigated Construction Off-Site

Acres of Paving: 0

	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	0.4731	0.1262	1.3192	2.2900e-003	0.2012	1.6700e-003	0.2029	0.0534	1.5200e-003	0.0549		204.6448	204.6448	0.0125		204.9067
Total	**0.4731**	**0.1262**	**1.3192**	**2.2900e-003**	**0.2012**	**1.6700e-003**	**0.2029**	**0.0534**	**1.5200e-003**	**0.0549**		**204.6448**	**204.6448**	**0.0125**		**204.9067**

3.6 Architectural Coating - 2014

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	75.7619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.0412	6.4805	4.4836	6.9300e-003		0.5720	0.5720		0.5720	0.5720		656.7121	656.7121	0.0936		658.6778
Total	**76.8030**	**6.4805**	**4.4836**	**6.9300e-003**		**0.5720**	**0.5720**		**0.5720**	**0.5720**		**656.7121**	**656.7121**	**0.0936**		**658.6778**

3.6 Architectural Coating - 2014

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	2.6547	0.7080	7.4020	0.0129	1.1289	9.3800e-003	1.1383	0.2994	8.5500e-003	0.3080		1,148.2848	1,148.2848	0.0700		1,149.7541
Total	**2.6547**	**0.7080**	**7.4020**	**0.0129**	**1.1289**	**9.3800e-003**	**1.1383**	**0.2994**	**8.5500e-003**	**0.3080**		**1,148.2848**	**1,148.2848**	**0.0700**		**1,149.7541**

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	75.7619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.0402	6.4745	4.4795	6.9300e-003		0.5715	0.5715		0.5715	0.5715	0.0000	656.1096	656.1096	0.0935		658.0735
Total	**76.8021**	**6.4745**	**4.4795**	**6.9300e-003**		**0.5715**	**0.5715**		**0.5715**	**0.5715**	**0.0000**	**656.1096**	**656.1096**	**0.0935**		**658.0735**

3.6 Architectural Coating - 2014

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	2.6547	0.7080	7.4020	0.0129	1.1289	9.3800e-003	1.1383	0.2994	8.5500e-003	0.3080		1,148.2848	1,148.2848	0.0700		1,149.7541
Total	**2.6547**	**0.7080**	**7.4020**	**0.0129**	**1.1289**	**9.3800e-003**	**1.1383**	**0.2994**	**8.5500e-003**	**0.3080**		**1,148.2848**	**1,148.2848**	**0.0700**		**1,149.7541**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

Implement Trip Reduction Program

Provide Riade 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	48.6428	116.7987	174.5517	0.5112	33.2895	2.0150	35.3045	8.9274	1.8526	10.7800		47,668.8021	47,668.8021	1.2902		47,695.8956
Unmitigated	49.0633	117.8245	175.7183	0.5160	33.6022	2.0336	35.6358	9.0112	1.8697	10.8809		48,110.1891	48,110.1891	1.3017		48,137.5252

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	2,014.92	2,014.92	2014.92	15,623,068	15,477,665
Total	2,014.92	2,014.92	2,014.92	15,623,068	15,477,665

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Unrefrigerated Warehouse-No Rail	22.84	8.40	22.84	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.795700	0.000000	0.000000	0.000000	0.034600	0.000000	0.046400	0.123300	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

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	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
NaturalGas Unmitigated	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128

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					
Unrefrigerated Warehouse-No Rail	7031.86	0.0758	0.6894	0.5791	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.2781	827.2781	0.0159	0.0152	832.3128
Total		**0.0758**	**0.6894**	**0.5791**	**4.1400e-003**		**0.0524**	**0.0524**		**0.0524**	**0.0524**		**827.2781**	**827.2781**	**0.0159**	**0.0152**	**832.3128**

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 Rail	5.64521	0.0609	0.5535	0.4649	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.1420	664.1420	0.0127	0.0122	668.1838
Total		**0.0609**	**0.5535**	**0.4649**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.1420**	**664.1420**	**0.0127**	**0.0122**	**668.1838**

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	24.9712	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Unmitigated	26.1826	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784

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	2.4227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	23.7473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0125	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Total	**26.1826**	**1.2300e-003**	**0.1267**	**1.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**		**0.2625**	**0.2625**	**7.6000e-004**		**0.2784**

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	1.2114					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	23.7473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0125	1.2300e-003	0.1267	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.2625	0.2625	7.6000e-004		0.2784
Total	**24.9712**	**1.2300e-003**	**0.1267**	**1.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**		**0.2625**	**0.2625**	**7.6000e-004**		**0.2784**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

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

Orange Show Road High-Cube Distribution Warehouse

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,199.36	1000sqft	27.53	1,199,360.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 32

Climate Zone 10 **Operational Year** 2015

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on a 2015 operational year and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Off-road Equipment - Based on a project of similiar size and information from the applicant

Grading -

Architectural Coating - Based on site plan

Vehicle Trips - TR based on traffic study. Truck TL based on the truck distribution from the TS. PC TL based on CalEEMod default

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Vechicle Emission Factors - based on traffic study fleet mix

Area Coating - Interior/Exterior square footage based on site plan

Water And Wastewater - Water usage based on 700 gallons per day x acres of building space and landscaped area for indoor/outdoor water usage.

Construction Off-road Equipment Mitigation - Added Tier 3 mitigation to all construction equipment greater than 100 HP (except off high way trucks)

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - Use low VOC Paints (125 g/L) on interior and exterior

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	599,680.00	163,456.00

tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,799,040.00	163,456.00
tblAreaCoating	Area_Nonresidential_Interior	1799040	163456
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	125
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	125
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	35.00	50.00
tblConstructionPhase	NumDays	440.00	150.00
tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	PhaseEndDate	7/1/2014	12/9/2014
tblConstructionPhase	PhaseEndDate	11/18/2014	4/22/2014
tblConstructionPhase	PhaseStartDate	4/23/2014	10/1/2014
tblConstructionPhase	PhaseStartDate	10/22/2014	3/26/2014
tblOffRoadEquipment	HorsePower	255.00	174.00

tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.40	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00

tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDA	0.47	0.80
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LDT2	0.17	0.00
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	LHD2	9.1200e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00
tblVehicleEF	MCY	4.8710e-003	0.00

tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MDV	0.16	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MH	2.9140e-003	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	OBUS	1.1190e-003	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	SBUS	7.2300e-004	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleEF	UBUS	1.3380e-003	0.00
tblVehicleTrips	CNW_TL	6.90	22.84
tblVehicleTrips	CW_TL	16.60	22.84
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68
tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	277,352,000.00	7,036,470.00
tblWater	OutdoorWaterUseRate	0.00	1,055,471.00

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					
2014	4.1004	11.1203	10.1870	0.0159	1.0256	0.5195	1.5451	0.3385	0.4853	0.8238	0.0000	1,417.6971	1,417.6971	0.2159	0.0000	1,422.2314
Total	**4.1004**	**11.1203**	**10.1870**	**0.0159**	**1.0256**	**0.5195**	**1.5451**	**0.3385**	**0.4853**	**0.8238**	**0.0000**	**1,417.6971**	**1,417.6971**	**0.2159**	**0.0000**	**1,422.2314**

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					
2014	3.7627	7.6838	9.4208	0.0159	0.7337	0.3564	1.0902	0.2218	0.3555	0.5773	0.0000	1,416.8808	1,416.8808	0.2157	0.0000	1,421.4105
Total	**3.7627**	**7.6838**	**9.4208**	**0.0159**	**0.7337**	**0.3564**	**1.0902**	**0.2218**	**0.3555**	**0.5773**	**0.0000**	**1,416.8808**	**1,416.8808**	**0.2157**	**0.0000**	**1,421.4105**

	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**	**N20**	**CO2e**
Percent Reduction	**8.2363**	**30.9028**	**7.5212**	**0.0629**	**28.4613**	**31.3839**	**29.4443**	**34.4756**	**26.7409**	**29.9213**	**0.0000**	**0.0576**	**0.0576**	**0.1019**	**0.0000**	**0.0577**

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	4.7776	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316
Energy	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003	0.0000	1,173.4809	1,173.4809	0.0503	0.0124	1,178.3709
Mobile	8.3082	21.8066	32.9716	0.0946	6.0024	0.3690	6.3714	1.6123	0.3392	1.9515	0.0000	7,997.9243	7,997.9243	0.2145	0.0000	8,002.4282
Waste						0.0000	0.0000		0.0000	0.0000	228.8520	0.0000	228.8520	13.5248	0.0000	512.8721
Water						0.0000	0.0000		0.0000	0.0000	2.2324	29.5748	31.8072	0.2306	5.7000e-003	38.4162
Total	**13.0996**	**21.9326**	**33.0931**	**0.0954**	**6.0024**	**0.3786**	**6.3810**	**1.6123**	**0.3488**	**1.9611**	**231.0844**	**9,201.0097**	**9,432.0941**	**14.0202**	**0.0181**	**9,732.1189**

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	4.5565	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316
Energy	0.0111	0.1010	0.0848	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	1,085.550 8	1,085.550 8	0.0470	0.0113	1,090.038 0
Mobile	8.2373	21.6169	32.7524	0.0938	5.9466	0.3656	6.3121	1.5973	0.3361	1.9334	0.0000	7,924.594 0	7,924.594 0	0.2126	0.0000	7,929.057 9
Waste						0.0000	0.0000		0.0000	0.0000	114.4260	0.0000	114.4260	6.7624	0.0000	256.4361
Water						0.0000	0.0000		0.0000	0.0000	1.7859	24.1263	25.9122	0.1845	4.5500e-003	31.1984
Total	**12.8050**	**21.7181**	**32.8530**	**0.0944**	**5.9466**	**0.3733**	**6.3199**	**1.5973**	**0.3439**	**1.9411**	**116.2119**	**9,034.300 9**	**9,150.512 8**	**7.2065**	**0.0158**	**9,306.761 9**

	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**	**N20**	**CO2e**
Percent Reduction	**2.2492**	**0.9781**	**0.7253**	**1.0589**	**0.9308**	**1.3894**	**0.9580**	**0.9304**	**1.4276**	**1.0198**	**49.7102**	**1.8119**	**2.9854**	**48.5994**	**12.3409**	**4.3707**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2014	1/28/2014	5	20	
2	Grading	Grading	1/29/2014	3/25/2014	5	40	
3	Building Construction	Building Construction	3/26/2014	10/21/2014	5	150	
4	Paving	Paving	3/26/2014	4/22/2014	5	20	
5	Architectural Coating	Architectural Coating	10/1/2014	12/9/2014	5	50	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	7.00	174	0.41
Site Preparation	Off-Highway Trucks	2	7.00	189	0.50
Site Preparation	Rubber Tired Dozers	2	7.00	174	0.41
Site Preparation	Scrapers	3	7.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Grading	Excavators	1	7.00	162	0.38
Grading	Graders	2	7.00	174	0.41
Grading	Off-Highway Trucks	2	7.00	189	0.50
Grading	Rubber Tired Dozers	2	7.00	255	0.40
Grading	Scrapers	6	7.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	2	7.00	226	0.29
Building Construction	Forklifts	5	7.00	89	0.20
Building Construction	Generator Sets	2	7.00	84	0.74
Building Construction	Off-Highway Trucks	2	7.00	189	0.50
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Welders	2	7.00	46	0.45
Paving	Off-Highway Trucks	1	7.00	189	0.50
Paving	Pavers	2	7.00	125	0.42
Paving	Paving Equipment	2	7.00	130	0.36
Paving	Rollers	2	7.00	80	0.38
Architectural Coating	Air Compressors	2	7.00	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
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	13	504.00	197.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	101.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

Acres of Grading: 61.25

	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					0.1379	0.0000	0.1379	0.0614	0.0000	0.0614	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0959	1.0947	0.5904	8.0000e-004		0.0545	0.0545		0.0502	0.0502	0.0000	77.3593	77.3593	0.0229	0.0000	77.8394
Total	**0.0959**	**1.0947**	**0.5904**	**8.0000e-004**	**0.1379**	**0.0545**	**0.1924**	**0.0614**	**0.0502**	**0.1116**	**0.0000**	**77.3593**	**77.3593**	**0.0229**	**0.0000**	**77.8394**

3.2 Site Preparation - 2014

Unmitigated Construction Off-Site

Acres of Grading: 61.25

	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	6.9800e-003	2.1900e-003	0.0228	4.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	3.0000e-005	9.0000e-004	0.0000	3.1417	3.1417	1.9000e-004	0.0000	3.1457
Total	**6.9800e-003**	**2.1900e-003**	**0.0228**	**4.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**3.0000e-005**	**9.0000e-004**	**0.0000**	**3.1417**	**3.1417**	**1.9000e-004**	**0.0000**	**3.1457**

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					0.0538	0.0000	0.0538	0.0240	0.0000	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0405	0.5444	0.4714	8.0000e-004		0.0273	0.0273		0.0279	0.0279	0.0000	77.2673	77.2673	0.0228	0.0000	77.7468
Total	**0.0405**	**0.5444**	**0.4714**	**8.0000e-004**	**0.0538**	**0.0273**	**0.0811**	**0.0240**	**0.0279**	**0.0519**	**0.0000**	**77.2673**	**77.2673**	**0.0228**	**0.0000**	**77.7468**

3.2 Site Preparation - 2014

Mitigated Construction Off-Site

Acres of Grading: 61.25

	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	6.9800e-003	2.1900e-003	0.0228	4.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	3.0000e-005	9.0000e-004	0.0000	3.1417	3.1417	1.9000e-004	0.0000	3.1457
Total	**6.9800e-003**	**2.1900e-003**	**0.0228**	**4.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**3.0000e-005**	**9.0000e-004**	**0.0000**	**3.1417**	**3.1417**	**1.9000e-004**	**0.0000**	**3.1457**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 245

	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					0.3407	0.0000	0.3407	0.1299	0.0000	0.1299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2839	3.4203	2.0705	2.5800e-003		0.1536	0.1536		0.1414	0.1414	0.0000	248.2265	248.2265	0.0734	0.0000	249.7669
Total	**0.2839**	**3.4203**	**2.0705**	**2.5800e-003**	**0.3407**	**0.1536**	**0.4943**	**0.1299**	**0.1414**	**0.2712**	**0.0000**	**248.2265**	**248.2265**	**0.0734**	**0.0000**	**249.7669**

3.3 Grading - 2014

Unmitigated Construction Off-Site

Acres of Grading: 245

	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	0.0177	5.5400e-003	0.0578	1.0000e-004	8.3300e-003	7.0000e-005	8.4000e-003	2.2100e-003	6.0000e-005	2.2800e-003	0.0000	7.9590	7.9590	4.8000e-004	0.0000	7.9691
Total	**0.0177**	**5.5400e-003**	**0.0578**	**1.0000e-004**	**8.3300e-003**	**7.0000e-005**	**8.4000e-003**	**2.2100e-003**	**6.0000e-005**	**2.2800e-003**	**0.0000**	**7.9590**	**7.9590**	**4.8000e-004**	**0.0000**	**7.9691**

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					0.1329	0.0000	0.1329	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0946	1.4761	1.4270	2.5800e-003		0.0642	0.0642		0.0715	0.0715	0.0000	247.9312	247.9312	0.0733	0.0000	249.4698
Total	**0.0946**	**1.4761**	**1.4270**	**2.5800e-003**	**0.1329**	**0.0642**	**0.1971**	**0.0507**	**0.0715**	**0.1222**	**0.0000**	**247.9312**	**247.9312**	**0.0733**	**0.0000**	**249.4698**

3.3 Grading - 2014

Mitigated Construction Off-Site

Acres of Grading: 245

	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	0.0177	5.5400e-003	0.0578	1.0000e-004	8.3300e-003	7.0000e-005	8.4000e-003	2.2100e-003	6.0000e-005	2.2800e-003	0.0000	7.9590	7.9590	4.8000e-004	0.0000	7.9691
Total	**0.0177**	**5.5400e-003**	**0.0578**	**1.0000e-004**	**8.3300e-003**	**7.0000e-005**	**8.4000e-003**	**2.2100e-003**	**6.0000e-005**	**2.2800e-003**	**0.0000**	**7.9590**	**7.9590**	**4.8000e-004**	**0.0000**	**7.9691**

3.4 Building Construction - 2014

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	0.4825	4.0832	2.0401	3.5000e-003		0.2433	0.2433		0.2301	0.2301	0.0000	320.1361	320.1361	0.0813	0.0000	321.8433
Total	**0.4825**	**4.0832**	**2.0401**	**3.5000e-003**		**0.2433**	**0.2433**		**0.2301**	**0.2301**	**0.0000**	**320.1361**	**320.1361**	**0.0813**	**0.0000**	**321.8433**

3.4 Building Construction - 2014

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	0.3229	1.7497	2.0534	3.2000e-003	0.0914	0.0337	0.1250	0.0261	0.0310	0.0571	0.0000	296.2504	296.2504	2.6100e-003	0.0000	296.3053
Worker	0.8797	0.2754	2.8751	4.8900e-003	0.4145	3.5100e-003	0.4180	0.1101	3.2000e-003	0.1133	0.0000	395.8565	395.8565	0.0238	0.0000	396.3553
Total	**1.2027**	**2.0251**	**4.9285**	**8.0900e-003**	**0.5058**	**0.0372**	**0.5430**	**0.1362**	**0.0342**	**0.1704**	**0.0000**	**692.1069**	**692.1069**	**0.0264**	**0.0000**	**692.6606**

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	0.4000	3.2388	2.0185	3.4900e-003		0.2018	0.2018		0.1966	0.1966	0.0000	319.7552	319.7552	0.0812	0.0000	321.4605
Total	**0.4000**	**3.2388**	**2.0185**	**3.4900e-003**		**0.2018**	**0.2018**		**0.1966**	**0.1966**	**0.0000**	**319.7552**	**319.7552**	**0.0812**	**0.0000**	**321.4605**

3.4 Building Construction - 2014

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	0.3229	1.7497	2.0534	3.2000e-003	0.0914	0.0337	0.1250	0.0261	0.0310	0.0571	0.0000	296.2504	296.2504	2.6100e-003	0.0000	296.3053
Worker	0.8797	0.2754	2.8751	4.8900e-003	0.4145	3.5100e-003	0.4180	0.1101	3.2000e-003	0.1133	0.0000	395.8565	395.8565	0.0238	0.0000	396.3553
Total	**1.2027**	**2.0251**	**4.9285**	**8.0900e-003**	**0.5058**	**0.0372**	**0.5430**	**0.1362**	**0.0342**	**0.1704**	**0.0000**	**692.1069**	**692.1069**	**0.0264**	**0.0000**	**692.6606**

3.5 Paving - 2014

Unmitigated Construction On-Site

Acres of Paving: 0

	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	0.0277	0.3076	0.1591	2.7000e-004		0.0161	0.0161		0.0149	0.0149	0.0000	25.5459	25.5459	7.5500e-003	0.0000	25.7044
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0277**	**0.3076**	**0.1591**	**2.7000e-004**		**0.0161**	**0.0161**		**0.0149**	**0.0149**	**0.0000**	**25.5459**	**25.5459**	**7.5500e-003**	**0.0000**	**25.7044**

3.5 Paving - 2014

Unmitigated Construction Off-Site

Acres of Paving: 0

	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	4.1900e-003	1.3100e-003	0.0137	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8850	1.8850	1.1000e-004	0.0000	1.8874
Total	**4.1900e-003**	**1.3100e-003**	**0.0137**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**1.8850**	**1.8850**	**1.1000e-004**	**0.0000**	**1.8874**

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	0.0172	0.2102	0.1771	2.7000e-004		0.0113	0.0113		0.0107	0.0107	0.0000	25.5155	25.5155	7.5400e-003	0.0000	25.6738
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0172**	**0.2102**	**0.1771**	**2.7000e-004**		**0.0113**	**0.0113**		**0.0107**	**0.0107**	**0.0000**	**25.5155**	**25.5155**	**7.5400e-003**	**0.0000**	**25.6738**

3.5 Paving - 2014

Mitigated Construction Off-Site

Acres of Paving: 0

	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	4.1900e-003	1.3100e-003	0.0137	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8850	1.8850	1.1000e-004	0.0000	1.8874
Total	**4.1900e-003**	**1.3100e-003**	**0.0137**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**1.8850**	**1.8850**	**1.1000e-004**	**0.0000**	**1.8874**

3.6 Architectural Coating - 2014

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	1.8941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0260	0.1620	0.1121	1.7000e-004		0.0143	0.0143		0.0143	0.0143	0.0000	14.8940	14.8940	2.1200e-003	0.0000	14.9386
Total	**1.9201**	**0.1620**	**0.1121**	**1.7000e-004**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**14.8940**	**14.8940**	**2.1200e-003**	**0.0000**	**14.9386**

3.6 Architectural Coating - 2014

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	0.0588	0.0184	0.1921	3.3000e-004	0.0277	2.3000e-004	0.0279	7.3500e-003	2.1000e-004	7.5700e-003	0.0000	26.4428	26.4428	1.5900e-003	0.0000	26.4761
Total	**0.0588**	**0.0184**	**0.1921**	**3.3000e-004**	**0.0277**	**2.3000e-004**	**0.0279**	**7.3500e-003**	**2.1000e-004**	**7.5700e-003**	**0.0000**	**26.4428**	**26.4428**	**1.5900e-003**	**0.0000**	**26.4761**

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	1.8941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0260	0.1618	0.1120	1.7000e-004		0.0143	0.0143		0.0143	0.0143	0.0000	14.8763	14.8763	2.1200e-003	0.0000	14.9208
Total	**1.9201**	**0.1618**	**0.1120**	**1.7000e-004**		**0.0143**	**0.0143**		**0.0143**	**0.0143**	**0.0000**	**14.8763**	**14.8763**	**2.1200e-003**	**0.0000**	**14.9208**

3.6 Architectural Coating - 2014

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	0.0588	0.0184	0.1921	3.3000e-004	0.0277	2.3000e-004	0.0279	7.3500e-003	2.1000e-004	7.5700e-003	0.0000	26.4428	26.4428	1.5900e-003	0.0000	26.4761
Total	**0.0588**	**0.0184**	**0.1921**	**3.3000e-004**	**0.0277**	**2.3000e-004**	**0.0279**	**7.3500e-003**	**2.1000e-004**	**7.5700e-003**	**0.0000**	**26.4428**	**26.4428**	**1.5900e-003**	**0.0000**	**26.4761**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

Implement Trip Reduction Program

Provide Riade 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	8.2373	21.6169	32.7524	0.0938	5.9466	0.3656	6.3121	1.5973	0.3361	1.9334	0.0000	7,924.5940	7,924.5940	0.2126	0.0000	7,929.0579
Unmitigated	8.3082	21.8066	32.9716	0.0946	6.0024	0.3690	6.3714	1.6123	0.3392	1.9515	0.0000	7,997.9243	7,997.9243	0.2145	0.0000	8,002.4282

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	2,014.92	2,014.92	2014.92	15,623,068	15,477,665
Total	2,014.92	2,014.92	2,014.92	15,623,068	15,477,665

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Unrefrigerated Warehouse-No Rail	22.84	8.40	22.84	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.795700	0.000000	0.000000	0.000000	0.034600	0.000000	0.046400	0.123300	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

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	975.5947	975.5947	0.0448	9.2800e-003	979.4127
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,036.5157	1,036.5157	0.0477	9.8600e-003	1,040.5721
NaturalGas Mitigated	0.0111	0.1010	0.0848	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	109.9562	109.9562	2.1100e-003	2.0200e-003	110.6253
NaturalGas Unmitigated	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003	0.0000	136.9652	136.9652	2.6300e-003	2.5100e-003	137.7987

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					
Unrefrigerated Warehouse-No Rail	2.56663e+006	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003	0.0000	136.9652	136.9652	2.6300e-003	2.5100e-003	137.7987
Total		**0.0138**	**0.1258**	**0.1057**	**7.5000e-004**		**9.5600e-003**	**9.5600e-003**		**9.5600e-003**	**9.5600e-003**	**0.0000**	**136.9652**	**136.9652**	**2.6300e-003**	**2.5100e-003**	**137.7987**

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					
Unrefrigerated Warehouse-No Rail	2.0605e+006	0.0111	0.1010	0.0848	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	109.9562	109.9562	2.1100e-003	2.0200e-003	110.6253
Total		**0.0111**	**0.1010**	**0.0848**	**6.1000e-004**		**7.6800e-003**	**7.6800e-003**		**7.6800e-003**	**7.6800e-003**	**0.0000**	**109.9562**	**109.9562**	**2.1100e-003**	**2.0200e-003**	**110.6253**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	3.62207e+006	1,036.5157	0.0477	9.8600e-003	1,040.5721
Total		**1,036.5157**	**0.0477**	**9.8600e-003**	**1,040.5721**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	3.40918e +006	975.5947	0.0448	9.2800e-003	979.4127
Total		**975.5947**	**0.0448**	**9.2800e-003**	**979.4127**

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	4.5565	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316
Unmitigated	4.7776	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316

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	0.4421					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3339					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5700e-003	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316
Total	**4.7776**	**1.5000e-004**	**0.0158**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0298**	**0.0298**	**9.0000e-005**	**0.0000**	**0.0316**

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	0.2211					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3339					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5700e-003	1.5000e-004	0.0158	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0298	0.0298	9.0000e-005	0.0000	0.0316
Total	**4.5565**	**1.5000e-004**	**0.0158**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0298**	**0.0298**	**9.0000e-005**	**0.0000**	**0.0316**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	25.9122	0.1845	4.5500e-003	31.1984
Unmitigated	31.8072	0.2306	5.7000e-003	38.4162

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	7.03647 / 1.05547	31.8072	0.2306	5.7000e-003	38.4162
Total		**31.8072**	**0.2306**	**5.7000e-003**	**38.4162**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	5.62918 / 0.991087	25.9122	0.1845	4.5500e-003	31.1984
Total		**25.9122**	**0.1845**	**4.5500e-003**	**31.1984**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	114.4260	6.7624	0.0000	256.4361
Unmitigated	228.8520	13.5248	0.0000	512.8721

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	1127.4	228.8520	13.5248	0.0000	512.8721
Total		**228.8520**	**13.5248**	**0.0000**	**512.8721**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	563.7	114.4260	6.7624	0.0000	256.4361
Total		**114.4260**	**6.7624**	**0.0000**	**256.4361**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX B

Rule 403 Regulatory Requirements and Mitigation Measure Example

Table 1
Fugitive Dust Best Available Control Measure
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	• Mix backfill soil with water prior to moving. • Dedicate water truck or high capacity hose to backfilling equipment. • Empty loader bucket slowly so that no dust plumes are generated. • Minimize drop height from loader bucket.
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	• Maintain live perennial vegetation where possible. • Apply water in sufficient quantity to prevent generation of dust plumes.
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	• Use of high-pressure air to clear forms may cause exceedance of Rule requirements.
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	• Follow permit conditions for crushing equipment. • Prewater material prior to loading into crusher. • Monitor crusher emissions opacity. • Apply water to crushed material to prevent dust plumes
Cut and fill	05-1 Prewater soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	• For large site, prewater with sprinklers or water trucks and allow time for penetration. • Use water trucks/pull to water soils to depth of cut prior to subsequent cuts.

Demolition—mechanical/ manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	• Apply water in sufficient quantities to prevent the generation of visible dust plumes.
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures.	• Limit vehicular traffic and disturbances on soils where possible. • If interior block walls are planned, install as early as possible. • Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes.
Earth-moving activities	08-1 Preapply water to depth of proposed cuts; and 08-2 Reapply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth moving activities are complete	• Grade each project phase separately, times to coincide with construction phase. • Upwind fencing can prevent material movement on-site. • Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes.
Importing/ exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	• Use tarps or other suitable enclosures on haul trucks. • Check belly-dump truck seals regularly and remove and trapped rocks to prevent spillage. • Comply with track-out prevention/ Mitigation requirements. • Provide water while loading and unloading to reduce visible dust plumes.

Landscaping	10-1 Stabilize soils, materials, slopes.	• Apply water to materials to stabilize. • Maintain materials in a crusted condition. • Maintain effective cover over materials. • Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes. • Hydroseed prior to rain season.
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	• Installation of curbing and/or paving road shoulders can reduce recurring maintenance costs. • Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs.
Screening	12-1 Prewater material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plum length standards; and 12-3 Stabilize material immediately after screening.	• Dedicate water truck or high capacity hose to screening operation. • Drop material through the screen slowly and minimize drop height. • Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point.
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	• Limit size of staging area. • Limit vehicle speeds of 15 miles per hour • Limit number and size of staging area entrances/exits.
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	• Add or remove material from the downwind portion of the storage pile. • Maintain storage piles to avoid steep sides or faces.

Traffic Areas for Contruction	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	• Apply gravel/paving to all haul routes as soon as possible to all future roadway areas. • Barriers can be used to ensure vehicles are only used on established parking areas/haul routes.
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	• Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18-inches soak soils via the pre-trench and resuming trenching. • Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment.
Truck loading	17-1 Prewater material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114).	• Empty loader bucket such that no visible dust plumes are created. • Ensure that the loader bucket is closer to the truck to minimize drop height while loading.
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plum length standards; and 18-2 Cover haul vehicles prior to exiting the site.	• Haul waste material immediately off site.
Unpaved roads/ parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	• Restricting vehicular access to established unpaved travel path and parking lots can reduce stabilization requirements.
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by	

	motor vehicles and/or off-road vehicles, prevent motor vehicles and/or off-road vehicle trespassing, parking and/or access by installing barriers curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures.	

Table 2
Dust Control Measures for Large Operations

Fugitive Dust Source Category	Control Actions
Earth-moving (except construction cutting and filling area, and mining operations)	1a Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or equivalent method approved by the Executive Officer, CARB, and the USEPA. Two soil moisture evaluations must be conducted during the first three hours or active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; or 1a-1 For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas	1b Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four hour period of active operations
Earth-moving: Construction cut areas and mining operations:	1c Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	2a/b Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind-driven fugitive dust, must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	2c Apply chemical stabilizers within five working days of grading completion; 2d Take actions (3a) or (3c) specified for inactive disturbed surface areas.

Inactive disturbed surface areas	3a Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; or 3b Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; or 3c Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; or 3d Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.
Unpaved Roads	4a Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; or 4b Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; or 4c Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	5a Apply chemical stabilizers; or 5b Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; or 5c Install temporary coverings; or 5d Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
All Categories	6a Any other control measures approved by the Executive Officer and the USEPA as equivalent to the methods specified in this Table may be used.

Table 3
Contingency Control Measures for Large Operations

Fugitive Dust Source Category	Control Measures
Earth-moving	1A Cease all active operations; or 2A Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	0B On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; or 1B Apply chemical stabilizers prior to wind event; or 2B Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day; or 3B Take the actions specified in this Table, Item (3c); or 4B Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	1C Apply chemical stabilizers prior to wind event; or 2C Apply water twice per hour during active operation; or 3C Stop all vehicular traffic.
Open storage piles	1D Apply water twice per hour; or 2D Install temporary coverings.
Paved road track-out	1E Cover all haul vehicles; or 2E Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	1F Any other control measures approved by the Executive Officer and the USEPA as equivalent to the methods specified in this Table may be used.

AQMD

TABLE XI-A
MITIGATION MEASURE EXAMPLES:
FUGITIVE DUST FROM CONSTRUCTION & DEMOLITION

Source Activity	Mitigation Measure[1]	PM10 Control Efficiency	Comments	Estimated Cost[2]
Active demolition and debris removal	Apply water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle trackout.	36%		ND
Trackout	Use a gravel apron, 25 feet long by road width, to reduce mud/dirt trackout from unpaved truck exit routes.	46%		$1,360/year (gravel apron dimensions: 50' x 30' x 3" thick)
Post-demolition stabilization	Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition.	84%	For actively disturbed areas.	$5,340/acre-year (Useful life of 1 year)
Demolition Activities	Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup.	10%	14-hour watering interval.	$68-$81/acre-day
Demolition Activities	Prohibit demolition activities when wind speeds exceed 25 mph.	98%	Estimated for high wind days in absence of soil disturbance activities. Demolition of 1,000 ft^2 structure on 1.2 acres.	$1.36 per 8 hour day idled
Construction Activities	Apply water every 3 hours to disturbed areas within a construction site.	61%	3.2-hour watering interval.	ND
Scraper loading and unloading	Require minimum soil moisture of 12% for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.	69%	AP-42 emission factor equation for materials handling due to increasing soil moisture from 1.4% to 12%.	$138/acre (sprinkler system to maintain minimum soil moisture of 12%)
Construction traffic	Limit on-site vehicle speeds (on unpaved roads) to 15 mph by radar enforcement.	57%	Assume linear relationship between PM10 emissions and uncontrolled vehicle speed of 35 mph.	$22/inspection $180/sign

[1]Unless otherwise noted, information presented in this table is from the following reference: *WRAP Fugitive Dust Handbook*, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf). ND = No Data.
[2]2003 dollars.

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TABLE XI-A
MITIGATION MEASURE EXAMPLES:
FUGITIVE DUST FROM CONSTRUCTION & DEMOLITION

Source Component	Mitigation Measure[1]	PM10 Control Efficiency	References & Assumptions	Estimated Cost[2]
Grading	Replace ground cover in disturbed areas as quickly as possible.	5%[3]	EPA, "Control of Fugitive Dust Sources" EPA-450/3-88-008, September 1988	ND
Grading	All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.	91%	Arizona Department of Transportation Construction Analysis Services, "Final Field Study Report - PM10 Control Management Study for ADOT Construction Projects, June 1994	ND

[1]Unless otherwise noted, information presented in this table is from the following reference: *WRAP Fugitive Dust Handbook*, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf). ND = No Data.
[2] 2003 dollars.
[3] Higher than 5% control efficiency may be used. However, please provide the supporting analysis and data in the environmental documentation.

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APPENDIX C

Appendix L-3 to the Stratford Ranch DEIR
Crain & Associates Letter

L-3: Response to the South Coast Air Quality Management District White Paper

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CRAIN & ASSOCIATES

VIA EMAIL

December 1, 2011

Mr. Robert Evans
Executive Director
NAIOP Inland Empire
25241 Paseo de Alicia, Suite 120
Laguna Hills, CA 92653

RE: Response to the South Coast Air Quality Management District White Paper

Dear Mr. Evans,

As requested, Crain & Associates has reviewed the South Coast Air Quality Management District (SCAQMD) white paper entitled *Large Warehouse and Distribution Center Trip Rates*. In the paper, large warehouse and distribution centers are defined as having floor areas greater than 100,000 square feet. The main thrust of the white paper is to question the use of industry-standard Institute of Transportation Engineers (ITE) Trip Generation (8th Edition, 2008) trip rates for large centers via Land Use Code (LUC) 152, High-Cube Warehouse, and present alternative trip rates based on a meta-analysis of seven trip generation studies of centers in California and Florida. As summarized below, it is our professional opinion that the SCAQMD's white paper contains technical flaws. The ITE Trip Generation manual is based on a more rigorous set of data and program of analysis. Accordingly, we recommend that in performing California Environmental Quality Act (CEQA) analyses for high cube warehouse uses, including traffic, air quality, noise, and greenhouse gas analyses, the ITE Trip Generation manual should continued to be used by lead agencies rather than the SCAQMD's rates.

ITE TRIP GENERATION MANUAL

The Institute of Transportation Engineers is a professional body which has collected studies for a large variety of land uses and calculated average trip generation results in the summary report entitled Trip Generation, 8th edition, 2008 (ITE), also known as the ITE manual. The report is based on the results of generation counts which were collected at representative sites located

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throughout the country. Accordingly, the ITE manual is the accepted source for trip generation rates relied upon by jurisdictions across the country. As described in the ITE manual, Land Use Code (LUC) 152, High-cube Warehouses have a typical ceiling height of 24 to 30 feet and are often characterized by "a small employment count due to high level of mechanization, truck activities frequently occurring outside the peak hour of the adjacent street system and good freeway access." All of the studies used to develop the ITE trip rates for LUC 152 surveyed high-cube warehouses had building areas greater than 100,000 gross square feet.

SCAQMD WHITE PAPER METHODOLOGY

The SCAQMD white paper challenges the accuracy of the ITE manual analysis. This paper reviews the validity of the concerns expressed in the SCAQMD white paper. Our conclusion is that the white paper is deficient as follows:

(i) Fails to understand the difference between High-Cube and traditional warehouses or that total trip generation and percentage trucks are inter-related and should be based on the same data base;

(ii) Provides no explanation how the 7 studies utilized were chosen or why the particular subset of sites is more representative of High Cube Warehouses than those in the ITE manual under LUC 152;

(iii) Advocates the use of 95^{th} percentile trip rates for all environmental studies even though it overstates the expected trip generation, VMT and impacts for most analyses in the environmental studies;

(iv) By using post-facto (2010) aerial photographs of the 2005 study sites rather than timely data in order to question the occupancy of a study buildings, the white paper relies on speculation rather than scientific methods.

(v) Recommends the use of 40% truck trips based on a weighted average of only two studies selected from a set, some of which have very different results;

(vi) Dismisses the use of "average" trip generation. The emphasis should be on a cumulative analysis of a large number of sites over the long period of time. Projecting activity of a single site on a single day is not applicable to the type of analyses SCAQMD is recommending their rates be used for; and

(vii) Does not properly review the adequacy of the data to be subdivided into with and without rail service categories or if alternative subdivisions may be more appropriate.

The concerns expressed in the white paper, our conclusions, and the basis for those conclusions is detailed on the following pages.

VACANCIES

One factor cited in the SCAQMD white paper as leading to a lower-than-expected ITE trip generation rate relates to partial or full vacancies of centers surveyed for the LUC 152 trip rate studies. The SCAQMD white paper claims to have reviewed aerial photography of the sites included in six studies used in developing the ITE LUC 152 rates and the sites included in the *City of Fontana Truck Trip Generation Study* (August 2003). Across the seven total studies, 68 different warehouse and distribution centers in California and Florida were surveyed. Many of the problems associated with using an aerial photography method for determining vacancies are described within the white paper. The photographs provide only "circumstantial evidence," the vacancies are "difficult to verify," and the correlation between recent photographs and vacancy levels when the trip studies were conducted in previous years is "difficult to validate."

As an example of the inaccurate nature of this vacancy analysis, center occupancy levels were confirmed by our firm immediately prior to the counts at all 13 sites where counts were performed for the November and December 2006 for the *Western Riverside County Warehouse/Distribution Center Trip Generation Study* (Crain and Associates, September 2008). However, the SCAQMD concluded that at least one of these 13 sites may have been partially or fully vacant, based on the 2010 Google image included as Figure 2 of the white paper. This circumstantial screening of data performed ex post facto is inaccurate and can skew the results of a trip generation study. Attachment 1 contains supporting documentation that the "vacant" center depicted in the paper's Figure 2, (located at 11600 Iberia Street in Mira Loma, CA) was fully occupied at the time of trip counts on November 28 and 29, 2006.

Not all large warehouses and distribution centers will have the same trip generation rate. Instead centers will have a range of trip rates centered on an average rate. For centers on the lower end of this trip-rate range, lower trip activity would likely result in fewer passenger vehicles and heavy trucks appearing on-site at a given time. Centers on the lower end of the trip rate range may include warehouses that operate with materials/goods that require a longer storage time. The elimination of sites with assumed partial or full vacancies could, in fact, be the elimination of sites with lower trip rates, thereby leading to the estimation of an artificially inflated average trip rate.

Further one should consider that the degree of vacancy of each facility will likely vary over time. While care was taken in our counts (as it was for most if not all ITE counts) to ensure full occupancy, actual average generation of each facility will be lower than the ITE rates during these periods of full or partial vacancy. To be conservative, these periods of low trip generation are not accounted for in most current environmental analyses.

CHOICE OF STATISTIC

Another area of concern with the assumptions in the white paper is the recommended trip rates calculations. Table 1 of the white paper provides a summary of weekday daily trip rates for warehouse and distribution centers, based on the independent variables of "rail service? (yes, no, or some)" and "potential vacancy? (yes, no, or some)." Although average trip rates are calculated for different combinations of these independent variables, the white paper recommends the use of 95th percentile trip rates for use in project-specific California Environmental Quality Act (CEQA) air quality and corresponding environmental analyses. In line with comments provided by Fehr & Peers in their August 23, 2010 memorandum reviewing the white paper, the use of 95th percentile trip rates may be "overly conservative." It should be noted that these trip rates are used for a range of environmental analyses under CEQA, including traffic and noise impact analyses, and consistency in the use of trip rates between these analyses is recommended. The used rates should not vary between sections of an EIR.

Based on the 95th percentile assumption, the white paper recommends weekday daily rates of 2.59 and 1.63 trips per 1,000 square feet of gross floor area for centers without and with rail service, respectively. It should be noted that the average weekday daily trip rate for warehouse sites with no rail service (and some circumstantial "potential vacancy") was 1.79 trips per 1,000 square feet of gross floor area, which is much closer to the ITE LUC 152, High-Cube Warehouse, average trip rate of 1.44 trips per 1,000 square feet of gross floor area than the 2.59 rate SCAQMD purposes. Further, the ITE rates is based on a much larger and more representative sample. Rather the choice of statistic is crucial to the usefulness of the estimate.

From a traffic analysis perspective, average trip generation levels for land uses are typically used for both project and cumulative off-site impact analyses. Absent empirical data or preferred, locally developed rates, the ITE Trip Generation manual is heavily relied upon. In the manual, the ITE has developed average trip rates (and, in some cases, fitted curve equations) for each land use and time period. The ITE uses a weighted average in order to limit the effect of sites with trip rates that have a large variance from the mean. The use of 95th percentile trip rates for a specific land-use project and, by extension, the cumulative projects in an off-site traffic impact analysis would present an unrealistic traffic condition from which to determine project impacts.

It should also be noted that traffic analyses already account for variations in generation by focusing on project impacts during the peak hours (not average hours) of traffic within a study area. The results of traffic impact analyses during the peak hours of traffic, using the 95th percentile trip rates applied to both the project and cumulative development, would be overly conservative. Consequently, the traffic and/or other CEQA environmental analyses could be dismissed by decision makers for not reflecting conditions reliably.

The project traffic generation forecasts are direct inputs for a project's air quality analysis. It is worth noting that the white paper found that the ITE average weekday trip rate was considered acceptable for multiple (10+) centers, based on the assumption that across several centers some would operate at varying levels of vacancy. However, no such variation is assumed for individual centers and 95th percentile rates are recommended for them instead. The use of these rates for individual centers would, in the vast majority of cases, overstate the center's air quality impacts on an area-wide basis -- including, greenhouse gas emissions. Using the ITE average rate would, therefore, be more appropriate for area-wide impacts and should be included so that decision makers do not rely solely on speculative estimates that are more likely to be dismissed. However, a factor for variations between time periods may be applied, if appropriate, for certain localized environmental analyses. For example, the level of parking demand on an individual site is only influenced by a single use. Daily variations of all users are taken into account. However, there is no reason to expect all warehouses in the United States will generate at the 95^{th} percentile level over extended periods, as the White Paper implies.

FLEET MIX

The fleet mix calculations provided in the white paper are also a cause for concern. In the analysis preceding the Fleet Mix section of the white paper, the SCAQMD argues that the use of the ITE trip rates may underestimate large warehouse and distribution center vehicle trips. However, it is not clear from the white paper if the alleged underestimation of trips is due to more passenger vehicle trips or more heavy truck trips. As cited above, the ITE Trip Generation manual description of high-cube warehouses (LUC 152) makes clear, (based on ITE's analysis of the empirical data) that this land-use type has a particular trip generation profile due, in large part, to lower employment numbers than are expected with smaller buildings. In the Fleet Mix section, the white paper uses truck trip percentage data from studies it found fault with in preceding sections to determine that 40 percent of the weekday daily trip generation of a center would be truck trips. This calculation is based on data culled from two studies: the San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study (Crain and Associates, January 2005) and the City of Fontana Truck Trip Generation Study

(August 2003). Based on the 95th percentile trip rates, the white paper recommends weekday daily truck trip rates of 1.04 and 0.65 trips per 1,000 square feet of gross floor area for centers without and with rail service, respectively. In contrast, the weekday daily truck trip rates from the two abovementioned studies were 0.53 and 0.72 trips per 1,000 square feet of gross floor area, irrespective of rail service. Applying a similar calculation to these rates as the one utilized in the white paper would yield a weighted truck trip rate of 0.58 trips per 1,000 square feet of gross floor area [((0.53*10)+(0.72*4))/(10+4)]. Additionally, the ITE manual recommends a weekday daily truck trip rate of 0.64 trips per 1,000 square feet of gross floor area based on five sites from three studies, all of which are different from the two used in the white paper analysis. The percentage of trucks and total vehicle generation must come from the same data source. The analysis should not apply the percentage from one set of sites to the total generation from a different set. Accordingly, the SCAQMD white paper overstates the percentage that trucks represent in the fleet mix in the databases used to establish the trip rates.

RAIL SERVICE

The white paper's point regarding the effect that rail service adjacent to the loading dock could have on the number of truck trips generated by such centers is not properly analyzed. In particular, there do not appear to be sufficient sites with data concerning rail availability to make a split. Further, merely the availability of rail service for the transport of materials/goods to and from a center does not necessarily equate active usage of the rail spur. Moreover, if rail is actively used and lower truck trip generation result, the air quality benefits would be offset by the emissions of the locomotive that moves the rail cars into place, as well by the idling vehicles at rail crossings waiting for the locomotive and boxcar(s) to clear the road. Similar traffic and noise off-sets would occur. Therefore, recommending that the High-Cube Warehouse land use be subdivided into categories of High-Cube Warehouse With Rail Service and High-Cube Warehouse Without Rail Service is inappropriate.

SUMMARY

A review of the white paper document raises a myriad of questions about the analysis therein. The white paper is brief. and the analysis lacks any documentation of valid statistical methods (unlike that for other sources such as the ITE manual). It would be useful to obtain clarification regarding the following information:

- The white paper sets forward that SCAQMD staff analyzed the trip rates at 68 warehouse and distribution centers, while the ITE Trip Generation weekday daily rates are based on

35 sites. The white paper does not describe the 33 other sites used to develop the rates that were set forward.

- The white paper does not explain how the active use at the time of the trip counts of the rail spurs running adjacent to the center loading docks was verified.

- The white paper does not justify how the *San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study* (Crain and Associates, January 2005) and the *City of Fontana Truck Trip Generation Study* (August 2003) were determined to be inappropriate for estimating vehicle trips, yet appropriate for estimating vehicle fleet mix.

- The comments provided by Fehr & Peers in their August 23, 2010 memorandum reviewing the white paper make reference to centers with building sizes as small as 64,000 square feet being included in the meta-analysis. However, this size would fall below the 100,000 square-foot threshold established for "large" warehouse and distribution centers. The fundamental distinction from ITE on the number and type of employees needed should be included in any distinction between warehouse types.

- At the bottom of the first page of the white paper there is mention of an attached spreadsheet, but no such spreadsheet has been circulated. Review of detailed data could point to additional issues.

In conclusion, although project occupancy/vacancy is always an important factor in determining project trip generation, the aerial photo based vacancy analysis included in the white paper is unsubstantiated. Beyond the unsupported vacancy conclusions, the white paper's average weekday trip rate calculated for centers without rail service is similar to the trip rate provided in the ITE <u>Trip Generation</u> manual. The white paper, however, recommends using 95th percentile trip rates for use in air quality and associated CEQA environmental analyses. We caution against the use of 95th percentile rates, given that it will result in overstating the impacts on both a project and cumulative development level. Instead, the application of safety factor for certain analyses when found warranted would be more appropriate. The fleet mix (heavy truck percentage) for high-cube warehouses may be different than standard warehouses, but developing that mix by selectively drawing percentages from studies while ignoring the actual truck trip rates from those sites would be inappropriate. It should also be noted that different truck percentages may be appropriate to use for peak and off-peak hours (ITE identified truck trips as accounting for only 9 to 29 percent of the peak-hour traffic at surveyed sites)., For all of these reasons, we recommend that in performing CEQA analyses, including traffic, air quality, noise, and greenhouse gas, for high cube warehouse uses, the ITE Trip Generation manual should continue to be used by lead agencies rather than the SCAQMD's ad hoc rates based on partial or unsupported data and inappropriate analyses assumptions.

Sincerely,

George Rhyner

George Rhyner
Senior Transportation Engineer

GR:rjk
C20187

Attachment

Attachment 1

TOYO TIRES®
driven to perform®

Toyo Tire Holdings of Americas, Inc.
Logistics Department
2151 S. Vintage Avenue
Ontario, CA 91761

April 19, 2011

Mr. Graham Tingler
Space Center Mira Loma, Inc.
Leasing Office
3401 Etiwanda Avenue
Mira Loma, CA 91752

RE: 11600 Iberia Street, Mira Loma, CA 91752

Mr. Tingler:

Per your request that we independently verify the terns of our lease and occupancy at the above referenced property, I am happy to supply the following factual information:

Toyo Tire subleased this approximately 408,806 SF building from Continental Tire Corporation from March 1, 2004 through February 11, 2011. As you know, the building lease required that this sublease was approved by the Landlord, your firm, which we did obtain. Toyo Tire is an importer and distributer of automobile, SUV, light truck and racing tires to the United States market and used this facility as a Distribution Center.

In 2009, Toyo Tire began consolidating its business to a single facility in Southern California. Toyo Tires commence downsizing their operations at the above referenced property in October 2009 and completely vacated the property in May 2010, which was prior to the end of the lease term.

During November 2006, the period when we understand that a traffic study analyzing the trip and traffic impacts, this Toyo Tire facility was operating at full capacity and occupied the entire 408,806 SF building.

I trust this information answers any questions about our occupancy at this property.

Sincerely,

Steve Morgan

Steve Morgan
Logistics Operations Manager
Toyo Tires Holdings of Americas Inc.

Large Warehouse and Distribution Center Trip Rates

Introduction

New large warehouse projects and distribution centers (>100,000 square feet) have become a more common project type in the past several years, especially in the western Riverside County and San Bernardino County area. As an example, at least 8 new EIRs for warehouse projects totaling 17.75 million square feet have been reviewed by SCAQMD staff since late 2008 just in the vicinity of the city of Perris in Riverside County. These warehouse projects are commonly associated with substantial diesel emissions due to the high volume of heavy duty trucks that serve them. Diesel Particulate Matter (DPM) from internal combustion engines has been classified as a carcinogen by the California Air Resources Board (CARB). This white paper has been prepared because the number of truck trips associated with warehousing projects is a key component in determining the potential impact of DPM emissions on surrounding communities. Due to concern about these emissions, the CARB in its *Air Quality and Land Use Handbook* recommended providing a 1,000 foot setback from any distribution center serving more than 100 trucks per day.

For CEQA purposes, the volume of truck traffic predicted to serve a new large warehouse project is typically derived using the Institute of Transportation Engineers Trip Generation manual. This is the same source of traffic data used in the URBEMIS air quality model. The trip rate value used in URBEMIS is 4.96 trips per 1,000 square feet (TSF) for warehouse projects (land use type 150). This value is from the 7th Edition of the Trip Generation manual, published in 2003. Several developers of high-cube warehouses in recent years have questioned the validity of this value for modern warehousing operations and have commissioned local studies to investigate these trip rates. As a result, in the most recent version of the Trip Generation manual (8th Edition, 2008), additional data has been included to provide a new high-cube warehouse (land use 152) trip rate of 1.44 trips/TSF.

SCAQMD staff and other interested parties have questioned lead agencies about this lower rate because of concern that industrial warehouse project analyses may be underestimating the number of trucks serving them. If this were true, air quality impacts may be underreported in the corresponding CEQA analyses. This memo and attached spreadsheet presents a meta-analysis of available traffic studies that have targeted high-cube warehouses.

Studies

The seven studies included in this meta-analysis are listed below. Studies marked with an (*) are included in the 8th Edition of the ITE Trip Generation manual.

1. **Westside Industrial Park, Warehouse Trip Generation Study – Twenty Five Buildings, Duval County Florida*, December 5, 2008. King Engineering Associates, Inc.
2. **Westside Industrial Park, Warehouse Trip Generation Study – Eight Buildings, Duval County Florida*, December 5, 2008. King Engineering Associates, Inc.
3. **Trip Generation Study. High-Cube Warehouse Buildings, Fresno California*, January 19, 2007. Peters Engineering Group
4. **Trip Generation Study. Existing High-Cube Warehouse Buildings, Visalia California*, October 1, 2008. Peters Engineering Group
5. **Western Riverside County Warehouse/Distribution Center Trip Generation Study*, May 2008. Crain and Associates
6. **San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study (Inland Empire Study)*, January 2005. Crain and Associates
7. *Truck Trip Generation Study, City of Fontana*, August 2003. Transportation Engineering and Planning, Inc.

Together these seven studies include traffic counts for 68 different warehouse buildings. 35 of those warehouses are in California, and 25 are in the South Coast Basin. As a comparison, a total of 35 individual buildings were included in the ITE Trip Generation 8th Edition.

Data Analysis

In the ITE 8th Edition manual the trip rates range from 0.20-2.88 trips/TSF with an average of 1.44 and a standard deviation of 1.39. In order to investigate the high standard deviation and range of rates, all 68 warehouses from the above mentioned studies were investigated using overhead and oblique aerial photography to determine site-specific characteristics. Table 1 and Chart 1 present a statistical summary of trip rates determined from all seven studies. Based on this aerial reconnaissance, two factors were identified that may lower the reported trip rate for individual warehouses including the presence of a rail line serving the facility, and the potential partial vacancy of a facility.

Statistical Measure	Rail Service?	Potential Vacancy?	Number of Buildings	Trips/TSF
Minimum trip rate	No	Yes	68	0.17
Maximum trip rate	No	No	68	5.25
Average of all trip rates	Some	Some	68	1.57
Standard Deviation of all trip rates	Some	Some	68	0.81
95th Percentile of all trip rates	Some	Some	68	2.57
Average for CA warehouses	Some	Some	35	1.44
Average for SCAB warehouses	Some	Some	25	1.57
Average for all warehouses	Yes	Yes	14	0.73
Average for all warehouses	Yes	No	8	0.81
Average for all warehouses	No	Some	58	1.79
Average for all warehouses	No	No	54	1.91
95th Percentile for SCAB warehouses	No	No	13	3.68
95th Percentile for all warehouses	No	No	54	2.59
95th Percentile for all warehouses	Yes	No	8	1.63
ITE High-Cube warehouses	Some	Some	35	1.44

Table 1 Statistical summary of trip rates *CA= California, SCAB=South Coast Air Basin*

Rail lines are expected to lower the truck trip rate by diverting the transportation of goods from trucks to trains that directly service the facility. Rail service must include spurs that are adjacent to loading docks at the facility (Figure 1). Vacancies or partial vacancies in the trip rate studies are difficult to verify, however analysis of aerial photographs provides circumstantial evidence that anomalously low trip rates are associated with facilities with virtually no trucks parked at the loading docks at the time that the photograph was taken (Figure 2). While this accounts for the majority of the anomalously low trip rates, the lack of adequate business histories or historical photographic coverage make this correlation difficult to validate. Trip rates were also investigated in comparison to building size; however no correlation was identified (Chart 2).

In order to avoid underestimating the number of trips associated with large warehouse / distribution center operations without rail service, AQMD staff recommends that lead agencies utilize a rate of 2.59 trips per TSF for large warehouse air quality analyses on a project specific basis. The value of 2.59 from the nationwide dataset is preferable instead of the SCAB rate of 3.68 due to the greater reliability of data based on the larger sample size. For warehouses with rail service, a rate of 1.63 trips per TSF may be used. These values provide reasonable worst case default rates for individual new warehouses in the absence of more project-specific data.

In the case that air quality is evaluated for multiple warehouses (>10), such as in an analysis for a general plan, the average rate of 1.44 trips per TSF from the ITE 8th Edition Trip Generation manual is acceptable. This lower value may be more appropriate as on average, a small portion of warehouses can be expected to operate at varying levels of service, including some warehouses experiencing temporary partial or complete vacancy.

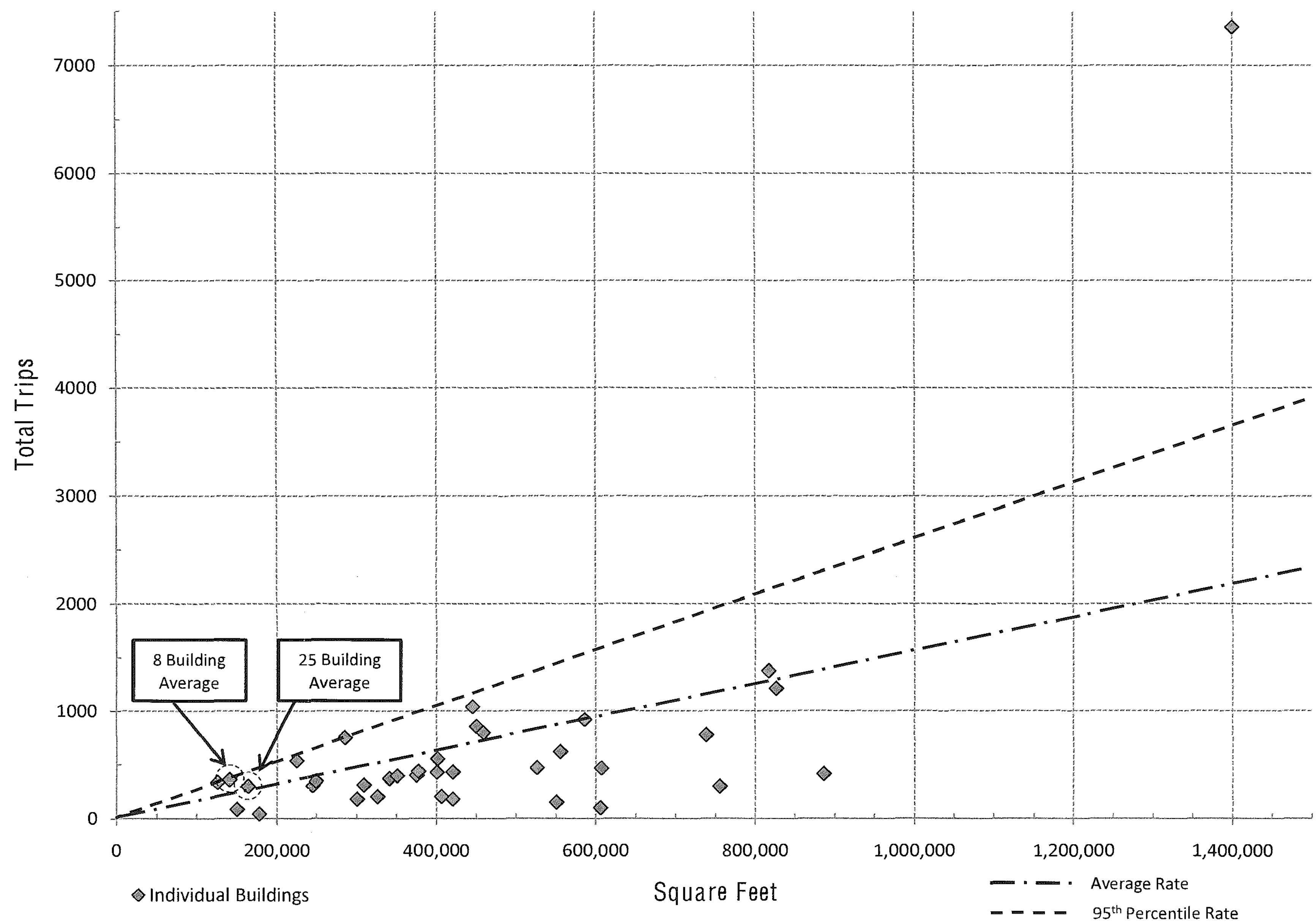
Fleet Mix

The fleet mix used in the URBEMIS model is derived from the regional average distribution of trips obtained from the EMFAC model. While this fleet mix may be appropriate for the majority of land uses, it may not be appropriate for specialized uses such as warehouses. For example, as reported in the ITE 8th Edition Trip Generation manual, truck trips may account for 9 to 29 percent of total trips. Five of the seven studies analyzed here did not report specific truck traffic data, though some generally reported similar rates. The Inland Empire study (#6) found that trucks accounted for 28 to 65 percent of total trips for the ten warehouses in the study, with an average of 48%. The Fontana study (#7) found that trucks make up approximately 20% of total trips for the four warehouses evaluated. This study also broke down the trip distribution among 2, 3, and 4+ axle trucks (3.46%, 4.64%, 12.33%, respectively). In order to avoid underestimating the number of trucks visiting warehouse facilities, AQMD staff recommends that lead agencies conservatively assume that an average of 40% of total trips are truck trips [(0.48*10 + 0.2*4)/(10+4)=0.4)]. Without more project-specific data (such as detailed trip rates based on a known tenant schedule), this average rate of 40% provides a reasonably conservative value based on currently available data.

The fleet mix from the Fontana study as quoted above may be used to determine the distribution of truck type. In order to convert the axle based fleet mix to the vehicle classes utilized by EMFAC, one of two methods may be used.

1. 4+ axles=HHDT, 3 axles=MHDT, 2 axles=LHDT1, all others=LDA
2. Caltrans *Transportation Project-Level Carbon Monoxide Protocol* Appendix B (illustrated below).
   %HDGT = 0.50(%2-axle) + 0.25(%3-axle) + 0.10(%4 axle)
   %HDDT = 0.50(%2-axle) + 0.75(%3-axle) + 0.90(%4-axle) + 1.0(%5-axle)
   All others=LDA

Chart 1 - Total Trips vs. Building Area for All Warehouses



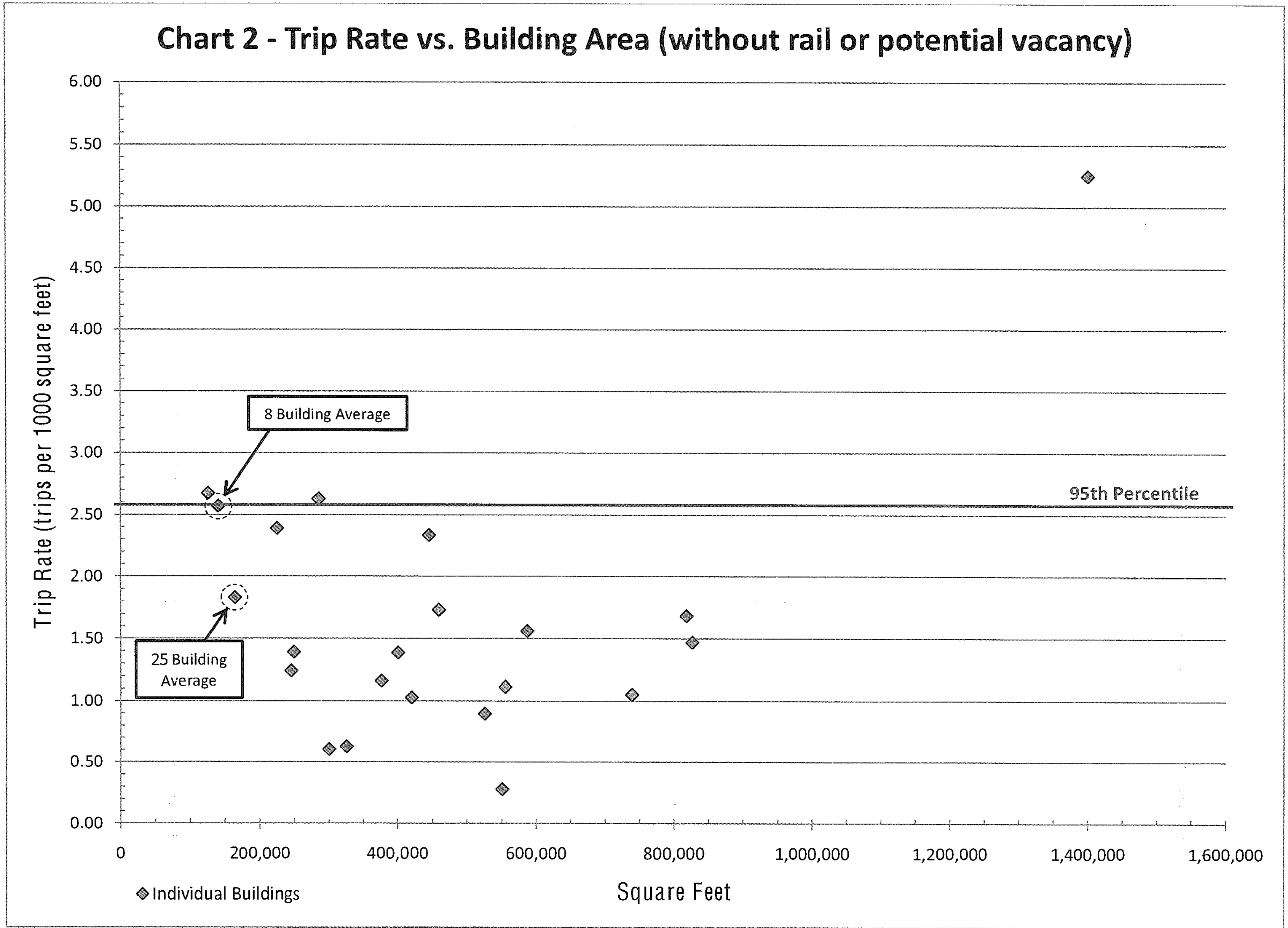


Chart 2 - Trip Rate vs. Building Area (without rail or potential vacancy)
Trip Rate (trips per 1000 square feet)
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
8 Building Average
25 Building Average
95th Percentile
0
200,000
400,000
600,000
800,000
1,000,000
1,200,000
1,400,000
1,600,000
Square Feet
Individual Buildings

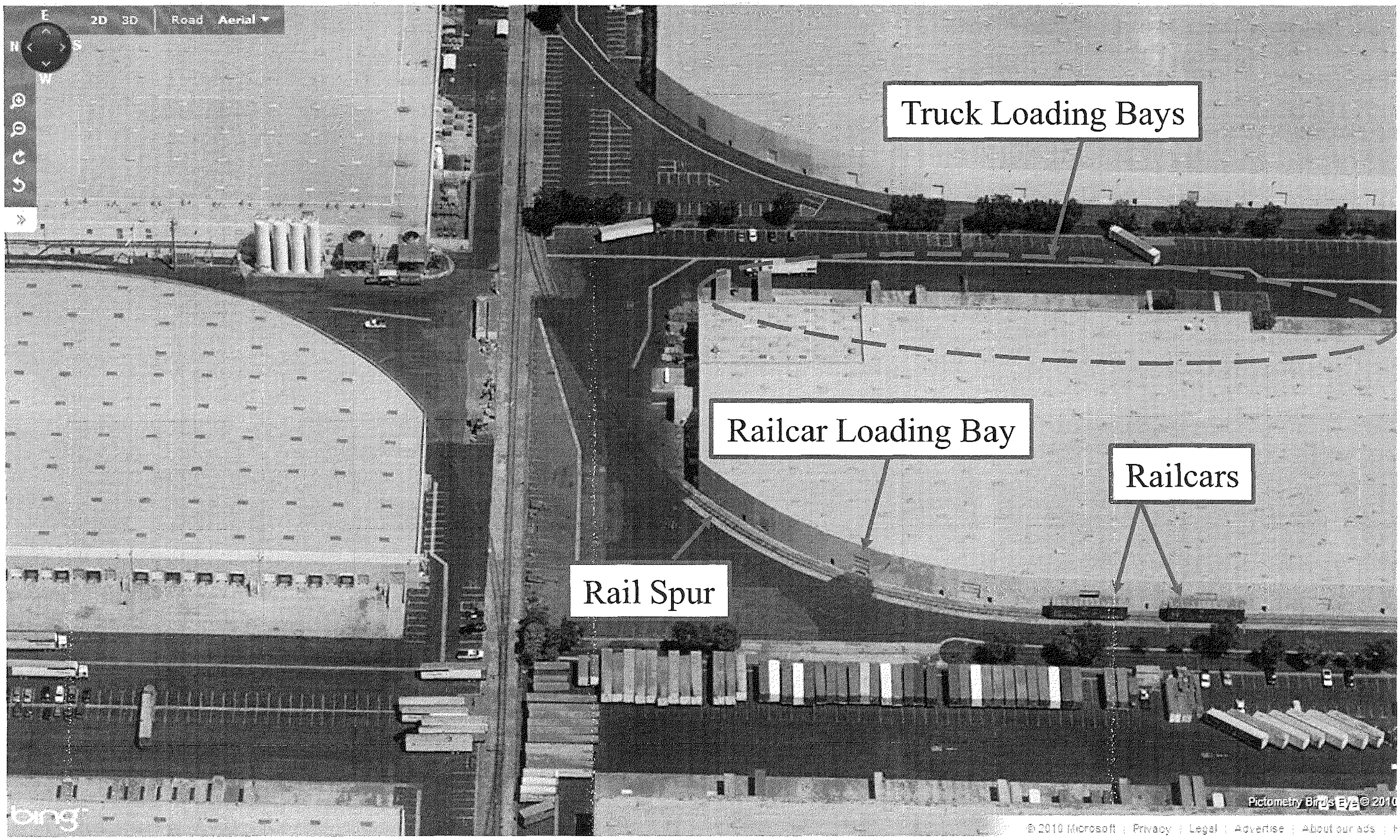


Figure 1 Oblique aerial photograph showing an example of a facility evaluated in the NAIOP San Bernardino County Truck Study. The truck trip rate for this facility was 1.13/TSF

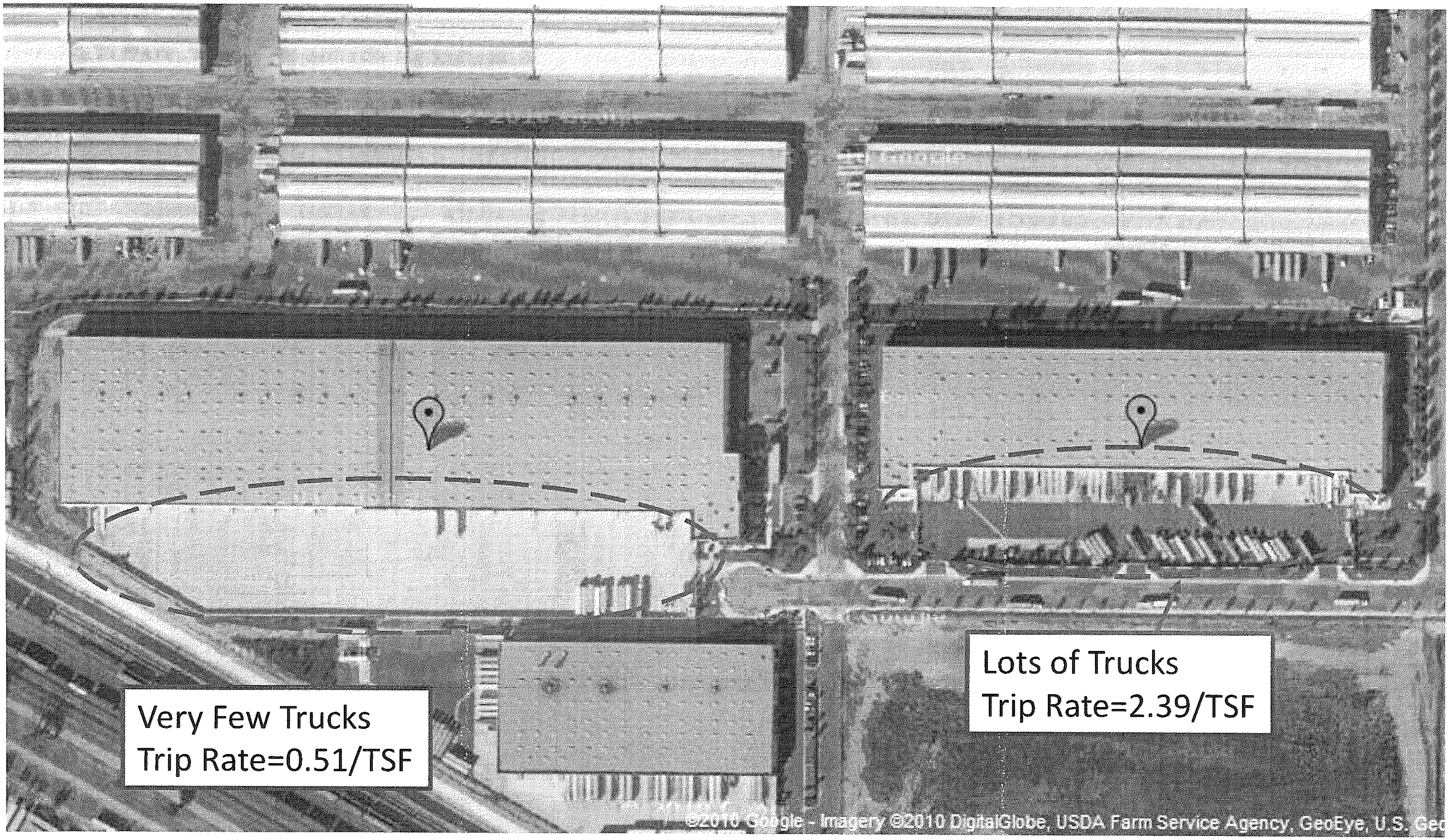


Figure 2 Aerial photograph showing an example of two facilities evaluated in the NAIOP Riverside County Truck Study. The facility on the left is suspected to be at least partially vacant.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

MEMORANDUM

Date: August 23, 2010

To: Jennifer Schulte, ENVIRON

From: David Robinson, Meghan Mitman, Fehr & Peers

Subject: Large Warehouse and Distribution Center Trip Rates

SF10-0495

Fehr & Peers completed its review of the Large Warehouse and Distribution Center Trip Rates white paper prepared by the Southern California Air Quality Management District (SCAQMD). The white paper presents the results of a meta-analysis of seven trip generation studies of warehouse and distribution centers located in California and Florida.

Our review of the white paper focused on the recommended trip generation rates presented in Table 1 (Statistical Summary of Trip Rates) and the statistical analysis provided in file SCAQMD Trip Rate Study_7-21-10.xlsx). We have the following observations based on our review:

- Use of 95 Percentile – The recommended trip generation rates are based on the 95 percentile of trip generation rate observations. The 95 percentile trip generation rate can be defined as the lowest trip generation rate that is greater than 95 percent of the observed trip generation rates. The use of the 95 percentile may be overly conservative. Another approach would be to base the recommended trip generation rate on the 95 percentile confidence interval, which would result in a trip generation rate between the average and 95 percentile rates for all warehouses.

- Observations – Both studies from Florida (i.e., reference 1 and 2 on Page 2) were treated as single observations to calculate the average trip generation rate for all warehouses, but were treated as multiple observations for the standard deviation calculation, which would affect the calculation of the confidence interval (discussed above). These studies and corresponding trip generation rates are based on the combined trip generation and building area of multiple buildings/uses in the same industrial park. One study included 31 buildings and the other included 9 buildings. The building size ranged from about 64,000 to about 440,000 square-feet.

- Outliers – One observation from the Fontana study (i.e., reference 7 on Page 2) is considerably higher than the other observations. Eliminating this observation results in a 20% decrease in the average trip generation rate for all warehouses.

Clarification Responses by SCAQMD regarding Fehr and Peers August 23, 2010 Memorandum
Large Warehouse and Distribution Center Trip Rates

Use of 95 Percentile

- AQMD STAFF RESPONSE – A CONFIDENCE INTERVAL APPROACH IS INAPPROPRIATE FOR A CEQA AIR QUALITY ANALYSIS AS THIS GIVES THE ODDS THAT A NEW POPULATION WILL RETURN AN AVERAGE WITHIN THE CONFIDENCE INTERVAL. IN THE CONTEXT OF CEQA, AIR QUALITY ANALYSES SHOULD EVALUATE A REASONABLE WORST CASE SCENARIO SO AS NOT TO UNDERESTIMATE IMPACTS. THIS CONERVATIVE APPROACH IS SUPPORTED BY CEQA CASE LAW AND IS CONSISTENT WITH AQMD GUIDANCE ON PREPARING AIR QUALITY ANALYSES. ALSO, IT IS WORTH NOTING THAT 11 OUT OF 54 BUILDINGS ARE ALREADY AT OR ABOVE THE 95^{TH} PERCENTILE.

Observations

- AQMD STAFF RESPONSE – THE STATISTACAL APPROACH DESCRIBED IN THIS COMMENT DOES NOT MAKE AFFECT THE TRIP RATE. SPLITTING OUT INDIVIDUAL BUILDINGS FOR THE AVERAGE DOESN'T ALTER THE TRIP RATE SINCE THE AVERAGE IS TRIPS/SQ. FT. HOWEVER, THE NUMBER OF INDIVIDUAL BUILDINGS ARE NEEDED FOR THE STANDARD DEVIATION, SO THE FLORIDA STUDIES WERE SPLIT UP TO OBTAIN A CORRECT 'N' (EVERY BUILDING WAS ASSIGNED THE SAME RATE).

Outliers

- AQMD STAFF RESPONSE - THIS IS EXACTLY THE POINT, IF WE KNOW THAT SOME BUILDINGS HAVE A RATE CONSIDERABLY HIGHER THAN OTHER BUILDINGS, THEN THE USE OF AVERAGES MAY CONSIDERABLY UNDERESTIMATE POTENTIAL AIR QUALITY IMPACTS. THIS IS ESPECIALLY IMPORTANT FOR ANY SENSITIVE RECEPTORS THAT MAY BE LOCATED IN CLOSE PROXIMITY TO EITHER THE FACILITIES OR THE TRUCK ROUTES SERVING THEM. UNLIKE SOME OTHER STATISTICAL STUDIES, THIS SINGULAR HIGH RATE (FROM A SMALL DATASET) IS NOT A MEASUREMENT ERROR, HENCE IT SHOULD NOT BE DISCARDED AS IT IS A REAL FACILITY WITH REAL IMPACTS IN THE COMMUNITY.