Technical Appendix B1

Air Quality Impact Analysis

Modular Logistics Center

AIR QUALITY IMPACT ANALYSIS

CITY OF MORENO VALLEY

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg/m3	Microgram per Cubic Meter
AADT	Annual Average Daily Trips
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACMs	Best Available Control Measures
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
LST	Localized Significance Threshold
MMs	Mitigation Measures
NAAQS	National Ambient Air Quality Standards
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
Pb	Lead
PM10	Particulate Matter 10 microns in diameter or less
PM2.5	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Modular Logistics Center
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SIPs	State Implementation Plans
SRA	Source Receptor Area

TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
TOG	Total Organic Gases
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

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1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Modular Logistics Center ("Project"). The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project, and recommend measures to mitigate impacts considered potentially significant in comparison to established regulatory thresholds.

1.1 SITE LOCATION

The proposed Modular Logistics Center is located east of Perris Boulevard and north Modular Way in the City of Moreno Valley as shown on Exhibit 1-A. The Project site is currently occupied by Eldorado Stone.

1.2 STUDY AREA

The Project site is located within area developed mostly with commercial and industrial land uses. However, the study area includes several residential homes scattered throughout the project study area. The March Air Reserve Base / Inland Port Airport is located west of the Project site. Existing surrounding land uses are graphically presented at Exhibit 1-B.

1.3 PROJECT DESCRIPTION

The Project is proposed to consist of the development of approximately 1,109,378 square feet of high-cube distribution warehouse/distribution facility on the northeast corner of Perris Boulevard and Modular way. It is assumed that the Project will be constructed and occupied by 2015. Exhibit 1-C illustrates a preliminary conceptual site plan.

1.4 SUMMARY OF FINDINGS

Short-Term Construction

For regional emissions, the Project will exceed the numerical thresholds of significance established by the South Coast Air Quality Management District (SCAQMD) for emissions of Nitrogen Oxides (NOx) prior to implementation of applicable Best Available Control measures (BACMs) and mitigation measures (MMs).

BACM AQ-1, BACM AQ-2, and MM AQ-1 are recommended to reduce the impacts to less than significant levels. After implementation of the recommended mitigation measures, construction activity emissions will not exceed the numerical thresholds established by the SCAQMD for any phase of construction activity. Thus a less than significant impact will occur with the implementation of BACM AQ-1, BACM AQ-2 and MM AQ-1.

For localized emissions, the Project will not exceed the SCAQMD's localized significance threshold for any criteria pollutant both before and after implementation of applicable BACMs and MMs. Therefore, a less than significant impact would occur both without and with the application of BACMs and MMs.

As mitigated, Project construction-source emissions would not conflict with the applicable Air Quality Management Plan (AQMP).

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.

Long-Term Operational

For regional emissions, the Project would exceed the numerical thresholds of significance established by the SCAQMD for emissions of NOx. No feasible mitigation measures exist that would reduce these emissions to levels that are less-than-significant. Thus a significant impact would occur even with implementation of the proposed mitigation measures (MM AQ-2 through MM AQ-6). Project operational-source NOx emissions exceedances of applicable SCAQMD regional thresholds are therefore considered significant and unavoidable.

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. The proposed Project would not result in a significant CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.8, thus a less than significant impact to sensitive receptors during operational activity is expected. Lastly, 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 industrial refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (1). 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.

EXHIBIT 1-A: LOCATION MAP

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EXHIBIT 1-B: EXISTING LAND USES

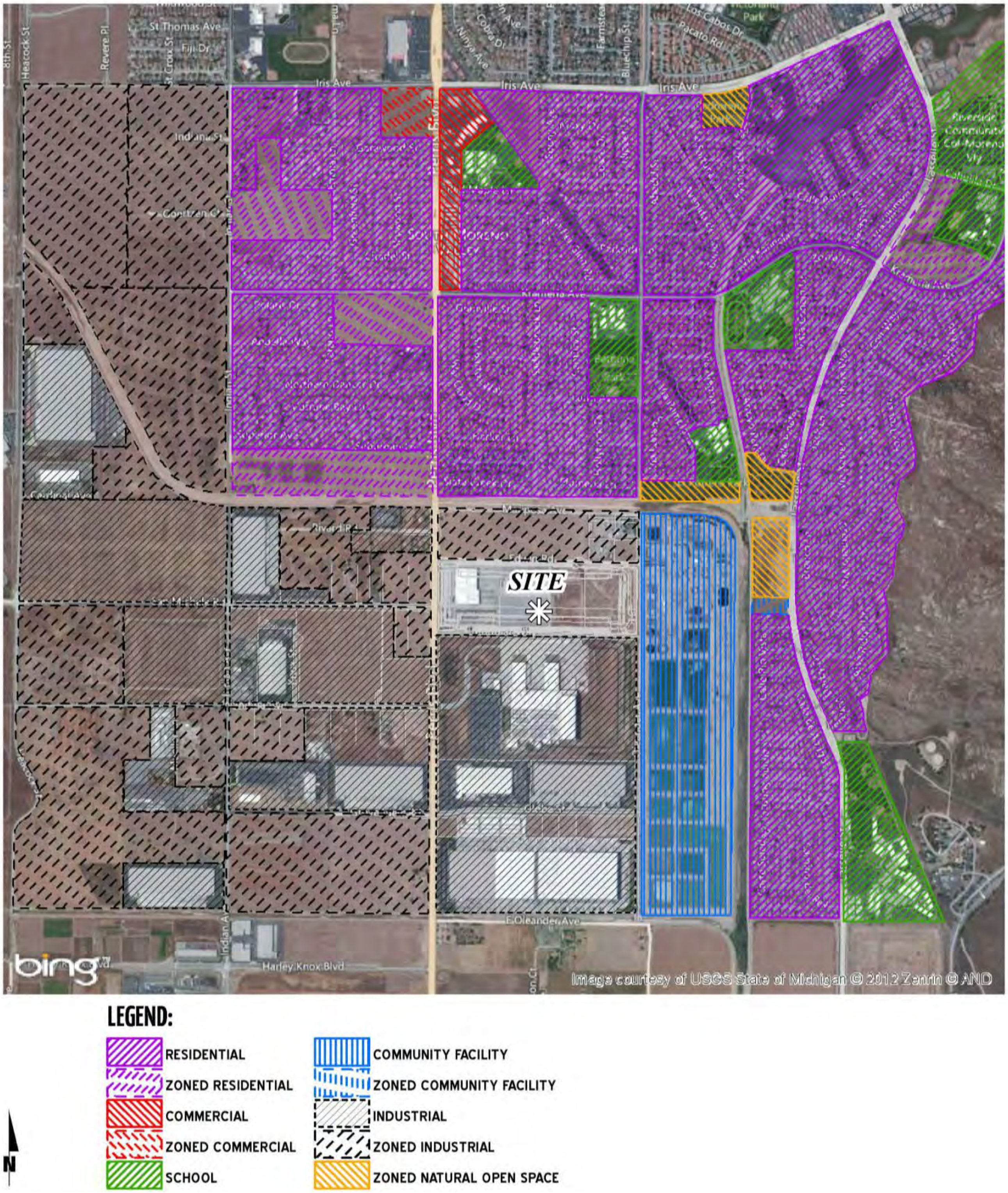
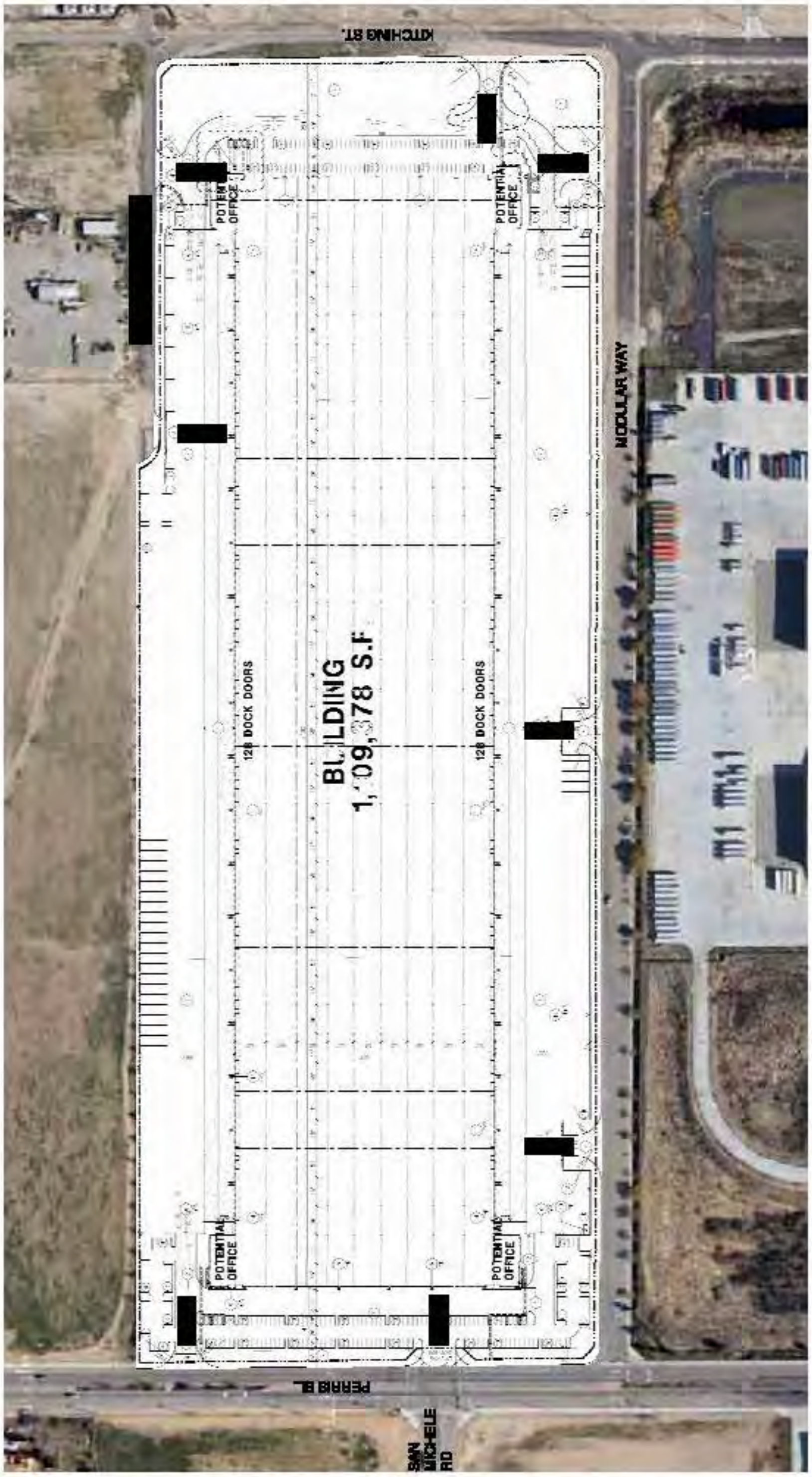


EXHIBIT 1-C: PRELIMINARY SITE PLAN



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

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the City shall ensure such language is incorporated prior to issuance of any development permits. City monitoring of construction activities shall be conducted to ensure mitigation compliance.

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2); Rule 431.2 (Low Sulfur Fuel) (3); Rule 403 (Fugitive Dust) (4); and Rule 1186 / 1186.1 (Street Sweepers) (5). In order to facilitate monitoring and compliance, applicable SCAQMD regulatory requirements are summarized below.

BACM AQ-1

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403 (4):

- 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:

BACM AQ-2

The California Air Resources Board, in Title 13, Chapter 10, Section 2485, Division 3 of the of the California Code of Regulations, imposes a requirement that heavy duty trucks accessing the site shall not idle for greater than five minutes at any location. This measure is intended to apply to construction traffic. Grading plans shall reference that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling (6).

In addition to the above-cited SCAQMD regulatory requirements and BACMs, the Project shall implement the following construction activity mitigation measures.

1.6 CONSTRUCTION-SOURCE MITIGATION MEASURES

MM AQ-1

During construction activity, all construction equipment (≥ 150 horsepower) shall be California Air Resources Board (CARB) Tier 3 Certified or better. During overlapping construction activities including grading and soil import the total horsepower-hours per day for all equipment shall not exceed 26,992 horsepower-hours per day and the maximum disturbance (actively graded) area shall not exceed 4.5 acres per day. During all other construction activities (that do not include soil import) the total horsepower-hours per day for all equipment shall not exceed 32,768 horsepower-hours per day.

1.7 OPERATIONAL-SOURCE MITIGATION MEASURES

MM AQ-2

Prior to the issuance of building permits, the Project applicant shall ensure that the Project is designed to achieve efficiency equal to or exceeding then incumbent (2013 or later) California Building Code Title 24 requirements.

MM AQ-3

To reduce water consumption and the associated energy-usage, the Project will be designed to comply with the mandatory reductions in indoor water usage contained in the incumbent CalGreen Code (7) and any mandated reduction in outdoor water usage contained in the City's water efficient landscape requirements. Additionally, 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-4

The Project will reduce vehicle miles traveled and emissions associated with 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.

MM AQ-5:

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 delivery 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.

[1] While restricted idling is required per MM HRA-1, 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.

MM AQ-6:

- Site design shall allow for trucks to check-in within the facility area to prevent queuing of trucks outside the facility.[2]
- down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park", and the parking brake is engaged (8).

[2] As above, no quantified credit or reduction in emissions is taken for site design requirements reflected in MM HRA-2

2 AIR QUALITY SETTING

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 South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (9). 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 larger South Coast district boundary includes 10,743 square miles.

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 NOX 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.

2.4 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated and in the context of 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 (10)(11).

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 O3, CO, SO2, NO2, PM10, and PM2.5 are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O3, PM10, PM2.5, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O3 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 PM10, 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.

TABLE 2-1: 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)[8]	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)[8]	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	12.0 μg/m^3	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)[9]	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/m^3)		0.053 ppm (100 μg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	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)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	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)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 μg/m^3		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	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[11]	24 Hour	0.01 ppm (26 μg/m^3)	Gas Chromatography			

See footnotes at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

For more information please call ARB-PIO at (916) 322-2990 — **California Air Resources Board (6/4/13)**

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 ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM10, and PM2.5 at most monitoring locations (12). No areas of the SCAB exceeded federal or state standards for NO2, SO2, CO, sulfates or lead. See Table 2-2 for attainment designations for the SCAB (13). Appendix 3.4 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3) and Particulate Matter ≤ 10 Microns (PM_{10}) is the South Coast Air Quality Management District Perris monitoring station (SRA 24), located approximately 5.70 miles south of the Project site (14). Data for Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), and Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$) was obtained from the Metropolitan Riverside County 2 monitoring station (SRA 23), located approximately 11.25 miles northwest of the Project site. It should be noted that the Metropolitan Riverside County 2 monitoring station was utilized in lieu of the Perris monitoring station only in instances where data was not available from the Perris site.

The most recent three (3) years of data available is shown on Table 2-3 and identifies the number of days ambient air quality standards were exceeded for the study area, which is was considered to be representative of the local air quality at the Project site (12) (15). Additionally, data for SO2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO2 concentrations.

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and effects 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.
- Sulfur Dioxide (SO2): 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 SO2 oxidizes in the atmosphere, it forms sulfates (SO4). Collectively, these pollutants are referred to as sulfur oxides (SOX).

  Nitrogen Oxides (Oxides of Nitrogen, or NOx): Nitrogen oxides (NOx) consist of nitric oxide (NO), nitrogen dioxide (NO2) and nitrous oxide (N2O) and are formed when nitrogen (N2) combines with oxygen (O2). 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. NO2 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, NO2 is the most abundant in the atmosphere. As ambient concentrations of NO2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO2 than those indicated by regional monitors.

- Ozone (O3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOX), 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.
- PM10 (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. PM10 also causes visibility reduction and is a criteria air pollutant.
- PM2.5 (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 SO2 release from power plants and industrial facilities and nitrates that are formed from NOX 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. PM2.5 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 O3, 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 O3, 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.

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	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Attainment
Lead[1]	Attainment	Attainment

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm
Note: See Appendix 3.2 for a detailed map of State/National Area Designations within the South Coast Air Basin

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2011-2013

POLLUTANT	STANDARD	YEAR		
		2011	2012	2013
Ozone (O_3)[a]				
Maximum 1-Hour Concentration (ppm)		0.125	0.111	0.108
Maximum 8-Hour Concentration (ppm)		0.112	0.093	0.090
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	44	28	--
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	77	64	--
Number of Days Exceeding Federal 1-Hour Standard	> 0.12 ppm	2	0	0
Number of Days Exceeding Federal 8-Hour Standard	> 0.075 ppm	54	46	34
Number of Days Exceeding Health Advisory	≥ 0.15 ppm	0	0	0
Carbon Monoxide (CO)[b]				
Maximum 1-Hour Concentration (ppm)		--	--	4.5
Maximum 8-Hour Concentration (ppm)		1.5	1.5	1.4
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) [b]				
Maximum 1-Hour Concentration (ppm)		0.057	0.060	0.053
Annual Arithmetic Mean Concentration (ppm)		0.017	0.017	--
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})[a]				
Maximum 24-Hour Concentration (μg/m^3)		65	62	70
Number of Samples		60	60	57
Number of Samples Exceeding State Standard	> 50 μg/m^3	3	1	--
Number of Samples Exceeding Federal Standard	> 150 μg/m^3	0	0	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)[b]				
Maximum 24-Hour Concentration (μg/m^3)		51.6	30.2	33.4
Annual Arithmetic Mean (μg/m^3)		11.8	11.4	11.6
Number of Samples Exceeding Federal 24-Hour Standard	> 35 μg/m^3	2	0	--

-- = data not available from either SCAQMD or EPA

[a] Data for ozone and PM10 was obtained from the Perris monitoring station (SRA 24)

[b] Data for CO, NO2, and PM2.5 was obtained from the Metropolitan Riverside County 2 monitoring station (SRA 23)

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 (PM10 and PM2.5) 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 PM2.5 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 NO2 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 NO2 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 NO2 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 NO2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO2 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 SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2.

Animal studies suggest that despite SO2 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 SO2 levels. In these studies, efforts to separate the effects of SO2 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 O3, CO, NOx, SO2, PM10, and lead (10). 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 (16). 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 O3, NO2, SO2, PM10, CO, PM2.5, and lead. The NAAQS were amended in July 1997 to include an additional standard for O3 and to adopt a NAAQS for PM2.5. Table 2-1 (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 (NOx). NOx is a collective term that includes all forms of nitrogen oxides (NO, NO2, NO3) 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 (11)(10).

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, NOx, CO and PM10. 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 (17). 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 REGIONAL AIR QUALITY IMPROVEMENT

The Project is within the jurisdiction of the SCAQMD. In 1976, California adopted the Lewis Air Quality Management Act which created SCAQMD from a voluntary association of air pollution control districts in Los Angeles, Orange, Riverside, and San Bernardino counties. The geographic area of which SCAQMD consists is known as the Basin. SCAQMD develops plans and programs for the region to attain federal standards by dates specified in federal law. The agency is also responsible for meeting state standards by the earliest date achievable, using reasonably available control measures.

SCAQMD rule development through the 1970sand 1980s resulted in dramatic improvement in Basin air quality. However, the effort to impose incremental rule changes on thousands of stationary sources under SCAQMD permits was laborious and time consuming. Nearly all control programs developed through the early 1990s relied on the development and application of cleaner technology and add-on emission controls. Industrial sources have been significantly affected by this approach and vehicular emissions have been affected by technologies implemented at the state level by CARB.

As discussed above, the SCAQMD is the lead agency charged with regulating air quality emission reductions for the entire Basin. SCAQMD created AQMPs which represent a regional blueprint for achieving healthful air on behalf of the 16 million residents of the South Coast Basin. The remarkable historical improvement in air quality since the 1970's is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its Air Quality Management Plans (AQMPs).

The 2012 AQMP states, " the remarkable historical improvement in air quality since the 1970's is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs,"(18). Ozone, NOx, VOC, and CO have been decreasing in the Basin since 1975 and are projected to continue to decrease through 2020(19). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NOx and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NOx emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. Ozone contour maps, show that the number of days exceeding the national 8-hour standard has decreased between 1997 and 2007. In the 2007 period, there was an overall decrease in exceedance days compared with the 1997 period. The overall trends of PM10 and PM2.5 in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM10 have remained somewhat constant in the Basin and direct emissions of PM2.5 have decreased slightly since 1975. Area wide sources (fugitive dust from roads, dust from construction and demolition, and other sources) contribute the greatest amount of direct particulate matter emissions.

Ozone air quality in the SCAB has improved substantially over the last 30 years as shown in Table 2-4. During the 1960s, maximum 1-hour concentrations were above 0.60 ppm. Today, the maximum measured concentrations are less than one-third of that. The 2007 ozone season in the SCAB was on a par with 2006. The 2007 peak 8-hour indicator value was 42 percent lower than the 1988 value. The 2008 three-year average of the maximum 8-hour concentration was over 41 percent lower than 1990. The number of days above the standards has also declined dramatically, and the trend for 1-hour ozone is similar to that for 8-hour.

As with other pollutants, the PM10 statistics also show overall improvement as illustrated in Table 2-5. During the period for which data are available, the three-year average of the annual average (State) decreased by 35 percent. Although the values in the late 1990's show some variability, this is probably due to meteorology rather than a change in emissions. Despite the overall decrease, ambient concentrations still exceed the State annual and 24-hour PM10 standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM10 standards has also shown an overall drop. During 1989, there were 305 calculated days above the State standard and 34 calculated days above the national standard. By 2007, there were 273 calculated State standard exceedance days and 13 national standard exceedance days. The high 24-hour concentration in 2007 was due to a national windblown dust event.

Table 2-6 shows the annual average $PM_{2.5}$ concentrations (national) in the SCAB from 1999 through 2007. Overall, the annual average concentrations have decreased over 37 percent. The State annual average concentrations also show a declining trend, although the trend looks less pronounced, due to differences in State and national monitoring methods. The 98^{th} percentile of 24 hour $PM_{2.5}$ concentrations has also declined within the last nine years. The SCAB is currently designated as nonattainment for the State and national $PM_{2.5}$ standards. Measures adopted as part of the upcoming $PM_{2.5}$ SIP, as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$ in this region.

Carbon monoxide concentrations in the SCAB have decreased markedly — a total decrease of more than 72 percent in the peak 8-hour indicator since 1988 as shown in Table 2-7. The number of exceedance days has also declined. During 1988 there were 73 days above the State standard and 65 days above the national standard. However, since 2003, there were no exceedance days for either standard. The entire SCAB is now designated as attainment for both the state and national CO standards. Ongoing reductions from motor vehicle control programs should continue the downward trend in ambient CO concentrations.

TABLE 2-4: SOUTH COAST AIR BASIN OZONE TREND

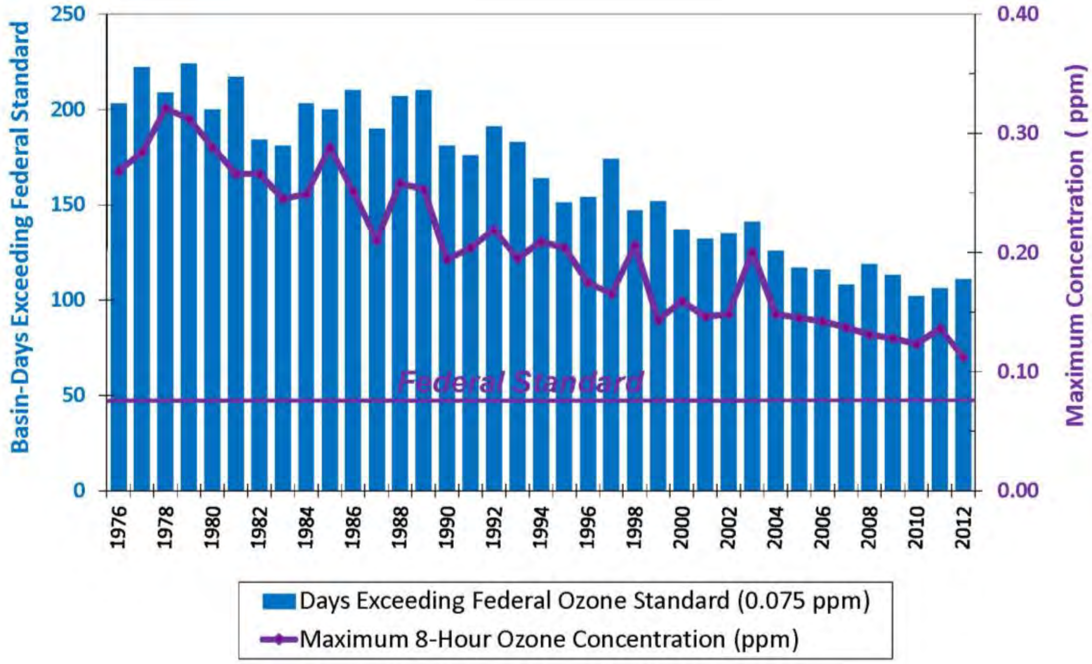


TABLE 2-5: SOUTH COAST AIR BASIN PM_{10} TREND

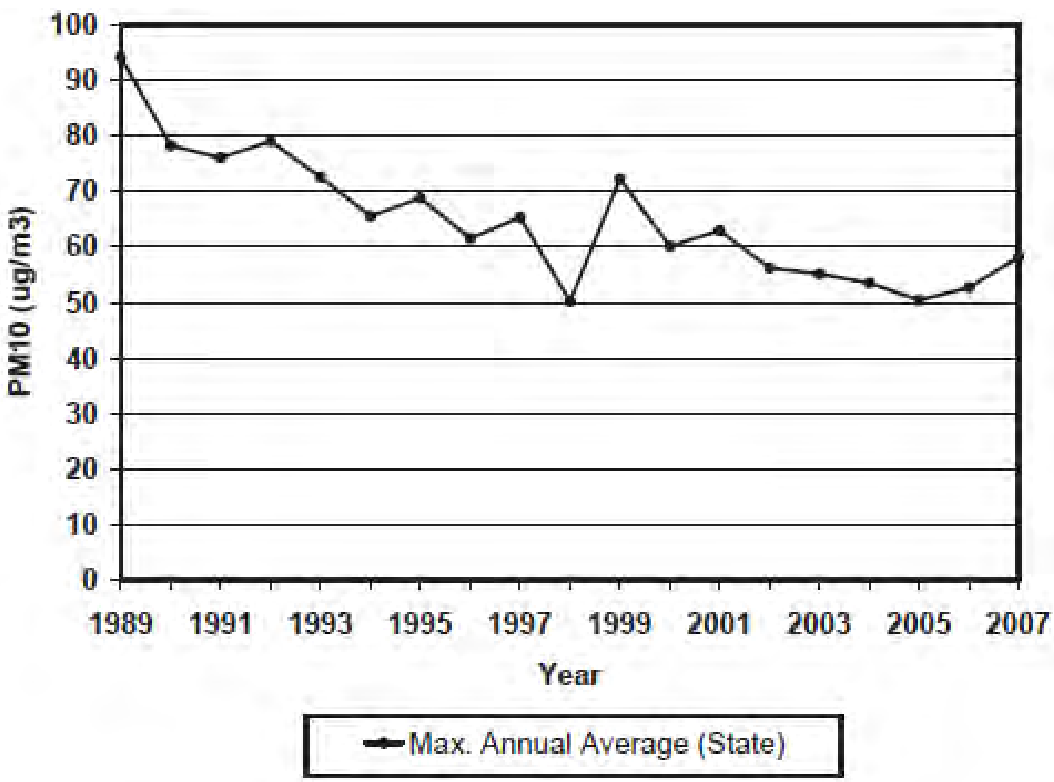


TABLE 2-6: SOUTH COAST AIR BASIN $PM_{2.5}$ TREND

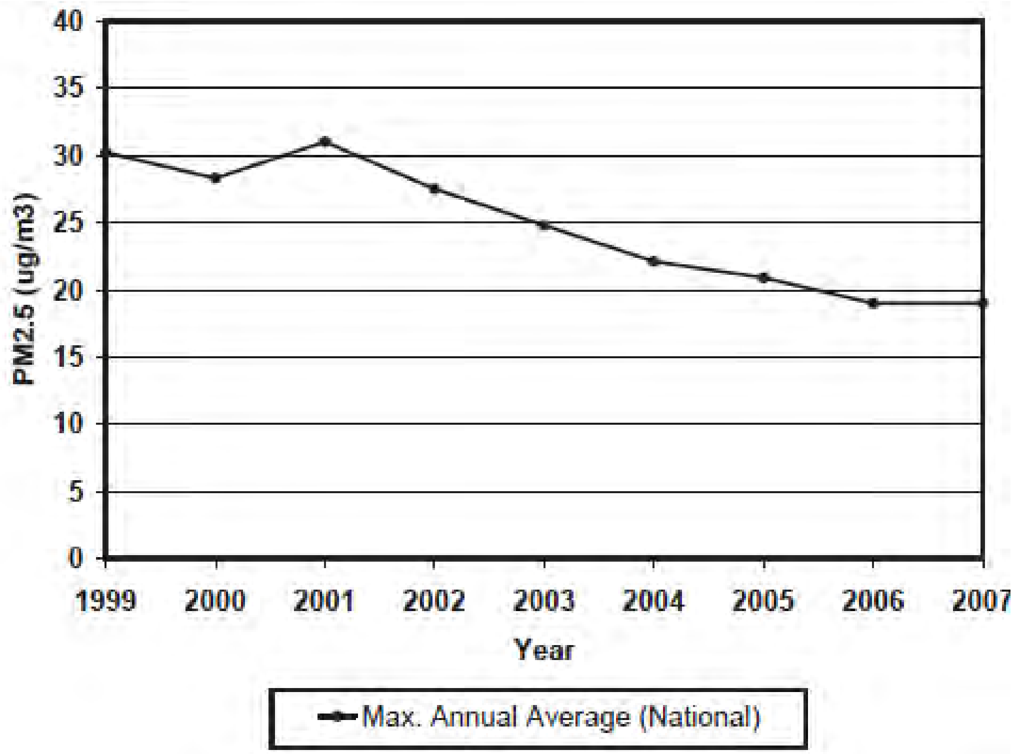
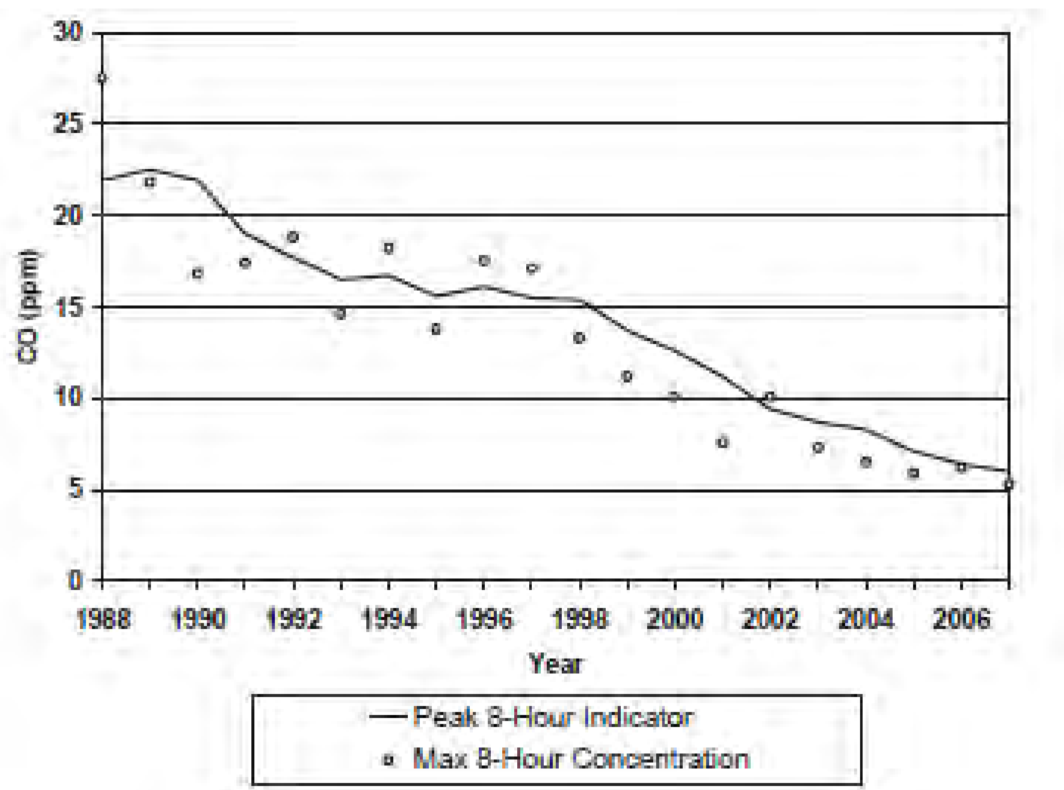


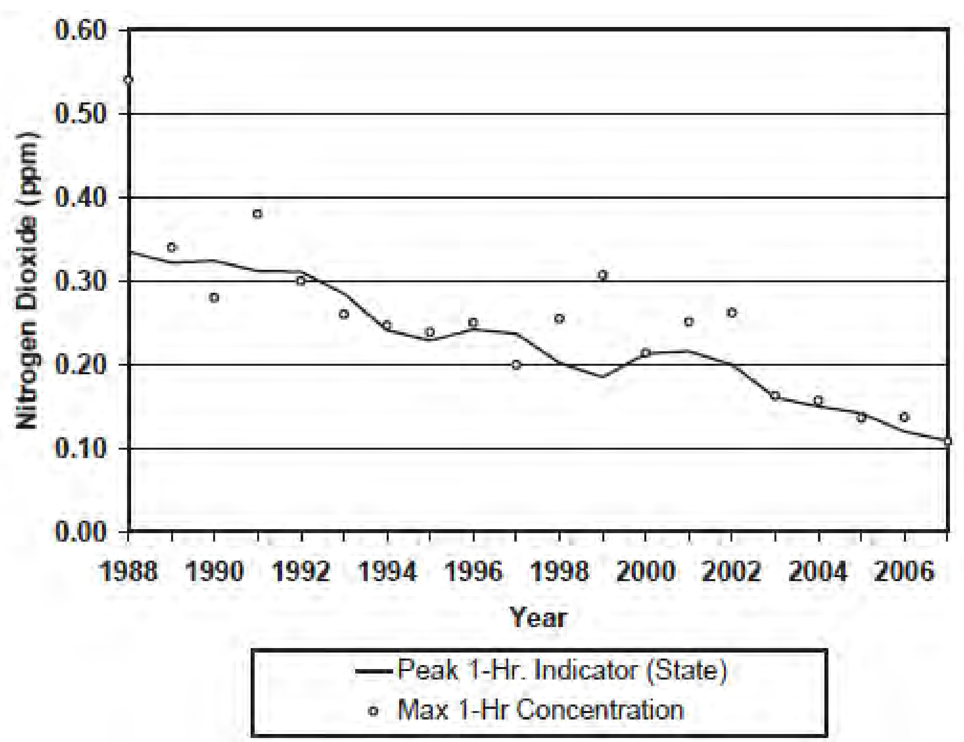
TABLE 2-7: SOUTH COAST AIR BASIN CARBON MONOXIDE TREND



Over the last 20 years, NO_2 values have decreased significantly in the SCAB as shown in Table 2-8. The peak 1-hour indicator for 2007 was over 67 percent lower than what it was during 1988. The SCAB attained the State 1-hour NO_2 standard in 1994, bringing the entire State into attainment. The national annual average standard has not been exceeded since 1991. A new state annual average standard was adopted by the ARB in February 2007. The new standard is just barely exceeded in the South Coast. NO_2 is formed from NO_x emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's NO_x emissions. These measures are expected to bring the South Coast into attainment of the State annual average standard.

The American Lung Association website includes data collected from State air quality monitors that are used to compile an annual State of the Air report. These reports have been published over the last 13 years. The latest State of the Air Report compiled for the Basin was in 2010 (20). As noted in this report, air quality in the Basin has significantly improved in terms of both pollution levels and high pollution days over the past three decades. The area's average number of high ozone days dropped from 189.5 day per year in the initial 2000 State of the Air report (1996–1998) to 141.8 in the 2006–2008 report. The region has seen dramatic reduction in particle pollution since the initial State of the Air report (20).

TABLE 2-8: SOUTH COAST AIR BASIN NITROGEN DIOXIDE TREND



DIESEL REGULATIONS

The CARB and the Ports of Los Angeles and Long Beach have adopted several iterations of regulations for diesel trucks that are aimed at reducing DPM. More specifically, the CARB Drayage Truck Regulation (21), the CARB statewide On-road Truck and Bus Regulation (22), and the Ports of Los Angeles and Long Beach “Clean Truck Program” (CTP) require accelerated implementation of “clean trucks” into the statewide truck fleet (23). In other words, older more polluting trucks will be replaced with newer, cleaner trucks as a function of these regulatory requirements.

Moreover, the average statewide DPM emissions for Heavy Duty Trucks (HHDT), in terms of grams of DPM generated per mile traveled, will dramatically be reduced due to the aforementioned regulatory requirements. Table 2-9 provides a comparison of the estimated DPM emissions from that would occur under the statewide programs, reflected in EMFAC 2011, and what would occur under the Ports CTP (24).

Diesel emissions identified in this analysis would therefore overstate future DPM emissions since not all the regulatory requirements are reflected in the modeling.

CANCER RISK TRENDS

Based on information available from CARB, overall cancer risk throughout the basin has had a declining trend since 1990. In 1998, following an exhaustive 10-year scientific assessment process, the State of California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines as a toxic air contaminant. Subsequent to this determination, the SCAQMD initiated a comprehensive urban toxic air pollution study, called MATES-II (for Multiple Air Toxics Exposure Study). MATES-II showed that average cancer risk in the SCAB ranges from 1,100 in a million to 1,750 in a million, with an average regional risk of about 1,400 in a million. Moreover, diesel particulate matter (DPM) accounts for more than 70 percent of the cancer risk.

In 2008 the SCAQMD prepared an update to the MATES-II study, referred to as MATES-III. MATES-III is the most comprehensive dataset documenting the ambient air toxic levels and health risks associated with the South Coast Air Basin emissions. Therefore, MATES-III study represents the baseline health risk for a cumulative analysis. MATES-III estimates the average excess cancer risk level from exposure to TACs is approximately 1,200 in one million basin-wide. These model estimates were based on monitoring data collected at ten fixed sites within the South Coast Air Basin. None of the fixed monitoring sites are within the local area of the Project site. However, MATES-III has extrapolated the excess cancer risk levels throughout the basin by modeling the specific grids. MATES-III modeling predicted an excess cancer risk of 566 in one million for the Project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 83.6% of the total risk shown in MATES-III. Cumulative Project generated TACs are limited to DPM. MATES-III data shows that the region around the Project site has an ambient cancer risk of 566 in one million (25).

As Shown on Table 2-10 Annual DPM concentration have been steadily declining since 1990 (19). Additional reductions in diesel risk exposure are anticipated to result from ARB's Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. The annual average basin-wide cancer risk has also been steadily declining since 1990 as shown on Table 2-11.

The key elements of the Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the Diesel Risk Reduction Plan will significantly reduce emissions from both old and new diesel-fueled motor vehicles and from stationary sources that burn diesel fuel. The goal of the Diesel Risk Reduction Plan is to reduce concentrations by 75 percent by 2010 and 85 percent by 2020.

2.9 EXISTING PROJECT SITE AIR QUALITY CONDITIONS

Existing air quality conditions at the Project site would generally reflect ambient monitored conditions as presented previously at Table 2-3.

TABLE 2-9: COMPARISON OF CALIFORNIA HHDT DPM EMISSIONS CONTROL PROGRAMS

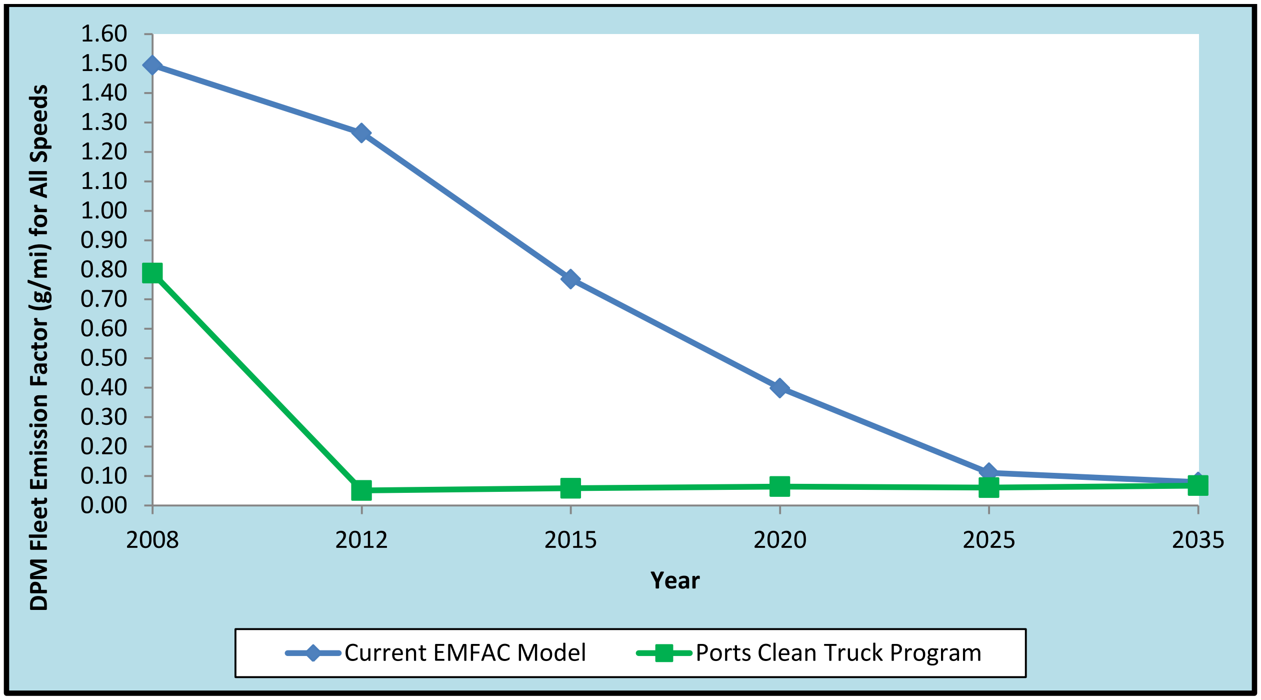


TABLE 2-10: DIESEL PARTICULATE MATTER ANNUAL AVERAGE CONCENTRATION

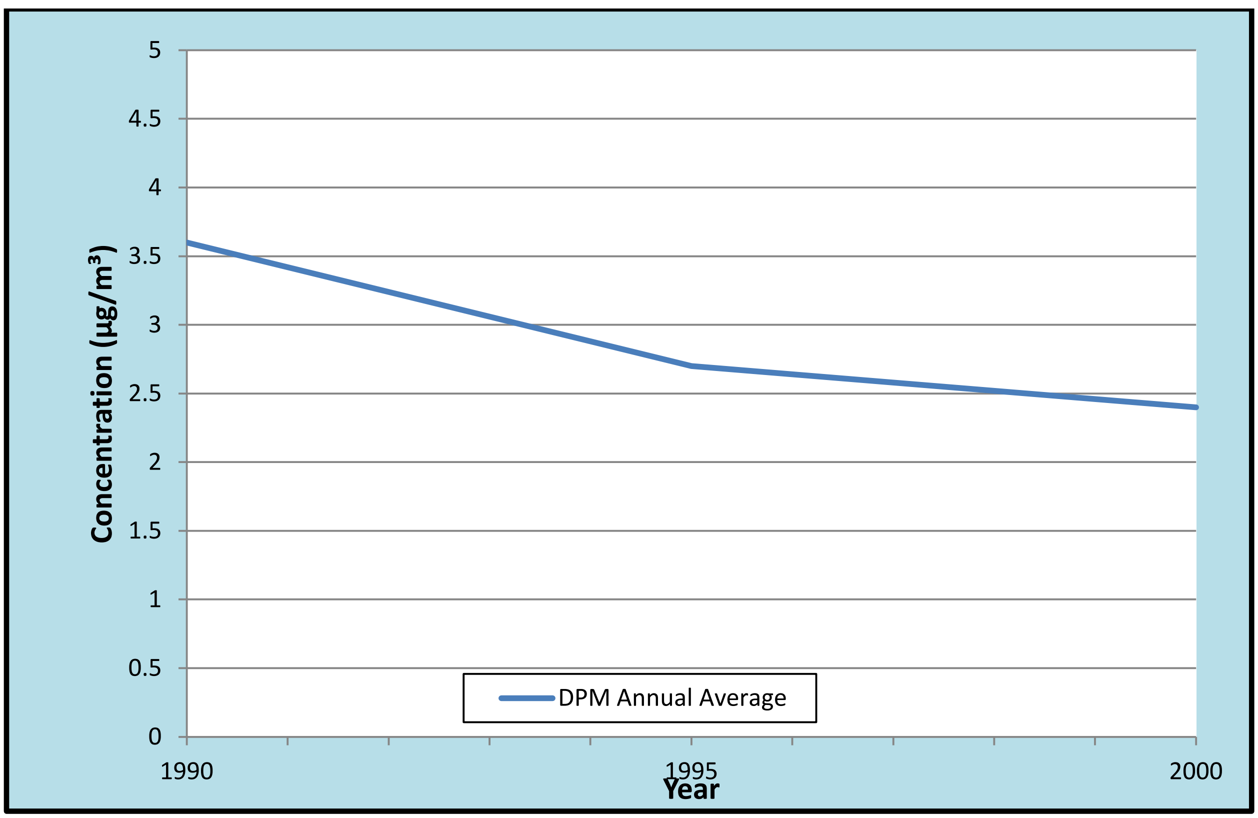
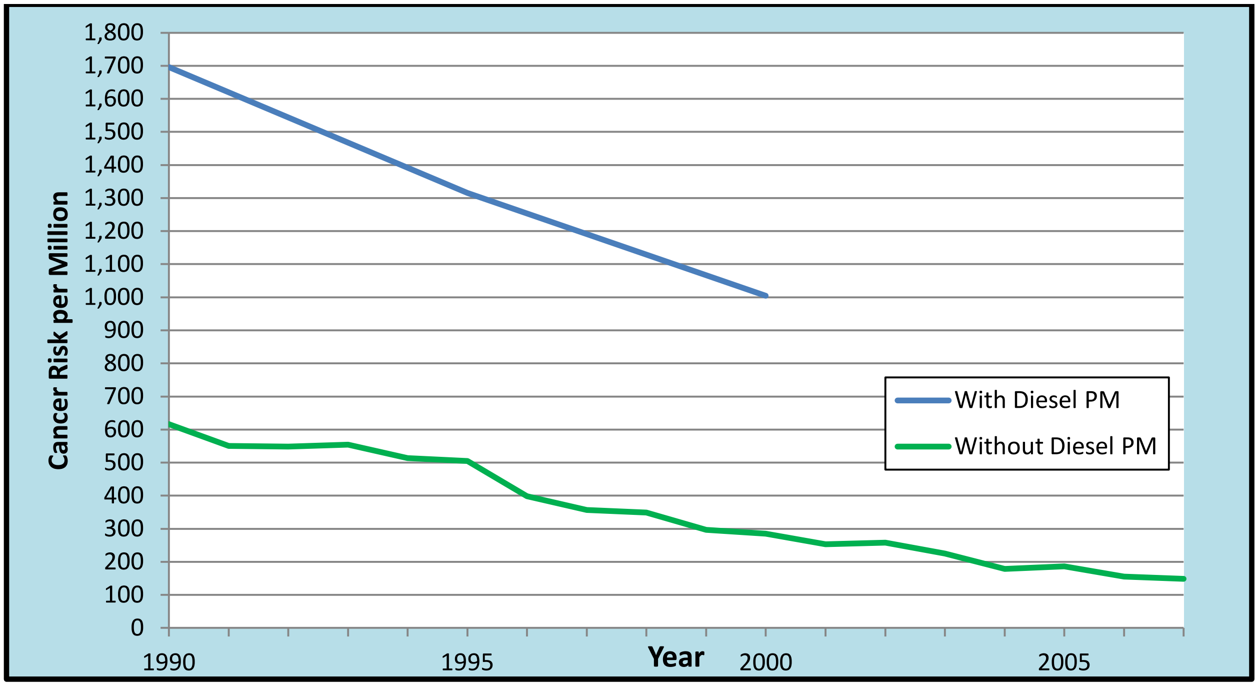


TABLE 2-11: ANNUAL AVERAGE BASIN CANCER RISK



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3 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 (26):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute to an existing or projected air quality violation.
- 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).
- Expose sensitive receptors to substantial pollutant concentrations.
- 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 (27):

- 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 (28).

The SCAQMD's CEQA Air Quality Significance Thresholds (March 2011) 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

Pollutant	Construction	Operations
Regional Thresholds		
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
Sox	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Localized Thresholds		
NOx (1-Hour)	0.18 ppm	0.18 ppm
PM10 (24-Hour)	10.40 µg/m3	2.50 µg/m3
PM2.5 (24-Hour)	10.40 µg/m3	2.50 µg/m3
CO (1-Hour)	20 ppm	20 ppm
CO (8-Hour)	9 ppm	9 ppm

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 October 2, 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™) v2013.2.2. The purpose of this model is to calculate construction-source and operational-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 (30). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of CO, VOCs, NOx, SOx, PM10, and PM2.5. Construction related emissions are expected from the following construction activities:

- Demolition
- Grading

- Plumbing
- Electrical
- Structural Concrete
- Fire Protection
- Reinforcing Steel
- Site Utilities
- Structural Steel
- Roof Structure
- Painting (Architectural Coatings)
- Construction Workers Commuting

Construction is expected to commence in December 2014 and will last through September 2015. The construction schedule utilized in the analysis represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as the analysis year increases. The duration of construction activity and associated equipment represents 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. The duration of construction activity and associated equipment was estimated based on input from the applicant and CalEEmod model defaults. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this Analysis. A detailed summary of construction equipment assumptions by phase is provided at Table 3-2. It should be noted that the emissions estimates provided at Table 3-2 represent a “worst-case” (i.e. overestimatation) of actual emissions that will likely occur.

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”. Fugitive dust 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. The Project site will require 26,000 cubic yards of soil import in order to balance. Soil import will commence early March 2015 for a duration of approximately one month.

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 estimated based on information from the applicant and the CalEEMod model.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment	Blade	Crusher	Water Trucks	Dump Truck	Skip	Scraper	Sweeper	Motor Grader	Backhoe	Skid Steer Loader	Rubber Tire Loader	Excavator	Laser Screed	Scissor Lift	Boom Lift	Man Lift	Forklift	Gradall	Generator Sets	Reach Lift	Cranes	Welder	Air Compressor
Demolition *(Phase 1)*			2							2	2	2											
Demolition *(Phase 1.1)*		1																					
Grading *(Phase 1)*			2			9		1			1												
Grading *(Phase 1.1)*	1		1			1																	
Grading *(Phase 2)*			1			1		1			2												
Grading *(Phase 3)*			1			1		1			2												
Plumbing - Underslab *(Phase 1)*												1											
Plumbing - Underslab *(Phase 1.1)*											1												
Plumbing -Building														1									
Electrical - Underground									1														

Equipment	Blade	Crusher	Water Trucks	Dump Truck	Skip	Scraper	Sweeper	Motor Grader	Backhoe	Skid Steer Loader	Rubber Tire Loader	Excavator	Laser Screed	Scissor Lift	Boom Lift	Man Lift	Forklift	Gradall	Generator Sets	Reach Lift	Cranes	Welder	Air Compressor
Electrical – Building (Phase 1)														2									
Electrical – Building (Phase 1.1)																							1
Structural Concrete *(Phase 1)*						1																	
Structural Concrete *(Phase 2)*				2	3																		
Structural Concrete *(Phase 3)*																	2						
Structural Concrete *(Phase 4)*			1																				
Structural Concrete *(Phase 5)*							1																
Structural Concrete *(Phase 6)*													1										
Structural Concrete *(Phase 7)*																1							
Structural Steel														3						1	1	4	

Equipment	Blade	Crusher	Water Trucks	Dump Truck	Skip	Scraper	Sweeper	Motor Grader	Backhoe	Skid Steer Loader	Rubber Tire Loader	Excavator	Laser Screed	Scissor Lift	Boom Lift	Man Lift	Forklift	Gradall	Generator Sets	Reach Lift	Cranes	Welder	Air Compressor
Fire Protection - Site			1						1		1						1						
Fire Protection - Overhead														3	3		2						
Reinforcing Steel																	2						
Site Utilities - Storm											2	2											
Site Utilities - Sewer									1		1												
Site Utilities - Water									1		1												
Roof Structure														2	4		2	2					

3.4.1 Construction Emissions Summary

Impacts Without BACMs, Regulatory Requirements, and Mitigation

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-3. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction will exceed criteria pollutant thresholds established by the SCAQMD for emissions of NOx (before mitigation). It should be noted that the impacts without BACMs do not take credit for reductions achieved through standard regulatory requirements (SCAQMD's Rule 403).

Impacts With BACMs, Regulatory Requirements, and Mitigation

The estimated maximum daily construction emissions with mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. BACM AQ-1, BACM AQ-2, and MM AQ-1 are recommended to reduce the severity of the impact. After implementation of the best available control measures, standard regulatory requirements, and recommended mitigation measures, construction activity emissions will not exceed the numerical thresholds established by the SCAQMD for criteria pollutants. Thus a less than significant impact would occur with implementation of BACMs and applicable mitigation.

TABLE 3-3: EMISSIONS SUMMARY OF OVERALL CONSTRUCTION (WITHOUT BACMS AND MITIGATION)

	Emissions (pounds per day)					
Construction Emissions by Year	VOC	NOx	CO	SOx	PM10	PM2.5
2015	18.78	247.40	147.05	0.27	22.21	10.34
Maximum Daily Emissions	**18.78**	**247.40**	**147.05**	**0.27**	**22.21**	**10.34**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

TABLE 3-4: EMISSIONS SUMMARY OF OVERALL CONSTRUCTION (WITH BACMS AND MITIGATION)

	Emissions (pounds per day)					
Construction Emissions by Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2015	5.97	96.54	75.46	0.19	7.57	3.76
Maximum Daily Emissions	**5.97**	**96.54**	**75.46**	**0.19**	**7.57**	**3.76**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of ROG, NOX, CO, SOX, PM10, and PM2.5. Operational emissions would be expected from the following primary sources:

- Vehicles
- Fugitive dust related to vehicular travel
- Combustion Emissions Associated with Natural Gas and Electricity
- Landscape maintenance equipment
- Emissions from consumer products
- Architectural coatings
- On-Site Equipment

3.5.1 VEHICLES

Project operational (vehicular) impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, Modular Logistics Center Traffic Impact Analysis (Urban Crossroads) 2014 were utilized in this analysis (31).

The Project will reduce vehicle miles traveled by: designing a Project that promotes a suburban center setting; providing design elements that enhance walkability and connectivity; as well as incorporation of bicycle lanes and paths; improving the on-site pedestrian network, and implement a voluntary trip reduction program. Thus the appropriate CalEEMod parameters have been enabled to ensure appropriate credit is taken for these design features.

Project operational (vehicular) impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations. Project-related operational air quality impacts derive predominantly from mobile sources [approximately 93.97 percent (by weight) of all Project operational-source emissions are generated by mobile sources (vehicles). 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 76% passenger cars and approximately 24% total trucks. For analysis purposes 12.5% of all trucks are assumed to be Light-Heavy-Duty (LHD), 12.5% of all trucks are assumed to be Medium-Heavy-Duty (MHD), and 75% of all trucks are assumed to be Heavy-Heavy-Duty (HHD). The Project was input as a single category or type of land-use (Unrefrigerated Warehouse-No Rail) in the CalEEMod™ emissions inventory model. The resulting estimated vehicle-source emissions are summarized at Table 3-5.

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, 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 of the seven 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 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, 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 3.3).

The vehicle fleet mix utilized in the Traffic Study for the Project is based upon the actual vehicle classifications conducted at various high-cube warehouse locations in the City of Moreno Valley, 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 Modular Logistics Center's 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

In the last five years, the SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects (32). 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 CalEEMod™ and the URBan EMISsions 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.

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 City of Moreno Valley have utilized these same or similar estimates (33)(34) (35). 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, the Riverside County CalEEMod default for a one-way trip length of 9.5 miles was assumed as contained in the CalEEMod User's Guide version 2013.2.2. 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) as follows. It is appropriate to stop the VMT calculation at the boundary of the SCAB because any activity beyond that boundary would be speculative, this approach is also consistent with professional industry practice.

- Project site to the Port of Los Angeles/Long Beach: 80 miles;
- Project site to East on State Route 60: 30 miles;
- Project site to San Diego County line: 60 miles;
- Project site to Inland Empire: 50 miles;
- Project site to Perris destinations: 10 miles;
- Project site to Moreno Valley destinations: 10 miles;

Assuming that 50% of all delivery trips will travel to and from the Project and the Port of Los Angeles/Long Beach, 10% go East on the State Route 60, 20% go to San Diego, 10% go to the Inland Empire, 5% go to Perris destinations and the remainder as Moreno Valley destinations. The average truck trip length is calculated as 61 miles.

Two separate model runs were utilized in order to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger car emissions, which incorporated a default trip length of 9.5 miles for passenger cars within Riverside County and a fleet mix of 100% Light-Duty-Auto vehicles (LDA). The second run analyzed truck emissions, which incorporated an average truck trip length of 61 miles and a fleet mix of 12.5% LHD, 12.5% MHD, and 75% HHD. 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 3.1

3.5.2 FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

3.5.3 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.

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, 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.

3.5.5 CONSUMER PRODUCTS

Consumer projects include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on assumptions provided in the CalEEMod model. In the case of the commercial/retail uses proposed by the Project, no substantive on-site use of consumer products is anticipated.

3.5.6 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.

3.5.7 ON-SITE EQUIPMENT

It is common for an industrial warehouse project to require cargo handling equipment to move empty containers and empty chassis to and from the various pieces of cargo handling equipment that receive and distribute containers. The most common type of cargo handling equipment is the yard truck which is designed for moving cargo containers. Yard trucks are also known as yard goats, utility tractors (UTRs), hustlers, yard hostlers, and yard tractors. Yard trucks have a horsepower (hp) range of approximately 175 hp to 200 hp. Based on the latest available information from SCAQMD (36); high-cube warehouse projects typically have 3.1 yard trucks per million square feet of building space. For this particular Project, on-site modeled operational equipment includes four 200 hp yard tractors operating at 4 hours a day for 260 days of the year[3]. The emissions associated with on-site equipment were calculated using the CalEEMod model.

3.5.8 OPERATIONAL EMISSIONS SUMMARY

Impacts Without Mitigation

Operational-source emissions without implementation of mitigation measures are summarized on Table 3-5. For regional emissions, the Project would exceed the numerical thresholds of significance established by the SCAQMD for emissions of NO_x. Mitigation measures (MM AQ-2 through MM AQ-6) are recommended to reduce the severity of the impact.

TABLE 3-5: SUMMARY OF PEAK OPERATIONAL EMISSIONS (WITHOUT MITIGATION)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	34.13	1.51e-3	0.16	1.00e-5	5.70e-4	5.70e-4
Energy Source	0.07	0.64	0.54	3.83e-3	0.05	0.05
Mobile (Trucks)	13.57	310.20	118.43	0.77	28.38	11.96
Mobile (Passenger Cars)	3.40	2.86	39.30	0.10	9.61	2.58
On-Site Equipment	0.90	13.16	3.78	0.01	0.43	0.39
Maximum Daily Emissions	**52.07**	**326.86**	**162.21**	**0.88**	**38.47**	**14.98**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Operational Activities – Winter Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	34.13	1.51e-3	0.16	1.00e-5	5.70e-4	5.70e-4
Energy Source	0.07	0.64	0.54	3.83e-3	0.05	0.05
Mobile (Trucks)	13.82	323.14	124.00	0.77	28.39	11.97
Mobile (Passenger Cars)	3.20	3.03	34.42	0.09	9.61	2.57
On-Site Equipment	0.90	13.16	3.78	0.01	0.43	0.39
Maximum Daily Emissions	**52.12**	**339.97**	**162.90**	**0.87**	**38.48**	**14.98**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

[3] 4 hour daily on-site operation of the yard trucks is based on the Port of Long Beach Air Emissions Inventory document (June 2008)

Impacts With Mitigation Measures

Operational-source emissions with implementation of mitigation measures are summarized on Table 3-6. For regional emissions, the Project would exceed the numerical thresholds of significance established by the SCAQMD for emissions of NOx. No feasible mitigation measures exist that would reduce these emissions to levels that are less-than-significant. Thus a significant impact would occur even with implementation of the proposed mitigation measures (MM AQ-2 through MM AQ-6). Project operational-source NOx emissions exceedances of applicable SCAQMD regional thresholds are therefore considered significant and unavoidable.

TABLE 3-6: SUMMARY OF PEAK OPERATIONAL EMISSIONS (WITH MITIGATION)

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions	34.13	1.51e-3	0.16	1.00e-5	5.70e-4	5.70e-4
Energy Source Emissions	0.05	0.48	0.40	2.88e-3	0.04	0.04
Mobile Emissions (Trucks)	13.46	307.18	117.64	0.76	28.10	11.84
Mobile Emissions (Passenger Cars)	3.3644	2.76	37.89	0.10	9.21	2.47
On-Site Equipment	0.90	13.16	3.78	0.01	0.43	0.39
Maximum Daily Emissions	**51.90**	**323.58**	**159.89**	**0.87**	**37.78**	**14.74**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

Operational Activities – Winter Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions	34.13	1.51e-3	0.16	1.00e-5	5.70e-4	5.70e-4
Energy Source Emissions	0.05	0.48	0.40	2.88e-3	0.04	0.04
Mobile Emissions (Trucks)	13.72	319.98	123.22	0.76	28.11	11.85
Mobile Emissions (Passenger Cars)	3.17	2.93	33.27	0.09	9.21	2.47
On-Site Equipment	0.90	13.16	3.78	0.01	0.43	0.39
Maximum Daily Emissions	**51.97**	**336.55**	**160.83**	**0.86**	**37.79**	**14.75**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFIANCE - CONSTRUCTION ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (37). 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 NO2, 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 PM10 and PM2.5; 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* (LST Methodology) (38).

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Perris Valley (SRA 24). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter ≤ 10 microns (PM10), and particulate matter ≤ 2.5 microns (PM2.5). The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- The CalEEMod model is utilized to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (39) is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to five acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact (the SCAQMD recommends that Projects exceeding the screening look-up tables undergo dispersion modeling to determine actual impacts). The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than five acres per day, then the SCAQMD recommends dispersion modeling to be conducted to determine the actual pollutant concentrations for applicable LSTs in the air. In other words, the maximum daily on-site emissions as calculated in CalEEMod are modeled via air dispersion modeling to calculate the actual concentration in the

air (e.g., parts per million or micrograms per cubic meter) in order to determine if any applicable thresholds are exceeded.

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 (40)." Therefore, for purposes of the construction LST analysis only emissions included in the CalEEMod "on-site" emissions outputs were considered.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-7 and Table 3-8 are used to determine the maximum daily disturbed-acreage for use in determining the applicability of the SCAQMD's LST look-up tables. As shown in Table 3-7, the Project could actively disturb approximately 9.5 acres per day under an unmitigated scenario and thus would exceed the 5 acre per day limit established by the SCAQMD's LST look-up tables. Table 3-8 shows how the Project could actively disturb approximately 4.5 acres per day under a mitigated scenario. Although, to ensure consistency with the LST modeling of construction-source emissions provided in the unmitigated scenario, the mitigated condition will require dispersion modeling in order to determine maximum daily pollutant concentrations during construction activity.

TABLE 3-7 MAXIMUM DAILY DISTURBED-ACREAGE (WITHOUT MITIGATION)

Construction Phase	Equipment Type	Equipment Quantity	Acres grader per 8 hour day	Operating Hours per Day	Acres graded per day
Grading (Phase 1)	Graders	1	0.5	8	0.5
	Scrapers	9	1	8	9
Total acres graded per day					9.5
Applicable LST Mass Rate Look-up Table					N/A

TABLE 3-8 MAXIMUM DAILY DISTURBED-ACREAGE (WITH MITIGATION)

Construction Phase	Equipment Type	Equipment Quantity	Acres grader per 8 hour day	Operating Hours per Day	Acres graded per day
Grading (Phase 1)	Graders	1	0.5	8	0.5
	Scrapers	4	1	8	4
Total acres graded per day					4.5
Applicable LST Mass Rate Look-up Table					N/A

Receptors

The nearest receptor (where an individual can stay for a shorter averaged time) is located immediately adjacent to the north of the Project site (zoned industrial). 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 (41).” Based on SCAQMD’s Final LST Methodology, a 25 meter receptor distance is utilized in order to determine the LSTs for emissions of CO and NO2

The nearest sensitive receptor land use (where an individual could remain for 24 hours) is located ~240 feet/73 meters northeast of the Project site as illustrated on Exhibit 3-A. For purposes of this analysis, a 73 meter sensitive receptor distance is utilized in order to determine the LSTs for emissions of PM 10 and PM2.5.

DISPERSION MODELING

SCREEN3(42), is a U.S. EPA approved air quality model that contains algorithms associated with the USEPA’s *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources*(43). SCREEN3 was used to calculate localized pollutant concentrations for construction and operational activity. SCREEN3 uses dispersion screening techniques to estimate impacts of point, area, and volume stationary sources. It should be noted that the SCREEN3 model was utilized in lieu of the more robust AERMOD(44) and Industrial Source Complex (ISC)(45) model in order to account for worst-case conditions, and since precise construction phasing information is not available at this time.

For purposes of this analysis, receptors are conservatively assumed to be located at ~82 feet/25 meters for emissions of CO and ~240 feet/73 meters for emissions of PM_{10}, and $PM_{2.5}$. For emissions of NO_2, discrete receptors were placed at 20, 50, 70, 100, 200, 500, 1000, 2000, 3000, 4000, and 5000 meters from the fence-line of the Project site to account for the change in NO_X to NO_2 conversion as a function of distance.

It should be noted that for PM_{10} / $PM_{2.5}$, a discrete receptor was placed at the facility fence-line and the SCAQMD—approved downwind distance equation ($C_x = 0.9403\ C_0\ e^{-0.0462\ X}$) was utilized.

- C_x is the predicted PM_{10} concentration at X meters from the fence line.
- C_0 is the PM_{10} concentration at the fence line as estimated by SCREEN3.
- e is the natural logarithm.
- X is the distance in meters from the fence line to the nearest sensitive receptor.

For construction, an area source encompassing approximately 9.5 acres was modeled for an unmitigated scenario. Additionally, an area source encompassing approximately 4.5 acres was modeled for a mitigated scenario after implementation of BACMs and MM AQ-1. The urban option of the model was selected, and receptor height was conservatively set at 2.0 meters (consistent with the document Final Localized Significance Threshold Methodology, SCAQMD, June 2003). For PM_{10} and $PM_{2.5}$ a source release height of 1.0 meters was utilized consistent with SCAQMD methodology. Additionally, for emissions of NOX and CO released during construction activity, a source release height of 5.0 meters was utilized.

An emissions rate of 1 gram per second was utilized for emissions of CO, PM_{10}, and $PM_{2.5}$ and the output in micrograms per cubic meter ($\mu g/m^3$) was then multiplied by the emissions rate determined from the CalEEMod model outputs (and averaged over the appropriate time period and disturbance area). For emissions of NO_X, the actual emissions rate (in grams/second/m^2) was programmed into the model. A summary of calculations from both the SCREEN3 model output and calculations for the actual concentration for each pollutant are available for review in Appendix 3.2

LOCALIZED THRESHOLDS

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(29).

Applicable localized thresholds are as follows:

- California State 1-hour CO standard of 20.0 ppm;
- California State 8-hour CO standard of 9.0 ppm;
- California State 1-hour NO2 standard of 0.18 ppm;
- SCAQMD 24-hour construction PM_{10} LST of 10.4 µg/m3; or
- SCAQMD 24-hour construction $PM_{2.5}$ LST of 10.4 µg/m3

Impacts Without BACMs and Mitigation

Without BACMs and mitigation, emissions during construction activity will not exceed the SCAQMD's localized significance thresholds for any criteria pollutant. Table 3-9 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).

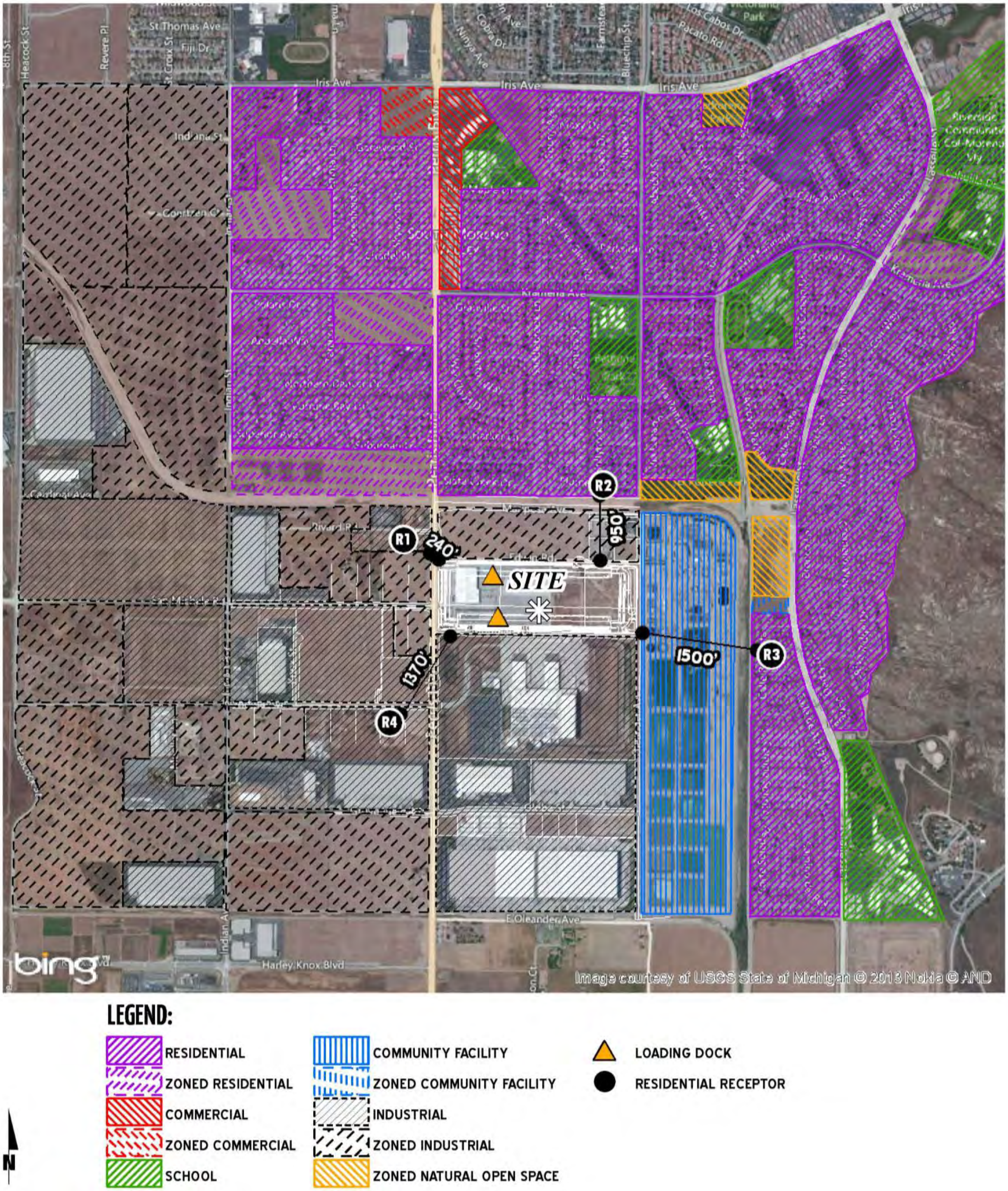
TABLE 3-9 LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITHOUT MITIGATION)

Construction	CO		NO_2	PM_{10}	$PM_{2.5}$
	Averaging Time				
	1-Hour	8-Hour	1-Hour	24-Hours (Construction)	
Peak Day Localized Emissions	0.46	0.33	0.02	1.86	0.89
Background Concentration [A]	3.10	1.70	0.06		
Total Concentration	**3.56**	**2.03**	**0.08**	1.86	0.89
SCAQMD Localized Significance Threshold	20	9	0.18	10.4	10.4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**

[A] Highest concentration from the last three years of available data

Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in µg/m^3. All others are expressed in ppm

EXHIBIT 3-A: AIR QUALITY SENSITIVE RECEPTOR LOCATIONS



Impacts With BACMs and Mitigation

With implementation of BACMs and mitigation, emissions during construction activity will not exceed the SCAQMD's localized significance thresholds for any criteria pollutant. Table 3-10 identifies the mitigated localized impacts at the nearest receptor location in the vicinity of the Project.

TABLE 3-10 LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH BACMS AND MITIGATION)

Construction	CO		NO_2	PM_{10}	$PM_{2.5}$
	Averaging Time				
	1-Hour	8-Hour	1-Hour	24-Hours (Construction)	
Peak Day Localized Emissions	0.28	0.20	0.008	0.842	0.474
Background Concentration [A]	3.10	1.70	0.06		
Total Concentration	**3.38**	**1.90**	**0.07**	0.842	0.474
SCAQMD Localized Significance Threshold	20	9	0.18	10.4	10.4
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**

[A] Highest concentration from the last three years of available data
Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in μg/m^3. All others are expressed in ppm

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

For operational, an area source encompassing the building square footage was modeled, approximately 25.47 acres or 1,109,378 square feet. The urban option of the model was selected, and receptor height was conservatively set at 2.0 meters (consistent with the document Final Localized Significance Threshold Methodology, SCAQMD, June 2003). For PM_{10} and $PM_{2.5}$ a source release height of 1.0 meters was utilized consistent with SCAQMD methodology. Additionally, for emissions of NOX and CO released during operational activity, a source release height of 5.0 meters was utilized.

Emissions from on-site activity including area, energy, and on-site equipment were obtained from CalEEMod, emissions from on-site passenger car and truck travel and idling were calculated using EMFAC 2011. A summary of calculations from the SCREEN3 model output for each pollutant are available for review in Appendix 3.2.

Dispersion modeling and receptor distances consistent with construction activity as described above were utilized.

LOCALIZED THRESHOLDS

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(29).

Applicable localized thresholds are as follows:

- California State 1-hour CO standard of 20.0 ppm;

- California State 8-hour CO standard of 9.0 ppm;
- California State 1-hour NO2 standard of 0.18 ppm;
- SCAQMD 24-hour operational PM_{10} LST of 2.5 µg/m3;
- SCAQMD 24-hour operational $PM_{2.5}$ LST of 2.5 µg/m3.

As Shown on Table 3-11, operation 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.

TABLE 3-11 LOCALIZED SIGNIFICANCE SUMMARY OPERATIONS (WITHOUT MITIGATION)

Operation	CO		NO_2	PM_{10}	$PM_{2.5}$
	Averaging Time				
	1-Hour	8-Hour	1-Hour	24-Hours (Operation)	
Peak Day Localized Emissions	0.03	0.02	0.002	3.14e-2	2.90e-2
Background Concentration [A]	3.10	1.70	0.06		
Total Concentration	**3.13**	**1.72**	**0.062**	**3.14e-3**	**2.90e-3**
SCAQMD Localized Significance Threshold	20	9	0.18	2.50	2.50
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**

[A] Highest concentration from the last three years of available data
Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in µg/m³. All others are expressed in ppm

3.8 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific carbon monoxide (CO) "hot spots" is not needed to reach this conclusion.

It has long been recognized that adverse localized CO concentrations ("hot spots") are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions 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 increasingly sophisticated and efficient emissions control technologies, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-3.

A CO "hotspot" would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO (3). As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection (46). To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This hot spot analysis did not predict any violation of CO standards. It can therefore be reasonably concluded that projects (such as the proposed Modular Logistics Center) that are not subject to the extremes in vehicle volumes and vehicle congestion that was evidenced in the 2003 Los Angeles hot spot analysis would similarly not create or result in CO hot spots. Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (47). The proposed Project considered herein would not produce the volume of traffic required to generate a CO hotspot either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations (see Table 3-12). Therefore, CO hotspots are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-12 PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
I-215 NB Ramps & Harley Knox Blvd	734/1,362	--/--	1,731/769	584/751	3,049/2,882
Western Way & Harley Knox Blvd	109/46	--/--	1,686/1,129	1,138/1,761	2,933/2,936
Patterson Ave & Harley Knox Blvd	18/9	47/73	1,678/1,126	1,278/1,753	3,021/2,961
Perris Blvd & Harley Knox Blvd	1,617/792	915/1,399	--/--	413/425	2,945/2,616

Source: Modular Logistics Center (Urban Crossroads, Inc., 2014).

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 10,743 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 December 7, 2012 (17). 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) (27). These indicators are discussed below:

- Consistency Criterion No. 1: The proposed 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 unmitigated localized construction-source emissions will not exceed applicable LSTs, and a less than significant impact is expected.

Operational Impacts

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

The 2012 Air Quality Management Plan (AQMP) demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the Southern California Association of Governments (SCAG), which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in the City of Moreno Valley General Plan is considered to be consistent with the AQMP. The Project site has a specific plan zoned Industrial (I).

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. The Project's proposed land use designation for the subject site does not materially affect the uses allowed or their development intensities as reflected in the adopted City General Plan. The Project is therefore considered to be consistent with the AQMP.

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.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction (without mitigation). Therefore sensitive receptors would not be subject to a significant air quality impact during Project construction.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during operational activity. The proposed Project would not result in a CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.8. 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 proposed 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 proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction 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's solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed 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 NO_2, $PM_{10,}$ and $PM_{2.5}$.

CRITERION 1; REGIONAL ANALYSIS

<u>Construction Impacts</u>

Buildout of land uses in the region and across the Air Basin would result in construction activity-related air emissions from development and redevelopment projects, including emissions associated with construction activities at the Project site. Given that many construction projects occur simultaneously throughout the region, the Air Basin would continue to be subjected to significant, cumulative construction-related impacts. Taken together, cumulative emissions from simultaneous construction projects would exceed every SCAQMD regional threshold (VOC, NOx, CO, SOx, PM10 and PM2.5). The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that prior to application of appropriate mitigation measures, Project construction-source air pollutant emissions will result in exceedances of regional thresholds of NOx, which is considered a cumulatively considerable contribution to the cumulative impact. After implementation of appropriate mitigation measures, project construction-source emissions would be reduced to levels that the SCAQMD considers to be less than cumulatively considerable.

Operational Impacts

The Air Basin is not in attainment of criteria pollutants Ozone, PM10, and PM2.5. As such, the SCAQMD has recognized that the collective effect of all operational activities that emit these pollutants is cumulatively significant. Project operational-source NOx emissions (ozone precursor) that will persist over the life of the Project will exceed applicable SCAQMD regional thresholds. Per SCAQMD significance guidance, these Project-related emissions are thus a cumulatively considerable contribution to the cumulative impact.

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.*

The SCAQMD has recognized 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. Nevertheless, the potential cumulative impacts from the Project and other projects are discussed below. A cumulative project list was developed for this analysis and is shown in Table 3-13.

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.

TABLE 3-13 CUMULATIVE DEVELOPMENT LIST

TAZ	Project Name	Land Use[1]	Quantity	Units[2]
1	PA 06-0152 & PA 06-0153 (First Park Nandina I & II)	High-Cube Warehouse	1,182.918	TSF
2	Moreno Valley Walmart	Free-Standing Discount Store	189.520	TSF
		Gas Station	16	VFP
3A	PA 08-0072 (Overton Moore Properties)	High-Cube Warehouse	520.000	TSF
3B	Harbor Freight Expansion	High-Cube Warehouse	1,279.910	TSF
4	PA 04-0063 (Centerpointe Buildings 8 and 9)	General Light Industrial	361.384	TSF
5	PA 07-0035; PA 07-0039 (Moreno Valley Industrial Park)	General Light Industrial	204.657	TSF
		High-Cube Warehouse	409.920	TSF
6	PA 07-0079 (Indian Business Park)	High-Cube Warehouse	1,560.046	TSF
7	PA 08-0047-0052 (Komar Cactus Plaza)[3]	Hotel	110	RMS
		Fast Food w/Drive Thru	8.000	TSF
		Commercial	42.400	TSF
8	First Inland Logistics Center	High-Cube Warehouse	400.130	TSF
9	TM 33607	Condo/Townhomes	54	DU
10	PA 08-0093 (Centerpointe Business Park II)	General Light Industrial	99.988	TSF
11	PA 06-0021; PA 06-0022; PA 06-0048; PA 06-0049 (Komar Investments)	Warehousing	2,057.400	TSF
12A	PA 06-0017 (Ivan Devries)	Industrial Park	569.200	TSF
12B	Integra Pacific Industrial Facility	High-Cube Warehouse	880.000	TSF
13	PA 09-0004 (Vogel)	High-Cube Warehouse	1,616.133	TSF
14	TM 34748	SFDR	135	DU
15	First Nandina Logistics Center	High-Cube Warehouse	1,450.000	TSF
16	PA 09-0031	Gas Station	12	VFP
17	First Park Nandina III	High-Cube Warehouse	691.960	TSF
	Moreno Valley Commerce Park	High-Cube Warehouse	354.321	TSF
18	March Business Center	General Light Industrial	16.732	TSF
		Warehousing	87.429	TSF
		High-Cube Warehouse	1,380.246	TSF
19A	TM 33810	SFDR	16	DU
19B	TM 34151	SFDR	37	DU
20	373K Industrial Facility	High-Cube Warehouse	373.030	TSF
21	TM 32716	SFDR	57	DU
22	TM 32917	Condo/Townhomes	227	DU
23	TM 33417	Condo/Townhomes	10	DU
24	TM 34988	Condo/Townhomes	251	DU

25A	TM 34216	Condo/Townhomes	40	DU
25B	TM 34681	Condo/Townhomes	49	DU
25C	PA 08-0079-0081 (Winco Foods)	Discount Supermarket	95.440	TSF
		Specialty Retail	14.800	TSF
26	Moreno Beach Marketplace (Lowe's)	Commercial Retail	175.000	TSF
	Auto Mall Specific Plan (Planning Area C)	Commercial Retail	304.500	TSF
	Westridge	High-Cube Warehouse	937.260	TSF
	ProLogis	High-Cube Warehouse	1,916.190	TSF
		Warehousing	328.448	TSF
	World Logistics Center	High-Cube Warehouse	41,400.000	TSF
		Warehousing	200.000	TSF
		Gas Station w/ Market	12	VFP
		Existing SFDR	7	DU
27	March Lifecare Campus Specific Plan[4]	Medical Offices	190.000	TSF
		Commercial Retail	210.000	TSF
		Research & Education	200.000	TSF
		Hospital	50	Beds
		Institutional Residential	660	Beds
28	Alessandro Metrolink Station	Light Rail Transit Station	300	SP
29	Airport Master Plan	Airport Use	559.000	TSF
30	Meridian Business Park North	Industrial Park	5,985.000	TSF
31	SP 341; PP 21552 (Majestic Freeway Business Center)	High-Cube Warehouse	6,200.000	TSF
32	PP 20699 (Oleander Business Park)	Warehousing	1,206.710	TSF
33	Ramona Metrolink Station	Light Rail Transit Station	300	SP
34	PP 22925 (Amstar/Kaliber Development)	Office (258.102 TSF)	258.102	TSF
		Warehousing	409.312	TSF
		General Light Industrial	42.222	TSF
		Retail	10.000	TSF
35	P07-1028 (Alessandro Business Park)	General Light Industrial	652.018	TSF
36	P 05-0113 (IDI)	High-Cube Warehouse	1,750.000	TSF
37	P 05-0192 (Oakmont I)	High-Cube Warehouse	697.600	TSF
38	P 05-0477	High-Cube Warehouse	462.692	TSF
39	Rados Distribution Center	High-Cube Warehouse	1,200.000	TSF
40	Investment Development Services (IDS) II	High-Cube Warehouse	350.000	TSF
41	P 07-09-0018	Warehousing	170.000	TSF
42	P 07-07-0029 (Oakmont II)	High-Cube Warehouse	1,600.000	TSF
43	TR 32707	SFDR	137	DU

44	TR 34716	SFDR	318	DU
45	P 05-0493 (Ridge I)	High-Cube Warehouse	700.000	TSF
46	Ridge II	High-Cube Warehouse	2,000.000	TSF
47	Harvest Landing Specific Plan	SFDR	717	DU
		Condo/Townhomes	1,139	DU
		Sports Park	16.700	AC
		Business Park	1,233.401	TSF
		Shopping Center	73.181	TSF
	Perris Marketplace	Shopping Center	450.000	TSF
48	P 06-0411 (Concrete Batch Plant)	Manufacturing	2.000	TSF
49	Jordan Distribution	High-Cube Warehouse	378.000	TSF
50	Aiere	High-Cube Warehouse	642.000	TSF
51	P 08-11-0005; P 08-11-0006 (Starcrest)	High-Cube Warehouse	454.088	TSF
52A	Stratford Ranch Specific Plan	High-Cube Warehouse	1,725.411	TSF
52B	Stratford Ranch Specific Plan	High-Cube Warehouse	480.000	TSF
		General Light Industrial	120.000	TSF
53	PP 18908	General Light Industrial	133.000	TSF
54	Tract 33869	SFDR	39.000	DU
55	PP 16976	General Light Industrial	85.000	TSF
56	PP 21144	Industrial Park	190.802	TSF
57	Quail Ranch Specific Plan	Private School (K-12)	300	STU
		Golf Course	18	Holes
		Hotel	500	ROOMS
		Specialty Retail	66.667	TSF
		General office	66.667	TSF
		Assisted Living	500	Beds
		Senior Living (Detached)	200	DU
		SFDR	600	DU
58	a TR 32460 (Sussex Capital)	SFDR	58	DU
	b TR 32459 (Sussex Capital)	SFDR	11	DU
	c TR 30411 (Pacific Communities)	SFDR	24	DU
	d TR 33962 (Pacific Scene Homes)	SFDR	31	DU
	e TR 30998 (Pacific Communities)	SFDR	47	DU
59	a Westridge Commerce Center	High-Cube Warehouse	937.260	TSF
	b P06-158 (Gascon)	Commercial Retail	116.360	TSF
	c Auto Mall Specific Plan (PAC)	Commercial Retail	304.500	TSF
	d ProLogis	Warehousing	367.000	TSF
		High-Cube Warehouse	1,901.000	TSF

	e TR 35823 (Stowe Passco)	SFDR	262	DU
		Apartments	216	DU
60	TR 36340	SFDR	275	DU
61	a TR 31771 (Sanchez)	SFDR	25	DU
	b TR 34397 (Winchester Associates)	SFDR	52	DU
	c TR 32645 (Winchester Associates)	SFDR	54	DU
62	Lowe's (Moreno Beach Marketplace)	Home Improvement Store	175.000	TSF
63	a Convenience Store/ Fueling Station	Gas Station w/ Market	30.750	TSF
	b Senior Assisted Living	Assisted Living Units	139	DU
	c TR 31590 (Winchester Associates)	SFDR	96	DU
	d TR 32548 (Gabel, Cook & Associates)	SFDR	107	DU
	e 26th Corp. & Granite Capitol	SFDR	32	DU
	f TR 32218 (Whitney)	SFDR	63	DU
	g Moreno Marketplace	Commercial Retail	93.788	TSF
	h Medical Plaza	Medical Offices	311.633	TSF
64	a Moreno Medical Campus	Medical Offices	80.000	TSF
	b Aqua Bella Specific Plan	SFDR	2,922	DU
	c TR 34329 (Granite Capitol)	SFDR	90	DU
	d Cresta Bella	General Office	30.000	TSF
65	a Villages of Lakeview	SFDR	860	DU
		Condo/Townhomes	1,920	DU
		Elementary School	1,200	STU
		Commercial Retail	100.000	TSF
		Soccer Complex	12	Fields
		City Park	8.900	AC
		County Park	8.100	AC
		Regional Park	107.100	AC
	b Motte Lakeview Ranch	SFDR	847	DU
		Condo/Townhomes	686	DU
		Apartments	467	DU
		Elementary School	650	STU
		Middle School	300	STU
		Commercial Retail	120.000	TSF
		Regional Park	177.000	AC
66	Gateway Area Specific Plan	Commercial Retail	255.000	AC
		General Office	510.000	AC
		Business Park	595.000	AC
		Residential	340.000	AC

67	Moreno Valley Industrial Center (Industrial Area SP)	General Light Industrial	354.810	TSF
68	Centerpointe Business Park	General Light Industrial	356.000	TSF
69	ProLogis/Rolling Hills Ranch Industrial	Heavy Industrial	2,565.684	TSF
70	P05-0493	Logistics	597.370	TSF
71	P07-1028, -0102; and P09-0416, -0418, -0419	General Light Industrial	652.018	TSF
72	Amstar/Kaliber Development, PP22925	General Light Industrial	42.222	TSF
		Heavy Industrial	409.312	TSF
		Commercial Retail	10.000	TSF
		General Office	258.102	TSF
73	TR 31305 / Richmond American	Residential	87	DU
74	TR 32505 / DR Horton	Residential	71	DU
75	TR 34329 / Granite Capitol	Residential	90	DU
76	TR 31814 / Moreno Valley Investors	Residential	60	DU
77	TR 33771 / Creative Design Associates	Residential	12	DU
78	TR 35663 / Kha	Residential	12	DU
79	TR 22180 / Young Homes	Residential	87	DU
80	TR 32515	Residential	161	DU
81	TR 32142	Residential	81	DU
82	Heartland	Residential	922	DU
83	San Michele Industrial Center (Industrial Area SP)	General Light Industrial	865.960	TSF
84	Hidden Canyon	General Light Industrial	2,890.000	TSF
85	Starcrest, P011-0005; 08-11-0006	General Light Industrial	454.088	TSF
86	Commercial Medical Plaza	Medical Offices	311.633	TSF
87	Mountain Bridge Regional Commercial Community	Commercial	1,853.251	TSF
88	Jack Rabbit Trail	Residential	2,000	DU
89	The Preserve / Legacy Highlands SP	Commercial	595.901	TSF
		Residential	3,412	DU
90	South Perris Industrial Phase 1	Logistics	787.700	TSF
91	South Perris Industrial Phase 2	Logistics	3,448.734	TSF
92	South Perris Industrial Phase 3	Logistics	3,166.857	TSF
93	P 04-0343	Warehousing	41.650	TSF
94	P 06-0228	General Light Industrial	149.738	TSF
95	P 06-0378	Senior Housing	429	DU
96	P 11-09-0011	Retail	80.000	TSF
97	P 12-05-0013	Apartments	75	DU
98	P 12-10-0005	High-Cube Warehouse	1,463.887	TSF
99	TR 30850	Residential	496	DU
100	TR 30973	Residential	35	DU

101	TR 31225	Residential	57	DU
102	TR 31226	Residential	82	DU
103	TR 31240	Residential	114	DU
104	TR 31407	Residential	243	DU
105	TR 31650	SFDR	61	DU
106	TR 31659	SFDR	161	DU
107	TR 32041	Residential	122	DU
108	TR 32406	SFDR	15	DU
109	TR 33193	Townhomes	94	DU
110	TR 33338	Residential	75	DU
111	The Gateway Center	SFDR	1,342	DU
		Condo/Townhomes	402	DU
		Apartments	307	DU
		Shopping Center	5.7	AC
		Mixed-Use/Metrolink Station	15.2	AC
		Parks	15.9	AC
112	TTM 31592 (P 13-078) Covey Ranch	SFDR	115	DU

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5 CERTIFICATION

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Modular Logistics Center Project. The information contained in this air quality impact report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 660-1994 ext. 217.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

CALEEMOD EMISSIONS MODEL OUTPUTS

CONSTRUCTION (UNMITIGATED)

Modular Logistics Center (Red Stripes) unmitigated

Riverside-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	1,109.38	1000sqft	25.47	1,109,378.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	551.29	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - information given by the applicant

Construction Phase - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - no on site construction equipment

Trips and VMT - information given by the applicant

Grading -

Vehicle Trips - operational emissions modeled seperately

Energy Use - operational emissions modeled seperately

Water And Wastewater - operational emissions modeled seperately

Solid Waste - operational emissions modeled seperately

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstructionPhase	NumDays	45.00	10.00
tblConstructionPhase	NumDays	45.00	23.00
tblConstructionPhase	NumDays	20.00	13.00
tblConstructionPhase	PhaseEndDate	4/22/2015	4/8/2015
tblConstructionPhase	PhaseEndDate	4/27/2015	4/8/2015
tblConstructionPhase	PhaseEndDate	5/6/2015	4/24/2015
tblConstructionPhase	PhaseStartDate	3/21/2015	3/9/2015

tblConstructionPhase	PhaseStartDate	4/9/2015	3/23/2015
tblConstructionPhase	PhaseStartDate	4/9/2015	3/30/2015
tblEnergyUse	LightingElect	0.88	0.00
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.45	0.00
tblEnergyUse	T24NG	2.11	0.00
tblGrading	MaterialImported	0.00	26,000.00
tblLandUse	LandUseSquareFeet	1,109,380.00	1,109,378.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblSolidWaste	SolidWasteGenerationRate	1,042.82	0.00

tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	33.00	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	25.00
tblVehicleTrips	ST_TR	2.59	0.00
tblVehicleTrips	SU_TR	2.59	0.00
tblVehicleTrips	WD_TR	2.59	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	256,544,125.00	0.00

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					
2015	18.7830	247.3961	147.0515	0.2672	12.9935	9.2125	22.2061	1.8677	8.4754	10.3431	0.0000	27,684.0873	27,684.0873	5.1847	0.0000	27,792.9654
Total	**18.7830**	**247.3961**	**147.0515**	**0.2672**	**12.9935**	**9.2125**	**22.2061**	**1.8677**	**8.4754**	**10.3431**	**0.0000**	**27,684.0873**	**27,684.0873**	**5.1847**	**0.0000**	**27,792.9654**

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					
2015	18.7830	247.3961	147.0515	0.2672	12.9935	9.2125	22.2061	1.8677	8.4754	10.3431	0.0000	27,684.0873	27,684.0873	5.1847	0.0000	27,792.9654
Total	**18.7830**	**247.3961**	**147.0515**	**0.2672**	**12.9935**	**9.2125**	**22.2061**	**1.8677**	**8.4754**	**10.3431**	**0.0000**	**27,684.0873**	**27,684.0873**	**5.1847**	**0.0000**	**27,792.9654**

	ROG	**NOx**	**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	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**	**0.0000**	**5.2000e-004**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**	**0.0000**	**0.3168**

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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**	**0.0000**	**5.2000e-004**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**	**0.0000**	**0.3168**

	ROG	NOx	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading Phase 1	Grading	3/9/2015	3/20/2015	5	10	
2	soil import	Grading	3/9/2015	4/8/2015	5	23	
3	Grading Phase 1.1	Site Preparation	3/23/2015	4/8/2015	5	13	
4	Plumbing and Electrical	Trenching	3/30/2015	4/24/2015	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Phase 1	Excavators	0	8.00	162	0.38
Grading Phase 1	Graders	1	8.00	174	0.41
Grading Phase 1	Off-Highway Trucks	2	8.00	189	0.50
Grading Phase 1	Rubber Tired Dozers	0	8.00	255	0.40
Grading Phase 1	Rubber Tired Loaders	1	8.00	199	0.36
Grading Phase 1	Scrapers	9	8.00	361	0.48
Grading Phase 1	Tractors/Loaders/Backhoes	0	8.00	97	0.37
soil import	Excavators	0	8.00	162	0.38
soil import	Graders	0	8.00	174	0.41
soil import	Rubber Tired Dozers	0	8.00	255	0.40
soil import	Scrapers	0	8.00	361	0.48
soil import	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading Phase 1.1	Off-Highway Trucks	1	8.00	189	0.50
Grading Phase 1.1	Other Construction Equipment	1	8.00	171	0.42
Grading Phase 1.1	Rubber Tired Dozers	0	8.00	255	0.40
Grading Phase 1.1	Scrapers	1	8.00	361	0.48
Grading Phase 1.1	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Plumbing and Electrical	Cranes	0	8.00	226	0.29
Plumbing and Electrical	Excavators	1	8.00	162	0.38
Plumbing and Electrical	Forklifts	0	8.00	89	0.20
Plumbing and Electrical	Generator Sets	0	8.00	84	0.74
Plumbing and Electrical	Rubber Tired Loaders	1	8.00	199	0.36
Plumbing and Electrical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Plumbing and Electrical	Welders	0	8.00	46	0.45

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
Grading Phase 1	13	25.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
soil import	0	0.00	0.00	3,250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Phase 1.1	3	25.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Plumbing and Electrical	3	25.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Grading Phase 1 - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.0748	0.0000	10.0748	1.0878	0.0000	1.0878			0.0000			0.0000
Off-Road	16.1405	202.5170	117.3734	0.1626		8.3590	8.3590		7.6903	7.6903		17,074.0291	17,074.0291	5.0973		17,181.0726
Total	**16.1405**	**202.5170**	**117.3734**	**0.1626**	**10.0748**	**8.3590**	**18.4338**	**1.0878**	**7.6903**	**8.7782**		**17,074.0291**	**17,074.0291**	**5.0973**		**17,181.0726**

3.2 Grading Phase 1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

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					10.0748	0.0000	10.0748	1.0878	0.0000	1.0878			0.0000			0.0000
Off-Road	16.1405	202.5170	117.3734	0.1626		8.3590	8.3590		7.6903	7.6903	0.0000	17,074.0291	17,074.0291	5.0973		17,181.0726
Total	**16.1405**	**202.5170**	**117.3734**	**0.1626**	**10.0748**	**8.3590**	**18.4338**	**1.0878**	**7.6903**	**8.7782**	**0.0000**	**17,074.0291**	**17,074.0291**	**5.0973**		**17,181.0726**

3.2 Grading Phase 1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

3.3 soil import - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1432	0.0000	0.1432	0.0217	0.0000	0.0217			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1432**	**0.0000**	**0.1432**	**0.0217**	**0.0000**	**0.0217**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 soil import - 2015

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	2.4940	44.2549	27.7834	0.1005	2.4647	0.8419	3.3067	0.6751	0.7744	1.4495		10,240.9855	10,240.9855	0.0735		10,242.5283
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.4940**	**44.2549**	**27.7834**	**0.1005**	**2.4647**	**0.8419**	**3.3067**	**0.6751**	**0.7744**	**1.4495**		**10,240.9855**	**10,240.9855**	**0.0735**		**10,242.5283**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1432	0.0000	0.1432	0.0217	0.0000	0.0217			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1432**	**0.0000**	**0.1432**	**0.0217**	**0.0000**	**0.0217**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 soil import - 2015

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	2.4940	44.2549	27.7834	0.1005	2.4647	0.8419	3.3067	0.6751	0.7744	1.4495		10,240.98 55	10,240.98 55	0.0735		10,242.52 83
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.4940**	**44.2549**	**27.7834**	**0.1005**	**2.4647**	**0.8419**	**3.3067**	**0.6751**	**0.7744**	**1.4495**		**10,240.98 55**	**10,240.98 55**	**0.0735**		**10,242.52 83**

3.4 Grading Phase 1.1 - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0605	0.0000	1.0605	0.1145	0.0000	0.1145			0.0000			0.0000
Off-Road	2.9378	35.2283	19.0270	0.0291		1.5425	1.5425		1.4191	1.4191		3,056.075 0	3,056.075 0	0.9124		3,075.234 7
Total	**2.9378**	**35.2283**	**19.0270**	**0.0291**	**1.0605**	**1.5425**	**2.6030**	**0.1145**	**1.4191**	**1.5337**		**3,056.075 0**	**3,056.075 0**	**0.9124**		**3,075.234 7**

3.4 Grading Phase 1.1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

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					1.0605	0.0000	1.0605	0.1145	0.0000	0.1145			0.0000			0.0000
Off-Road	2.9378	35.2283	19.0270	0.0291		1.5425	1.5425		1.4191	1.4191	0.0000	3,056.0750	3,056.0750	0.9124		3,075.2347
Total	**2.9378**	**35.2283**	**19.0270**	**0.0291**	**1.0605**	**1.5425**	**2.6030**	**0.1145**	**1.4191**	**1.5337**	**0.0000**	**3,056.0750**	**3,056.0750**	**0.9124**		**3,075.2347**

3.4 Grading Phase 1.1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

3.5 Plumbing and Electrical - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2894	15.0811	7.7346	0.0145		0.7404	0.7404		0.6812	0.6812		1,526.0608	1,526.0608	0.4556		1,535.6282
Total	**1.2894**	**15.0811**	**7.7346**	**0.0145**		**0.7404**	**0.7404**		**0.6812**	**0.6812**		**1,526.0608**	**1,526.0608**	**0.4556**		**1,535.6282**

3.5 Plumbing and Electrical - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

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	1.2894	15.0811	7.7346	0.0145		0.7404	0.7404		0.6812	0.6812	0.0000	1,526.0608	1,526.0608	0.4556		1,535.6282
Total	**1.2894**	**15.0811**	**7.7346**	**0.0145**		**0.7404**	**0.7404**		**0.6812**	**0.6812**	**0.0000**	**1,526.0608**	**1,526.0608**	**0.4556**		**1,535.6282**

3.5 Plumbing and Electrical - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.1018	0.1346	1.3631	3.0600e-003	0.2794	1.8200e-003	0.2813	0.0741	1.6700e-003	0.0758		263.1087	263.1087	0.0131		263.3837
Total	**0.1486**	**0.6243**	**1.8947**	**4.1100e-003**	**0.3109**	**0.0116**	**0.3225**	**0.0831**	**0.0106**	**0.0937**		**369.0728**	**369.0728**	**0.0139**		**369.3645**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.463772	0.070121	0.176196	0.171120	0.044771	0.007404	0.012633	0.041363	0.000985	0.001063	0.006436	0.000905	0.003230

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Unmitigated	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Emissions Model Outputs

Construction (Mitigated)

Modular Logistics Center (Red Stripes) mitigated

Riverside-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	1,109.38	1000sqft	25.47	1,109,378.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	551.29	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - information given by the applicant

Construction Phase - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - information given by the applicant

Off-road Equipment - no on site construction equipment

Trips and VMT - information given by the applicant

Grading -

Vehicle Trips - operational emissions modeled seperately

Energy Use - operational emissions modeled seperately

Water And Wastewater - operational emissions modeled seperately

Solid Waste - operational emissions modeled seperately

Construction Off-road Equipment Mitigation - tier 3 mitigation to all equipment over 150 HP

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
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
tblConstructionPhase	NumDays	45.00	10.00
tblConstructionPhase	NumDays	45.00	23.00

tblConstructionPhase	NumDays	20.00	13.00
tblConstructionPhase	PhaseEndDate	4/22/2015	4/8/2015
tblConstructionPhase	PhaseEndDate	4/27/2015	4/8/2015
tblConstructionPhase	PhaseEndDate	5/6/2015	4/24/2015
tblConstructionPhase	PhaseStartDate	3/21/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	4/9/2015	3/23/2015
tblConstructionPhase	PhaseStartDate	4/9/2015	3/30/2015
tblEnergyUse	LightingElect	0.88	0.00
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.45	0.00
tblEnergyUse	T24NG	2.11	0.00
tblGrading	MaterialImported	0.00	26,000.00
tblLandUse	LandUseSquareFeet	1,109,380.00	1,109,378.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblSolidWaste	SolidWasteGenerationRate	1,042.82	0.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblVehicleTrips	ST_TR	2.59	0.00
tblVehicleTrips	SU_TR	2.59	0.00
tblVehicleTrips	WD_TR	2.59	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	256,544,125.00	0.00

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					
2015	11.5470	154.3745	88.8957	0.1921	7.6351	5.4563	13.0915	1.2803	5.0197	6.3000	0.0000	19,808.5654	19,808.5654	2.8466	0.0000	19,868.3437
Total	**11.5470**	**154.3745**	**88.8957**	**0.1921**	**7.6351**	**5.4563**	**13.0915**	**1.2803**	**5.0197**	**6.3000**	**0.0000**	**19,808.5654**	**19,808.5654**	**2.8466**	**0.0000**	**19,868.3437**

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					
2015	5.9698	96.5382	75.4631	0.1921	4.6368	2.9368	7.5736	0.9528	2.8079	3.7607	0.0000	19,808.5654	19,808.5654	2.8466	0.0000	19,868.3437
Total	**5.9698**	**96.5382**	**75.4631**	**0.1921**	**4.6368**	**2.9368**	**7.5736**	**0.9528**	**2.8079**	**3.7607**	**0.0000**	**19,808.5654**	**19,808.5654**	**2.8466**	**0.0000**	**19,868.3437**

	ROG	**NOx**	**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	**48.30**	**37.46**	**15.11**	**0.00**	**39.27**	**46.18**	**42.15**	**25.58**	**44.06**	**40.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**	**0.0000**	**5.2000e-004**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**	**0.0000**	**0.3168**

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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**	**0.0000**	**5.2000e-004**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**	**0.0000**	**0.3168**

	ROG	NOx	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading Phase 1	Grading	3/9/2015	3/20/2015	5	10	
2	soil import	Grading	3/9/2015	4/8/2015	5	23	
3	Grading Phase 1.1	Site Preparation	3/23/2015	4/8/2015	5	13	
4	Plumbing and Electrical	Trenching	3/30/2015	4/24/2015	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Phase 1	Excavators	0	8.00	162	0.38
Grading Phase 1	Graders	1	8.00	174	0.41
Grading Phase 1	Off-Highway Trucks	2	8.00	189	0.50
Grading Phase 1	Rubber Tired Dozers	0	8.00	255	0.40
Grading Phase 1	Rubber Tired Loaders	1	8.00	199	0.36
Grading Phase 1	Scrapers	4	8.00	361	0.48
Grading Phase 1	Tractors/Loaders/Backhoes	0	8.00	97	0.37
soil import	Excavators	0	8.00	162	0.38
soil import	Graders	0	8.00	174	0.41
soil import	Rubber Tired Dozers	0	8.00	255	0.40
soil import	Scrapers	0	8.00	361	0.48
soil import	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading Phase 1.1	Off-Highway Trucks	1	8.00	189	0.50
Grading Phase 1.1	Other Construction Equipment	1	8.00	171	0.42
Grading Phase 1.1	Rubber Tired Dozers	0	8.00	255	0.40
Grading Phase 1.1	Scrapers	1	8.00	361	0.48
Grading Phase 1.1	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Plumbing and Electrical	Cranes	0	8.00	226	0.29
Plumbing and Electrical	Excavators	1	8.00	162	0.38
Plumbing and Electrical	Forklifts	0	8.00	89	0.20
Plumbing and Electrical	Generator Sets	0	8.00	84	0.74
Plumbing and Electrical	Rubber Tired Loaders	1	8.00	199	0.36
Plumbing and Electrical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Plumbing and Electrical	Welders	0	8.00	46	0.45

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
Grading Phase 1	8	20.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
soil import	0	0.00	0.00	3,250.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Phase 1.1	3	8.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Plumbing and Electrical	3	8.00	5.00	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 Grading Phase 1 - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.7723	0.0000	4.7723	0.5153	0.0000	0.5153			0.0000			0.0000
Off-Road	8.9248	109.5223	59.4903	0.0881		4.6032	4.6032		4.2349	4.2349		9,251.1288	9,251.1288	2.7619		9,309.1277
Total	**8.9248**	**109.5223**	**59.4903**	**0.0881**	**4.7723**	**4.6032**	**9.3754**	**0.5153**	**4.2349**	**4.7502**		**9,251.1288**	**9,251.1288**	**2.7619**		**9,309.1277**

3.2 Grading Phase 1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0814	0.1077	1.0905	2.4500e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3400e-003	0.0606		210.4869	210.4869	0.0105		210.7069
Total	**0.1282**	**0.5974**	**1.6221**	**3.5000e-003**	**0.2550**	**0.0112**	**0.2662**	**0.0683**	**0.0103**	**0.0786**		**316.4511**	**316.4511**	**0.0113**		**316.6877**

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					1.8612	0.0000	1.8612	0.2010	0.0000	0.2010			0.0000			0.0000
Off-Road	3.3476	51.6859	46.0576	0.0881		2.0837	2.0837		2.0232	2.0232	0.0000	9,251.1288	9,251.1288	2.7619		9,309.1277
Total	**3.3476**	**51.6859**	**46.0576**	**0.0881**	**1.8612**	**2.0837**	**3.9449**	**0.2010**	**2.0232**	**2.2242**	**0.0000**	**9,251.1288**	**9,251.1288**	**2.7619**		**9,309.1277**

3.2 Grading Phase 1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0814	0.1077	1.0905	2.4500e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3400e-003	0.0606		210.4869	210.4869	0.0105		210.7069
Total	**0.1282**	**0.5974**	**1.6221**	**3.5000e-003**	**0.2550**	**0.0112**	**0.2662**	**0.0683**	**0.0103**	**0.0786**		**316.4511**	**316.4511**	**0.0113**		**316.6877**

3.3 soil import - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1432	0.0000	0.1432	0.0217	0.0000	0.0217			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1432**	**0.0000**	**0.1432**	**0.0217**	**0.0000**	**0.0217**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 soil import - 2015

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	2.4940	44.2549	27.7834	0.1005	2.4647	0.8419	3.3067	0.6751	0.7744	1.4495		10,240.98 55	10,240.98 55	0.0735		10,242.52 83
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.4940**	**44.2549**	**27.7834**	**0.1005**	**2.4647**	**0.8419**	**3.3067**	**0.6751**	**0.7744**	**1.4495**		**10,240.98 55**	**10,240.98 55**	**0.0735**		**10,242.52 83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0558	0.0000	0.0558	8.4500e-003	0.0000	8.4500e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0558**	**0.0000**	**0.0558**	**8.4500e-003**	**0.0000**	**8.4500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 soil import - 2015

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	2.4940	44.2549	27.7834	0.1005	2.4647	0.8419	3.3067	0.6751	0.7744	1.4495		10,240.98 55	10,240.98 55	0.0735		10,242.52 83
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.4940**	**44.2549**	**27.7834**	**0.1005**	**2.4647**	**0.8419**	**3.3067**	**0.6751**	**0.7744**	**1.4495**		**10,240.98 55**	**10,240.98 55**	**0.0735**		**10,242.52 83**

3.4 Grading Phase 1.1 - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0605	0.0000	1.0605	0.1145	0.0000	0.1145			0.0000			0.0000
Off-Road	2.9378	35.2283	19.0270	0.0291		1.5425	1.5425		1.4191	1.4191		3,056.075 0	3,056.075 0	0.9124		3,075.234 7
Total	**2.9378**	**35.2283**	**19.0270**	**0.0291**	**1.0605**	**1.5425**	**2.6030**	**0.1145**	**1.4191**	**1.5337**		**3,056.075 0**	**3,056.075 0**	**0.9124**		**3,075.234 7**

3.4 Grading Phase 1.1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0326	0.0431	0.4362	9.8000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1948	84.1948	4.1900e-003		84.2828
Total	**0.0794**	**0.5328**	**0.9679**	**2.0300e-003**	**0.1209**	**0.0103**	**0.1312**	**0.0327**	**9.4900e-003**	**0.0422**		**190.1589**	**190.1589**	**4.9800e-003**		**190.2636**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4136	0.0000	0.4136	0.0447	0.0000	0.0447			0.0000			0.0000
Off-Road	1.3077	18.7662	15.7993	0.0291		0.7887	0.7887		0.7585	0.7585	0.0000	3,056.0750	3,056.0750	0.9124		3,075.2347
Total	**1.3077**	**18.7662**	**15.7993**	**0.0291**	**0.4136**	**0.7887**	**1.2023**	**0.0447**	**0.7585**	**0.8031**	**0.0000**	**3,056.0750**	**3,056.0750**	**0.9124**		**3,075.2347**

3.4 Grading Phase 1.1 - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0326	0.0431	0.4362	9.8000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1948	84.1948	4.1900e-003		84.2828
Total	**0.0794**	**0.5328**	**0.9679**	**2.0300e-003**	**0.1209**	**0.0103**	**0.1312**	**0.0327**	**9.4900e-003**	**0.0422**		**190.1589**	**190.1589**	**4.9800e-003**		**190.2636**

3.5 Plumbing and Electrical - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2894	15.0811	7.7346	0.0145		0.7404	0.7404		0.6812	0.6812		1,526.060 8	1,526.060 8	0.4556		1,535.628 2
Total	**1.2894**	**15.0811**	**7.7346**	**0.0145**		**0.7404**	**0.7404**		**0.6812**	**0.6812**		**1,526.060 8**	**1,526.060 8**	**0.4556**		**1,535.628 2**

3.5 Plumbing and Electrical - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0326	0.0431	0.4362	9.8000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1948	84.1948	4.1900e-003		84.2828
Total	**0.0794**	**0.5328**	**0.9679**	**2.0300e-003**	**0.1209**	**0.0103**	**0.1312**	**0.0327**	**9.4900e-003**	**0.0422**		**190.1589**	**190.1589**	**4.9800e-003**		**190.2636**

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	0.6423	8.8824	9.7280	0.0145		0.5014	0.5014		0.4799	0.4799	0.0000	1,526.0608	1,526.0608	0.4556		1,535.6282
Total	**0.6423**	**8.8824**	**9.7280**	**0.0145**		**0.5014**	**0.5014**		**0.4799**	**0.4799**	**0.0000**	**1,526.0608**	**1,526.0608**	**0.4556**		**1,535.6282**

3.5 Plumbing and Electrical - 2015

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	0.0468	0.4897	0.5317	1.0500e-003	0.0315	9.7400e-003	0.0412	8.9900e-003	8.9600e-003	0.0180		105.9641	105.9641	7.9000e-004		105.9808
Worker	0.0326	0.0431	0.4362	9.8000e-004	0.0894	5.8000e-004	0.0900	0.0237	5.3000e-004	0.0243		84.1948	84.1948	4.1900e-003		84.2828
Total	**0.0794**	**0.5328**	**0.9679**	**2.0300e-003**	**0.1209**	**0.0103**	**0.1312**	**0.0327**	**9.4900e-003**	**0.0422**		**190.1589**	**190.1589**	**4.9800e-003**		**190.2636**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	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
0.463772	0.070121	0.176196	0.171120	0.044771	0.007404	0.012633	0.041363	0.000985	0.001063	0.006436	0.000905	0.003230

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Unmitigated	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Emissions Model Outputs

Operations (Trucks)

Modular Logistics Center (Trucks Only)

Riverside-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	1,109.38	1000sqft	25.47	1,109,380.00	0
Parking Lot	371.00	Space	3.34	148,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	551.29	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - construction modeled seperately

Off-road Equipment - based on construction of similiar projects

Off-road Equipment - construction modeled seperately

Trips and VMT -

Demolition -

Grading -

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on a weighted average

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Area Coating - consistent with passenger model

Energy Use - based on a 2015 opening

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

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Operational Off-Road Equipment - based on CARB Cargo Handling Equipment Yard Truck Emission Testing Report. hours per day based on the Port of Long Beach Air Emissions Inventory (June 2008)

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1670748	1675554
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.39
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00

tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleTrips	CNW_TL	6.90	61.00
tblVehicleTrips	CW_TL	16.60	61.00
tblVehicleTrips	ST_TR	2.59	0.40
tblVehicleTrips	SU_TR	2.59	0.40
tblVehicleTrips	WD_TR	2.59	0.40
tblWater	IndoorWaterUseRate	256,544,125.00	6,507,585.00
tblWater	OutdoorWaterUseRate	0.00	6,571,460.00

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**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	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Energy	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
Mobile	13.5718	310.2028	118.4285	0.7659	21.9846	6.3972	28.3818	6.0795	5.8850	11.9645		78,030.3351	78,030.3351	0.5559		78,042.0087
Offroad	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.1717	1,402.1717	0.4186		1,410.9624
Total	**46.5453**	**324.0021**	**122.8999**	**0.7831**	**21.9846**	**6.8737**	**28.8584**	**6.0795**	**6.3274**	**12.4068**		**80,198.0437**	**80,198.0437**	**0.9901**	**0.0140**	**80,223.1848**

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	lb/day										lb/day					
Area	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Energy	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006
Mobile	13.5718	310.2028	118.4285	0.7659	21.9846	6.3972	28.3818	6.0795	5.8850	11.9645		78,030.3351	78,030.3351	0.5559		78,042.0087
Offroad	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.1717	1,402.1717	0.4186		1,410.9624
Total	**46.5281**	**323.8449**	**122.7679**	**0.7822**	**21.9846**	**6.8618**	**28.8464**	**6.0795**	**6.3154**	**12.3949**		**80,009.4223**	**80,009.4223**	**0.9865**	**0.0106**	**80,033.4154**

	ROG	NOx	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	**1.96**	**4.11**	**3.18**	**1.83**	**0.00**	**6.39**	**1.52**	**0.00**	**6.40**	**3.27**	**0.00**	**1.98**	**1.98**	**42.64**	**24.66**	**2.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	1/1/2014	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	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					
Unmitigated	13.5718	310.2028	118.4285	0.7659	21.9846	6.3972	28.3818	6.0795	5.8850	11.9645		78,030.3351	78,030.3351	0.5559		78,042.0087
Mitigated	13.5718	310.2028	118.4285	0.7659	21.9846	6.3972	28.3818	6.0795	5.8850	11.9645		78,030.3351	78,030.3351	0.5559		78,042.0087

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	443.75	443.75	443.75	9,188,472	9,188,472
Total	443.75	443.75	443.75	9,188,472	9,188,472

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	61.00	8.40	61.00	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
0.000000	0.000000	0.000000	0.000000	0.125000	0.000000	0.125000	0.750000	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

	ROG	NOx	CO	SO2	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 Unmitigated	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
NaturalGas Mitigated	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6504.31	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
Total		**0.0701**	**0.6377**	**0.5357**	**3.8300e-003**		**0.0485**	**0.0485**		**0.0485**	**0.0485**		**765.2130**	**765.2130**	**0.0147**	**0.0140**	**769.8699**

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	4.90103	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0529**	**0.4805**	**0.4036**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**		**576.5915**	**576.5915**	**0.0111**	**0.0106**	**580.1006**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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					
Unmitigated	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Mitigated	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437

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	7.0873					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.9040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0155	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Total	**32.0068**	**1.5100e-003**	**0.1563**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**		**0.3240**	**0.3240**	**9.4000e-004**		**0.3437**

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	7.0873					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.9040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0155	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Total	**32.0068**	**1.5100e-003**	**0.1563**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**		**0.3240**	**0.3240**	**9.4000e-004**		**0.3437**

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	4	4.00	260	200	0.39	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Tractors/Loaders/ Backhoes	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.171 7	1,402.171 7	0.4186		1,410.962 4
Total	**0.8966**	**13.1601**	**3.7795**	**0.0134**		**0.4275**	**0.4275**		**0.3933**	**0.3933**		**1,402.171 7**	**1,402.171 7**	**0.4186**		**1,410.962 4**

10.0 Vegetation

Modular Logistics Center (Trucks Only)

Riverside-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	1,109.38	1000sqft	25.47	1,109,380.00	0
Parking Lot	371.00	Space	3.34	148,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	551.29	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - construction modeled seperately

Off-road Equipment - based on construction of similiar projects

Off-road Equipment - construction modeled seperately

Trips and VMT -

Demolition -

Grading -

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on a weighted average

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Area Coating - consistent with passenger model

Energy Use - based on a 2015 opening

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

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Operational Off-Road Equipment - based on CARB Cargo Handling Equipment Yard Truck Emission Testing Report. hours per day based on the Port of Long Beach Air Emissions Inventory (June 2008)

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1670748	1675554
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.39
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD1	0.04	0.13
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00

tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleTrips	CNW_TL	6.90	61.00
tblVehicleTrips	CW_TL	16.60	61.00
tblVehicleTrips	ST_TR	2.59	0.40
tblVehicleTrips	SU_TR	2.59	0.40
tblVehicleTrips	WD_TR	2.59	0.40
tblWater	IndoorWaterUseRate	256,544,125.00	6,507,585.00
tblWater	OutdoorWaterUseRate	0.00	6,571,460.00

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**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	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Energy	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
Mobile	13.8240	323.1359	124.0017	0.7653	21.9846	6.4046	28.3892	6.0795	5.8918	11.9713		77,960.5036	77,960.5036	0.5585		77,972.2318
Offroad	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.1717	1,402.1717	0.4186		1,410.9624
Total	**46.7975**	**336.9352**	**128.4732**	**0.7825**	**21.9846**	**6.8811**	**28.8658**	**6.0795**	**6.3342**	**12.4136**		**80,128.2122**	**80,128.2122**	**0.9927**	**0.0140**	**80,153.4078**

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	lb/day										lb/day					
Area	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Energy	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006
Mobile	13.8240	323.1359	124.0017	0.7653	21.9846	6.4046	28.3892	6.0795	5.8918	11.9713		77,960.5036	77,960.5036	0.5585		77,972.2318
Offroad	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.1717	1,402.1717	0.4186		1,410.9624
Total	**46.7802**	**336.7780**	**128.3411**	**0.7816**	**21.9846**	**6.8692**	**28.8538**	**6.0795**	**6.3222**	**12.4017**		**79,939.5908**	**79,939.5908**	**0.9891**	**0.0106**	**79,963.6385**

	ROG	NOx	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	**1.95**	**3.95**	**3.04**	**1.83**	**0.00**	**6.39**	**1.52**	**0.00**	**6.40**	**3.26**	**0.00**	**1.99**	**1.99**	**42.53**	**24.66**	**2.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	1/1/2014	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	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					
Unmitigated	13.8240	323.1359	124.0017	0.7653	21.9846	6.4046	28.3892	6.0795	5.8918	11.9713		77,960.5036	77,960.5036	0.5585		77,972.2318
Mitigated	13.8240	323.1359	124.0017	0.7653	21.9846	6.4046	28.3892	6.0795	5.8918	11.9713		77,960.5036	77,960.5036	0.5585		77,972.2318

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	443.75	443.75	443.75	9,188,472	9,188,472
Total	443.75	443.75	443.75	9,188,472	9,188,472

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	61.00	8.40	61.00	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
0.000000	0.000000	0.000000	0.000000	0.125000	0.000000	0.125000	0.750000	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

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 Unmitigated	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
NaturalGas Mitigated	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006

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					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6504.31	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2130	765.2130	0.0147	0.0140	769.8699
Total		**0.0701**	**0.6377**	**0.5357**	**3.8300e-003**		**0.0485**	**0.0485**		**0.0485**	**0.0485**		**765.2130**	**765.2130**	**0.0147**	**0.0140**	**769.8699**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.90103	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5915	576.5915	0.0111	0.0106	580.1006
Total		**0.0529**	**0.4805**	**0.4036**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**		**576.5915**	**576.5915**	**0.0111**	**0.0106**	**580.1006**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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					
Unmitigated	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Mitigated	32.0068	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437

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	7.0873					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.9040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0155	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Total	**32.0068**	**1.5100e-003**	**0.1563**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**		**0.3240**	**0.3240**	**9.4000e-004**		**0.3437**

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	7.0873					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.9040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0155	1.5100e-003	0.1563	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004		0.3240	0.3240	9.4000e-004		0.3437
Total	**32.0068**	**1.5100e-003**	**0.1563**	**1.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**		**0.3240**	**0.3240**	**9.4000e-004**		**0.3437**

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	4	4.00	260	200	0.39	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Tractors/Loaders/ Backhoes	0.8966	13.1601	3.7795	0.0134		0.4275	0.4275		0.3933	0.3933		1,402.171 7	1,402.171 7	0.4186		1,410.962 4
Total	**0.8966**	**13.1601**	**3.7795**	**0.0134**		**0.4275**	**0.4275**		**0.3933**	**0.3933**		**1,402.171 7**	**1,402.171 7**	**0.4186**		**1,410.962 4**

10.0 Vegetation

CALEEMOD EMISSIONS MODEL OUTPUTS

OPERATIONS (PASSENGER CARS)

Modular Logistics Center (Passenger Only)

Riverside-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	1,109.38	1000sqft	25.47	1,109,378.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	551.29	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - construction emissions modeled seperately

Off-road Equipment - based on construction of similiar projects

Off-road Equipment - construction emissions modeled seperately

Trips and VMT -

Demolition -

Grading -

Architectural Coating - based on information given by the applicant

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on default

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use - based on a 2015 opening

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014_

Construction Off-road Equipment Mitigation - tier 3 mitigation nto all construction equipment greater than 150 HP

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	45.00	1.00
tblGrading	AcresOfGrading	0.00	6.00
tblLandUse	LandUseSquareFeet	1,109,380.00	1,109,378.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00

tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleTrips	CNW_TL	6.90	9.50
tblVehicleTrips	CW_TL	16.60	9.50
tblVehicleTrips	ST_TR	2.59	1.28
tblVehicleTrips	SU_TR	2.59	1.28
tblVehicleTrips	WD_TR	2.59	1.28
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

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					
2015	2.8824	31.0467	23.5265	0.0275	12.5304	1.6897	14.2201	4.0358	1.5545	5.5904	0.0000	2,849.7158	2,849.7158	0.8129	0.0000	2,866.7862
Total	**2.8824**	**31.0467**	**23.5265**	**0.0275**	**12.5304**	**1.6897**	**14.2201**	**4.0358**	**1.5545**	**5.5904**	**0.0000**	**2,849.7158**	**2,849.7158**	**0.8129**	**0.0000**	**2,866.7862**

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					
2015	2.8824	31.0467	23.5265	0.0275	4.9755	1.6897	6.6652	1.5975	1.5545	3.1520	0.0000	2,849.7158	2,849.7158	0.8129	0.0000	2,866.7862
Total	**2.8824**	**31.0467**	**23.5265**	**0.0275**	**4.9755**	**1.6897**	**6.6652**	**1.5975**	**1.5545**	**3.1520**	**0.0000**	**2,849.7158**	**2,849.7158**	**0.8129**	**0.0000**	**2,866.7862**

	ROG	NOx	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	0.00	0.00	0.00	0.00	60.29	0.00	53.13	60.42	0.00	43.62	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685
Mobile	3.3955	2.8576	39.3037	0.1020	9.5600	0.0497	9.6097	2.5343	0.0455	2.5797		8,625.2969	8,625.2969	0.3329		8,632.2879
Total	**37.5910**	**3.4967**	**39.9835**	**0.1059**	**9.5600**	**0.0987**	**9.6587**	**2.5343**	**0.0945**	**2.6287**		**9,390.8072**	**9,390.8072**	**0.3484**	**0.0140**	**9,402.4732**

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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
Mobile	3.3644	2.7569	37.8903	0.0979	9.1629	0.0480	9.2109	2.4290	0.0439	2.4729		8,275.3741	8,275.3741	0.3204		8,282.1018
Total	**37.5425**	**3.2388**	**38.4381**	**0.1008**	**9.1629**	**0.0850**	**9.2479**	**2.4290**	**0.0809**	**2.5099**		**8,852.2633**	**8,852.2633**	**0.3323**	**0.0106**	**8,862.5182**

	ROG	NOx	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	0.13	7.37	3.87	4.81	4.15	13.85	4.25	4.15	14.31	4.52	0.00	5.73	5.73	4.64	24.66	5.74

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/21/2015	9/21/2015	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	8.00	174	0.41
Grading	Off-Highway Trucks	0	8.00	189	0.50
Grading	Rubber Tired Loaders	0	8.00	199	0.36
Grading	Scrapers	0	8.00	361	0.48
Grading	Excavators	2	8.00	162	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	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
Grading	5	13.00	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

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3851	0.0000	12.3851	3.9973	0.0000	3.9973			0.0000			0.0000
Off-Road	2.8270	30.9810	22.7060	0.0257		1.6888	1.6888		1.5537	1.5537		2,700.0167	2,700.0167	0.8061		2,716.9441
Total	**2.8270**	**30.9810**	**22.7060**	**0.0257**	**12.3851**	**1.6888**	**14.0739**	**3.9973**	**1.5537**	**5.5509**		**2,700.0167**	**2,700.0167**	**0.8061**		**2,716.9441**

3.2 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0657	0.8204	1.7400e-003	0.1453	9.5000e-004	0.1463	0.0385	8.7000e-004	0.0394		149.6991	149.6991	6.8100e-003		149.8421
Total	**0.0554**	**0.0657**	**0.8204**	**1.7400e-003**	**0.1453**	**9.5000e-004**	**0.1463**	**0.0385**	**8.7000e-004**	**0.0394**		**149.6991**	**149.6991**	**6.8100e-003**		**149.8421**

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					4.8302	0.0000	4.8302	1.5589	0.0000	1.5589			0.0000			0.0000
Off-Road	2.8270	30.9810	22.7060	0.0257		1.6888	1.6888		1.5537	1.5537	0.0000	2,700.0167	2,700.0167	0.8061		2,716.9441
Total	**2.8270**	**30.9810**	**22.7060**	**0.0257**	**4.8302**	**1.6888**	**6.5189**	**1.5589**	**1.5537**	**3.1126**	**0.0000**	**2,700.0167**	**2,700.0167**	**0.8061**		**2,716.9441**

3.2 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0554	0.0657	0.8204	1.7400e-003	0.1453	9.5000e-004	0.1463	0.0385	8.7000e-004	0.0394		149.6991	149.6991	6.8100e-003		149.8421
Total	**0.0554**	**0.0657**	**0.8204**	**1.7400e-003**	**0.1453**	**9.5000e-004**	**0.1463**	**0.0385**	**8.7000e-004**	**0.0394**		**149.6991**	**149.6991**	**6.8100e-003**		**149.8421**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement Trip Reduction 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	3.3644	2.7569	37.8903	0.0979	9.1629	0.0480	9.2109	2.4290	0.0439	2.4729		8,275.374 1	8,275.374 1	0.3204		8,282.101 8
Unmitigated	3.3955	2.8576	39.3037	0.1020	9.5600	0.0497	9.6097	2.5343	0.0455	2.5797		8,625.296 9	8,625.296 9	0.3329		8,632.287 9

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,420.01	1,420.01	1420.01	4,580,482	4,390,202
Total	1,420.01	1,420.01	1,420.01	4,580,482	4,390,202

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	8.40	9.50	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	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	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
NaturalGas Unmitigated	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685

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	6504.3	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0701**	**0.6377**	**0.5357**	**3.8300e-003**		**0.0485**	**0.0485**		**0.0485**	**0.0485**		**765.2116**	**765.2116**	**0.0147**	**0.0140**	**769.8685**

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	4.90102	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0529**	**0.4805**	**0.4036**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**		**576.5905**	**576.5905**	**0.0111**	**0.0106**	**580.0995**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Unmitigated	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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

9.0 Operational Offroad

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

10.0 Vegetation

Modular Logistics Center (Passenger Only)

Riverside-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	1,109.38	1000sqft	25.47	1,109,378.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2015

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 551.29 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - construction emissions modeled seperately

Off-road Equipment - based on construction of similiar projects

Off-road Equipment - construction emissions modeled seperately

Trips and VMT -

Demolition -

Grading -

Architectural Coating - based on information given by the applicant

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on default

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use - based on a 2015 opening

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014_

Construction Off-road Equipment Mitigation - tier 3 mitigation nto all construction equipment greater than 150 HP

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	45.00	1.00
tblGrading	AcresOfGrading	0.00	6.00
tblLandUse	LandUseSquareFeet	1,109,380.00	1,109,378.00
tblOffRoadEquipment	HorsePower	400.00	189.00
tblOffRoadEquipment	LoadFactor	0.38	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	551.29
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD1	0.04	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00
tblVehicleEF	LHD2	7.4040e-003	0.00

tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MCY	6.4360e-003	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MH	3.2300e-003	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	OBUS	9.8500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	SBUS	9.0500e-004	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleEF	UBUS	1.0630e-003	0.00
tblVehicleTrips	CNW_TL	6.90	9.50
tblVehicleTrips	CW_TL	16.60	9.50
tblVehicleTrips	ST_TR	2.59	1.28
tblVehicleTrips	SU_TR	2.59	1.28
tblVehicleTrips	WD_TR	2.59	1.28
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

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					
2015	2.8800	31.0510	23.4148	0.0273	12.5304	1.6897	14.2201	4.0358	1.5545	5.5904	0.0000	2,836.8332	2,836.8332	0.8129	0.0000	2,853.9036
Total	**2.8800**	**31.0510**	**23.4148**	**0.0273**	**12.5304**	**1.6897**	**14.2201**	**4.0358**	**1.5545**	**5.5904**	**0.0000**	**2,836.8332**	**2,836.8332**	**0.8129**	**0.0000**	**2,853.9036**

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					
2015	2.8800	31.0510	23.4148	0.0273	4.9755	1.6897	6.6652	1.5975	1.5545	3.1520	0.0000	2,836.8332	2,836.8332	0.8129	0.0000	2,853.9036
Total	**2.8800**	**31.0510**	**23.4148**	**0.0273**	**4.9755**	**1.6897**	**6.6652**	**1.5975**	**1.5545**	**3.1520**	**0.0000**	**2,836.8332**	**2,836.8332**	**0.8129**	**0.0000**	**2,853.9036**

	ROG	NOx	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	0.00	0.00	0.00	0.00	60.29	0.00	53.13	60.42	0.00	43.62	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685
Mobile	3.1989	3.0330	34.4223	0.0931	9.5600	0.0497	9.6097	2.5343	0.0455	2.5797		7,872.1165	7,872.1165	0.3329		7,879.1075
Total	**37.3944**	**3.6720**	**35.1021**	**0.0969**	**9.5600**	**0.0987**	**9.6587**	**2.5343**	**0.0945**	**2.6287**		**8,637.6267**	**8,637.6267**	**0.3484**	**0.0140**	**8,649.2928**

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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Energy	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
Mobile	3.1705	2.9264	33.2708	0.0893	9.1629	0.0480	9.2109	2.4290	0.0439	2.4729		7,553.4819	7,553.4819	0.3204		7,560.2096
Total	**37.3487**	**3.4083**	**33.8186**	**0.0922**	**9.1629**	**0.0850**	**9.2479**	**2.4290**	**0.0809**	**2.5099**		**8,130.3710**	**8,130.3710**	**0.3323**	**0.0106**	**8,140.6259**

	ROG	NOx	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	0.12	7.18	3.66	4.86	4.15	13.85	4.25	4.15	14.31	4.52	0.00	5.87	5.87	4.64	24.66	5.88

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/21/2015	9/21/2015	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	8.00	174	0.41
Grading	Off-Highway Trucks	0	8.00	189	0.50
Grading	Rubber Tired Loaders	0	8.00	199	0.36
Grading	Scrapers	0	8.00	361	0.48
Grading	Excavators	2	8.00	162	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	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
Grading	5	13.00	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

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3851	0.0000	12.3851	3.9973	0.0000	3.9973			0.0000			0.0000
Off-Road	2.8270	30.9810	22.7060	0.0257		1.6888	1.6888		1.5537	1.5537		2,700.0167	2,700.0167	0.8061		2,716.9441
Total	**2.8270**	**30.9810**	**22.7060**	**0.0257**	**12.3851**	**1.6888**	**14.0739**	**3.9973**	**1.5537**	**5.5509**		**2,700.0167**	**2,700.0167**	**0.8061**		**2,716.9441**

3.2 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0700	0.7088	1.5900e-003	0.1453	9.5000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.8165	136.8165	6.8100e-003		136.9595
Total	**0.0529**	**0.0700**	**0.7088**	**1.5900e-003**	**0.1453**	**9.5000e-004**	**0.1463**	**0.0385**	**8.7000e-004**	**0.0394**		**136.8165**	**136.8165**	**6.8100e-003**		**136.9595**

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					4.8302	0.0000	4.8302	1.5589	0.0000	1.5589			0.0000			0.0000
Off-Road	2.8270	30.9810	22.7060	0.0257		1.6888	1.6888		1.5537	1.5537	0.0000	2,700.0167	2,700.0167	0.8061		2,716.9441
Total	**2.8270**	**30.9810**	**22.7060**	**0.0257**	**4.8302**	**1.6888**	**6.5189**	**1.5589**	**1.5537**	**3.1126**	**0.0000**	**2,700.0167**	**2,700.0167**	**0.8061**		**2,716.9441**

3.2 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0700	0.7088	1.5900e-003	0.1453	9.5000e-004	0.1463	0.0385	8.7000e-004	0.0394		136.8165	136.8165	6.8100e-003		136.9595
Total	**0.0529**	**0.0700**	**0.7088**	**1.5900e-003**	**0.1453**	**9.5000e-004**	**0.1463**	**0.0385**	**8.7000e-004**	**0.0394**		**136.8165**	**136.8165**	**6.8100e-003**		**136.9595**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement Trip Reduction 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	3.1705	2.9264	33.2708	0.0893	9.1629	0.0480	9.2109	2.4290	0.0439	2.4729		7,553.4819	7,553.4819	0.3204		7,560.2096
Unmitigated	3.1989	3.0330	34.4223	0.0931	9.5600	0.0497	9.6097	2.5343	0.0455	2.5797		7,872.1165	7,872.1165	0.3329		7,879.1075

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,420.01	1,420.01	1420.01	4,580,482	4,390,202
Total	1,420.01	1,420.01	1,420.01	4,580,482	4,390,202

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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	8.40	9.50	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	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	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
NaturalGas Unmitigated	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685

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	6504.3	0.0701	0.6377	0.5357	3.8300e-003		0.0485	0.0485		0.0485	0.0485		765.2116	765.2116	0.0147	0.0140	769.8685
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0701**	**0.6377**	**0.5357**	**3.8300e-003**		**0.0485**	**0.0485**		**0.0485**	**0.0485**		**765.2116**	**765.2116**	**0.0147**	**0.0140**	**769.8685**

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	4.90102	0.0529	0.4805	0.4036	2.8800e-003		0.0365	0.0365		0.0365	0.0365		576.5905	576.5905	0.0111	0.0106	580.0995
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0529**	**0.4805**	**0.4036**	**2.8800e-003**		**0.0365**	**0.0365**		**0.0365**	**0.0365**		**576.5905**	**576.5905**	**0.0111**	**0.0106**	**580.0995**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	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	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Unmitigated	34.1253	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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	7.0924					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	27.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0143	1.3900e-003	0.1441	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.2986	0.2986	8.6000e-004		0.3168
Total	**34.1253**	**1.3900e-003**	**0.1441**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**		**0.2986**	**0.2986**	**8.6000e-004**		**0.3168**

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

9.0 Operational Offroad

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

10.0 Vegetation

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APPENDIX 3.2:

SCREEN 3 OUTPUT

SCREEN 3 OUTPUT

CONSTRUCTION

Grading Unmitigated

NO_2[1]

Downwind Distance	NO_2/NO_X Ratio	SCREEN3 OP	NO_2 Concentration (ug/m3)	NO_2 Concentration (ppm)
20	0.05	296.400	15.71	0.0084
50	0.06	343.900	20.29	0.0108
70	0.06	372.200	23.82	0.0127
100	0.07	410.500	30.38	0.0162
200	0.11	403.600	46.01	0.0245
500	0.26	145.700	37.59	0.0200
1000	0.47	61.190	28.58	0.0152
2000	0.75	24.360	18.27	0.0097
3000	0.90	14.400	12.96	0.0069
4000	0.98	10.040	9.82	0.0052
5000	1.00	7.651	7.65	0.0041

CO

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
117.37	53238.136	1.84854641	38,445.136

Screen 3 Output
1.10E+07

FINAL Concentration
5.29E+02

0.460 ppm (1-hour)
0.333 ppm (8-hour)

PM_{10}

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
18.4338	8361.431	0.2903	38,445.136

Screen 3 Output
1.91E+07

FINAL Concentration
1.44E+02

PM10 Calculation

$Cx = 0.9403\, C_o\, e^{-0.0462\, x}$

C_o[2]	5.78E+01
e	0.0343003
x (meters)	73
C_x	1.86

Total PM_{10}: 1.86E+00

$PM_{2.5}$

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
8.7782	3981.7245	0.1383	38,445.136

Screen 3 Output
1.91E+07

FINAL Concentration
6.88E+01

PM2.5 Calculation

$Cx = 0.9403\, C_o\, e^{-0.0462\, x}$

C_o[2]	2.75E+01
e	0.0343003
x (meters)	73
C_x	0.89

Total $PM_{2.5}$: 8.87E-01

[1] Per SCAQMD LST Handbook (Table 2-4) NO_x to NO_2 conversion factor
[2] Conversion factor of 0.4 applied to convert from one-hour max to 24-hour average (ARB Table H.1)

Grading Mitigated

NO_2[1]

Downwind Distance	NO_2/NO_X Ratio	SCREEN3 OP	NO_2 Concentration (ug/m3)	NO_2 Concentration (ppm)
20	0.05	115.500	6.12	0.0033
50	0.06	146.900	8.67	0.0046
70	0.06	165.500	10.59	0.0056
100	0.07	191.600	14.18	0.0076
200	0.11	132.000	15.05	0.0080
500	0.26	44.260	11.42	0.0061
1000	0.47	16.850	7.87	0.0042
2000	0.75	6.392	4.79	0.0026
3000	0.90	3.731	3.36	0.0018
4000	0.98	2.587	2.53	0.0013
5000	1.00	1.966	1.97	0.0010

CO

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
46.06	20891.376	0.72539500	18,210.854

Screen 3 Output
8.13E+06

FINAL Concentration
3.24E+02

0.281 ppm (1-hour)
0.204 ppm (8-hour)

PM_{10}

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
3.9449	1789.3765	0.0621	18,210.854

Screen 3 Output
1.91E+07

FINAL Concentration
6.52E+01

PM10 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	2.61E+01
e	0.0343003
x (meters)	73
C_x	0.84

Total PM_{10}: 8.42E-01

$PM_{2.5}$

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
2.2242	1008.8801	0.0350	18,210.854

Screen 3 Output
1.91E+07

FINAL Concentration
3.68E+01

PM2.5 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	1.47E+01
e	0.0343003
x (meters)	73
C_x	0.47

Total $PM_{2.5}$: 4.74E-01

[1] Per SCAQMD LST Handbook (Table 2-4) NO_x to NO_2 conversion factor
[2] Conversion factor of 0.4 applied to convert from one-hour max to 24-hour average (ARB Table H.1)

```
04/07/14

16:08:08
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Modular Logistics Center  Construction LST Analysis - CO

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE                 =        AREA
    EMISSION RATE (G/(S-M**2))  =     1.00000
    SOURCE HEIGHT (M)           =      5.0000
    LENGTH OF LARGER SIDE (M)   =    196.0743
    LENGTH OF SMALLER SIDE (M)  =    196.0743
    RECEPTOR HEIGHT (M)         =      2.0000
    URBAN/RURAL OPTION          =       URBAN
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


 BUOY. FLUX =    0.000 M**4/S**3;  MOM. FLUX =    0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME  MAX DIR
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
 -------  ----------  ----  -----  -----  ------  ------  -------
     25.  0.1100E+08    5     1.0    1.0 10000.0    5.00     45.

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
 --------------    -----------   -------   -------
 SIMPLE TERRAIN     0.1100E+08       25.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

01/03/14

14:21:37

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Modular Logistics Center Construction LST Analysis - NO2 Unmitigated

SIMPLE TERRAIN INPUTS:

```
   SOURCE TYPE                  =        AREA
   EMISSION RATE (G/(S-M**2))   =     0.277000E-04
   SOURCE HEIGHT (M)            =       5.0000
   LENGTH OF LARGER SIDE (M)    =     196.0743
   LENGTH OF SMALLER SIDE (M)   =     196.0743
   RECEPTOR HEIGHT (M)          =       2.0000
   URBAN/RURAL OPTION           =        URBAN
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 0.000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
20.	296.4	5	1.0	1.0	10000.0	5.00	45.
50.	343.9	5	1.0	1.0	10000.0	5.00	45.
70.	372.2	5	1.0	1.0	10000.0	5.00	45.
100.	410.5	5	1.0	1.0	10000.0	5.00	45.
200.	403.6	5	1.0	1.0	10000.0	5.00	45.
500.	145.7	5	1.0	1.0	10000.0	5.00	45.
1000.	61.19	5	1.0	1.0	10000.0	5.00	45.
2000.	24.36	5	1.0	1.0	10000.0	5.00	37.
3000.	14.40	5	1.0	1.0	10000.0	5.00	31.
4000.	10.04	5	1.0	1.0	10000.0	5.00	27.
5000.	7.651	5	1.0	1.0	10000.0	5.00	1.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION MAX CONC DIST TO TERRAIN

PROCEDURE	(UG/M**3)	MAX (M)	HT (M)
SIMPLE TERRAIN	410.5	100.	0.

```
***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

01/03/14

14:18:12

*** SCREEN3 MODEL RUN ***

*** VERSION DATED 96043 ***

Modular Logistics Center Construction LST Analysis - PM10/PM2.5

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	1.00000
SOURCE HEIGHT (M)	=	1.0000
LENGTH OF LARGER SIDE (M)	=	196.0743
LENGTH OF SMALLER SIDE (M)	=	196.0743
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	URBAN

THE NON-REGULATORY BUT CONSERVATIVE BRODE 2 MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 0.000 M**4/S**2.

*** FULL METEOROLOGY ***

****

*** SCREEN DISCRETE DISTANCES ***

****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
1.	0.1912E+08	6	1.0	1.0	10000.0	1.00	45.

****

*** SUMMARY OF SCREEN MODEL RESULTS ***

****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	0.1912E+08	1.	0.

****

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

****

01/06/14

14:41:19

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Modular Logistics Center Construction LST Analysis - NO2 Mitigated

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	0.149000E-04
SOURCE HEIGHT (M)	=	5.0000
LENGTH OF LARGER SIDE (M)	=	134.9476
LENGTH OF SMALLER SIDE (M)	=	134.9476
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 0.000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
20.	115.5	5	1.0	1.0	10000.0	5.00	45.
50.	146.9	5	1.0	1.0	10000.0	5.00	45.
70.	165.5	5	1.0	1.0	10000.0	5.00	45.
100.	191.6	5	1.0	1.0	10000.0	5.00	44.
200.	132.0	5	1.0	1.0	10000.0	5.00	45.
500.	44.26	5	1.0	1.0	10000.0	5.00	45.
1000.	16.85	5	1.0	1.0	10000.0	5.00	42.
2000.	6.392	5	1.0	1.0	10000.0	5.00	1.
3000.	3.731	5	1.0	1.0	10000.0	5.00	1.
4000.	2.587	5	1.0	1.0	10000.0	5.00	24.
5000.	1.966	5	1.0	1.0	10000.0	5.00	4.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION MAX CONC DIST TO TERRAIN

PROCEDURE	(UG/M**3)	MAX (M)	HT (M)
SIMPLE TERRAIN	191.6	100.	0.

```
***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

SCREEN 3 OUTPUT

OPERATIONS

SCREEN 3 OUTPUT

OPERATIONS (TRUCK EMISSION RATES)

AVERAGE EMISSION FACTOR (CO)
SCAQMD 2015

Speed	LHD1	MHD	HHD
0	15.81782	22.03384	34.45930
5	3.163564	2.372657	6.90346

Speed	Weighted Average Emissions
0	**30.57593**
5	**5.86962**

Emission Rates - CO

Truck Emission Rates							
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Daily Truck Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Idling - North of building	112			30.5759	854.22	1.88	9.887E-03
On-Site Idling - South of building	112			30.5759	854.22	1.88	9.887E-03
On-Site Travel - North of building	224	78.97	5.8696		463.50	1.02	5.365E-03
On-Site Travel - South of building	224	79.84	5.8696		468.63	1.03	5.424E-03

AVERAGE EMISSION FACTOR (NO2)
SCAQMD 2015

Speed	LHD1	MHD	HHD
0	28.26063	80.18651	64.04940
5	5.652126	17.93877	22.59977

Speed	Weighted Average Emissions
0	**61.59294**
5	**19.89869**

Emission Rates - NO2

Truck Emission Rates							
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Daily Truck Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Idling - North of building	112			61.5929	1720.75	3.79	1.992E-02
On-Site Idling - South of building	112			61.5929	1720.75	3.79	1.992E-02
On-Site Travel - North of building	224	78.97	19.8987		1571.30	3.46	1.819E-02
On-Site Travel - South of building	224	79.84	19.8987		1588.71	3.50	1.839E-02

AVERAGE EMISSION FACTOR (PM 10)
SCAQMD 2015

Speed	LHD1	MHD	HHD
0	0.522411	0.337314	0.26804
5	0.104482	0.520716	0.28749

Speed	**Weighted Average Emissions**
0	**0.30850**
5	**0.29377**

Emission Rates - PM10

Truck Emission Rates							
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Daily Truck Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Idling - North of building	112			0.3085	8.62	0.02	9.975E-05
On-Site Idling - South of building	112			0.3085	8.62	0.02	9.975E-05
On-Site Travel - North of building	224	78.97	0.2938		23.20	0.05	2.685E-04
On-Site Travel - South of building	224	79.84	0.2938		23.45	0.05	2.715E-04

AVERAGE EMISSION FACTOR (PM 2.5)
SCAQMD 2015

Speed	LHD1	MHD	HHD
0	0.480618	0.310329	0.24660
5	0.096124	0.479059	0.26449

Speed	Weighted Average Emissions
0	**0.28382**
5	**0.27026**

Emission Rates - PM10

Truck Emission Rates							
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Daily Truck Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Idling - North of building	112			0.2838	7.93	0.02	9.177E-05
On-Site Idling - South of building	112			0.2838	7.93	0.02	9.177E-05
On-Site Travel - North of building	224	78.97	0.2703		21.34	0.05	2.470E-04
On-Site Travel - South of building	224	79.84	0.2703		21.58	0.05	2.497E-04

SCREEN 3 OUTPUT

OPERATIONS (PASSENGER CAR EMISSION RATES)

AVERAGE EMISSION FACTOR (CO)
SCAQMD 2015

Speed	LDA
0	12.0463
5	2.409261

Emission Rates - CO

Passenger Car Emission Rates							
Source	Trips Per Day	VMT [a] (miles/day)	PC Emission Rate [b] (grams/mile)	PC Rate [b] (grams/idle-hour)	PC Emissions [c] (grams/day)	PC Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Travel & Idling - North of building	354	113.35	2.4093	12.0463	1339.18	2.95	1.550E-02
On-Site Travel & Idling - South of building	354	100.88	2.4093	12.0463	1309.13	2.89	1.515E-02

AVERAGE EMISSION FACTOR (NO2)
SCAQMD 2015

Speed	LDA
0	0.890267
5	0.178053

Emission Rates - NO2

Passenger Car Emission Rates							
Source	Trips Per Day	VMT [a] (miles/day)	PC Emission Rate [b] (grams/mile)	PC Rate [b] (grams/idle-hour)	PC Emissions [c] (grams/day)	PC Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Travel & Idling - North of building	354	113.35	0.1781	0.8903	98.97	0.22	1.145E-03
On-Site Travel & Idling - South of building	354	100.88	0.1781	0.8903	96.75	0.21	1.120E-03

AVERAGE EMISSION FACTOR (PM 10)
SCAQMD 2015

Speed	LDA
0	0.054084
5	0.010817

Emission Rates - PM 10

Passenger Car Emission Rates							
Source	Trips Per Day	VMT [a] (miles/day)	PC Emission Rate [b] (grams/mile)	PC Rate [b] (grams/idle-hour)	PC Emissions [c] (grams/day)	PC Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Travel & Idling - North of building	354	113.35	0.0108	0.0541	6.01	0.01	6.959E-05
On-Site Travel & Idling - South of building	354	100.88	0.0108	0.0541	5.88	0.01	6.803E-05

AVERAGE EMISSION FACTOR (PM 10)
SCAQMD 2015

Speed	LDA
0	0.049689
5	0.009938

Emission Rates - PM 10

Passenger Car Emission Rates							
Source	Trips Per Day	VMT [a] (miles/day)	PC Emission Rate [b] (grams/mile)	PC Rate [b] (grams/idle-hour)	PC Emissions [c] (grams/day)	PC Emissions (lbs/day)	Modeled Emission Rates (g/second)
On-Site Travel & Idling - North of building	354	113.35	0.0099	0.0497	5.52	0.01	6.393E-05
On-Site Travel & Idling - South of building	354	100.88	0.0099	0.0497	5.40	0.01	6.250E-05

NO_2[1]

Downwind Distance	NO_2/NO_X Ratio	SCREEN3 OP	NO_2 Concentration (ug/m3)	NO_2 Concentration (ppm)
20	0.05	22.310	1.18	0.0006
50	0.06	24.330	1.44	0.0008
70	0.06	25.490	1.63	0.0009
100	0.07	27.130	2.01	0.0011
200	0.11	31.760	3.62	0.0019
500	0.26	15.250	3.93	0.0021
1000	0.47	7.176	3.35	0.0018
2000	0.75	3.188	2.39	0.0013
3000	0.90	1.951	1.76	0.0009
4000	0.98	1.381	1.35	0.0007
5000	1.00	1.061	1.06	0.0006

CO

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
16.14	7320.9809	0.25420072	103,064.530

CalEEMod	4.48
Trucks	5.82
Cars	5.84
Total	16.14

Screen 3 Output
1.54E+07

FINAL Concentration
3.80E+01

0.033 ppm (1-hour)
0.024 ppm (8-hour)

PM_{10}

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
0.64	290.29912	0.0101	103,064.530

CalEEMod	0.48
Trucks	0.14
Cars	0.02
Total	0.64

Screen 3 Output
2.49E+07

FINAL Concentration
2.44E+00

PM10 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	9.74E-01
e	0.0343003
x (meters)	73
C_x	0.03

Total PM_{10}: 3.14E-02

$PM_{2.5}$

Pounds Per day	Grams Per day	Grams Per Second	Meters squared (area)
0.59	267.6195	0.0093	103,064.530

CalEEMod	0.44
Trucks	0.13
Cars	0.02
Total	0.59

Screen 3 Output
2.49E+07

FINAL Concentration
2.24E+00

PM2.5 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	8.98E-01
e	0.0343003
x (meters)	73
C_x	0.03

Total $PM_{2.5}$: 2.90E-02

[1] Per SCAQMD LST Handbook (Table 2-4) NO_x to NO_2 conversion factor
[2] Conversion factor of 0.4 applied to convert from one-hour max to 24-hour average (ARB Table H.1)

NO_2[1]

Downwind Distance	NO_2/NO_X Ratio	SCREEN3 OP	NO_2 Concentration (ug/m3)	NO_2 Concentration (ppm)
20	0.05	22.160	1.17	0.0006
50	0.06	24.160	1.43	0.0008
70	0.06	25.320	1.62	0.0009
100	0.07	26.940	1.99	0.0011
200	0.11	31.540	3.60	0.0019
500	0.26	15.150	3.91	0.0021
1000	0.47	7.127	3.33	0.0018
2000	0.75	3.166	2.37	0.0013
3000	0.90	1.938	1.74	0.0009
4000	0.98	1.372	1.34	0.0007
5000	1.00	1.054	1.05	0.0006

CO

Pounds Per day: 16.00
Grams Per day: 7257.4779
Grams Per Second: 0.25199576
Meters squared (area): 103,064.530

CalEEMod	4.34
Trucks	5.82
Cars	5.84
Total	16

Screen 3 Output: 1.54E+07

FINAL Concentration: 3.76E+01

0.033 ppm (1-hour)
0.024 ppm (8-hour)

PM_{10}

Pounds Per day: 0.631
Grams Per day: 286.21679
Grams Per Second: 0.0099
Meters squared (area): 103,064.530

CalEEMod	0.471
Trucks	0.14
Cars	0.02
Total	0.631

Screen 3 Output: 2.49E+07

FINAL Concentration: 2.40E+00

PM10 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	9.60E-01
e	0.0343003
x (meters)	73
C_x	0.03

Total PM_{10}: 3.10E-02

$PM_{2.5}$

Pounds Per day: 0.581
Grams Per day: 263.53717
Grams Per Second: 0.0092
Meters squared (area): 103,064.530

CalEEMod	0.431
Trucks	0.13
Cars	0.02
Total	0.581

Screen 3 Output: 2.49E+07

FINAL Concentration: 2.21E+00

PM2.5 Calculation

$Cx = 0.9403\ C_o\ e^{-0.0462\ x}$

C_o[2]	8.84E-01
e	0.0343003
x (meters)	73
C_x	0.03

Total $PM_{2.5}$: 2.85E-02

[1] Per SCAQMD LST Handbook (Table 2-4) NO_x to NO_2 conversion factor
[2] Conversion factor of 0.4 applied to convert from one-hour max to 24-hour average (ARB Table H.1)

```
06/18/14

17:33:36
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Modular Logistics Center  Operational LST Analysis - CO

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE                  =        AREA
    EMISSION RATE (G/(S-M**2))   =     1.00000
    SOURCE HEIGHT (M)            =      5.0000
    LENGTH OF LARGER SIDE (M)    =    321.0367
    LENGTH OF SMALLER SIDE (M)   =    321.0367
    RECEPTOR HEIGHT (M)          =      2.0000
    URBAN/RURAL OPTION           =       URBAN
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


 BUOY. FLUX =    0.000 M**4/S**3;  MOM. FLUX =    0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 *********************************
 *** SCREEN DISCRETE DISTANCES ***
 *********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC            U10M   USTK  MIX HT   PLUME  MAX DIR
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
 -------  ----------  ----  -----  -----  ------  ------  -------
     25.  0.1539E+08    5     1.0    1.0 10000.0    5.00     45.

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
 --------------    -----------   -------   -------
 SIMPLE TERRAIN     0.1539E+08       25.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
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06/18/14

17:34:42

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Modular Logistics Center Operational LST Analysis - NO2 Unmitigated

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	0.147000E-05
SOURCE HEIGHT (M)	=	5.0000
LENGTH OF LARGER SIDE (M)	=	321.0367
LENGTH OF SMALLER SIDE (M)	=	321.0367
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX =   0.000 M**4/S**3; MOM. FLUX =   0.000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
20.	22.31	5	1.0	1.0	10000.0	5.00	45.
50.	24.33	5	1.0	1.0	10000.0	5.00	45.
70.	25.49	5	1.0	1.0	10000.0	5.00	45.
100.	27.13	5	1.0	1.0	10000.0	5.00	45.
200.	31.76	5	1.0	1.0	10000.0	5.00	45.
500.	15.25	5	1.0	1.0	10000.0	5.00	45.
1000.	7.176	5	1.0	1.0	10000.0	5.00	45.
2000.	3.188	5	1.0	1.0	10000.0	5.00	45.
3000.	1.951	5	1.0	1.0	10000.0	5.00	45.
4000.	1.381	5	1.0	1.0	10000.0	5.00	45.
5000.	1.061	5	1.0	1.0	10000.0	5.00	36.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION   MAX CONC   DIST TO   TERRAIN

```
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      31.76          200.         0.


***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

```
06/18/14

17:35:44
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Modular Logistics Center Operational LST Analysis - PM10/PM2.5

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE                 =        AREA
    EMISSION RATE (G/(S-M**2))  =     1.00000
    SOURCE HEIGHT (M)           =      1.0000
    LENGTH OF LARGER SIDE (M)   =    321.0367
    LENGTH OF SMALLER SIDE (M)  =    321.0367
    RECEPTOR HEIGHT (M)         =      2.0000
    URBAN/RURAL OPTION          =       URBAN
 THE NON-REGULATORY BUT CONSERVATIVE BRODE 2 MIXING HEIGHT OPTION WAS
SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


 BUOY. FLUX =    0.000 M**4/S**3;  MOM. FLUX =    0.000 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC            U10M   USTK  MIX HT   PLUME  MAX DIR
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
 -------  ----------  ----  -----  -----  ------  ------  -------
      1.  0.2494E+08    6     1.0    1.0 10000.0    1.00     45.

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
 --------------    -----------   -------   -------
 SIMPLE TERRAIN     0.2494E+08        1.        0.


 ***************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ***************************************************
```

06/18/14

17:36:33

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Modular Logistics Center Operational LST Analysis - NO2 Mitigated

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	AREA
EMISSION RATE (G/(S-M**2))	=	0.146000E-05
SOURCE HEIGHT (M)	=	5.0000
LENGTH OF LARGER SIDE (M)	=	321.0367
LENGTH OF SMALLER SIDE (M)	=	321.0367
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX =   0.000 M**4/S**3; MOM. FLUX =   0.000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
20.	22.16	5	1.0	1.0	10000.0	5.00	45.
50.	24.16	5	1.0	1.0	10000.0	5.00	45.
70.	25.32	5	1.0	1.0	10000.0	5.00	45.
100.	26.94	5	1.0	1.0	10000.0	5.00	45.
200.	31.54	5	1.0	1.0	10000.0	5.00	45.
500.	15.15	5	1.0	1.0	10000.0	5.00	45.
1000.	7.127	5	1.0	1.0	10000.0	5.00	45.
2000.	3.166	5	1.0	1.0	10000.0	5.00	45.
3000.	1.938	5	1.0	1.0	10000.0	5.00	45.
4000.	1.372	5	1.0	1.0	10000.0	5.00	45.
5000.	1.054	5	1.0	1.0	10000.0	5.00	36.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION   MAX CONC   DIST TO   TERRAIN

PROCEDURE	(UG/M**3)	MAX (M)	HT (M)
SIMPLE TERRAIN	31.54	200.	0.

```
***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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APPENDIX 3.3:

CRANE & ASSOCIATES STUDY

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.

<u>VACANCIES</u>

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 95th 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 Trip Generation 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
95^{th} 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
95^{th} Percentile for SCAB warehouses	No	No	13	3.68
95^{th} Percentile for all warehouses	No	No	54	2.59
95^{th} 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 8^{th} 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

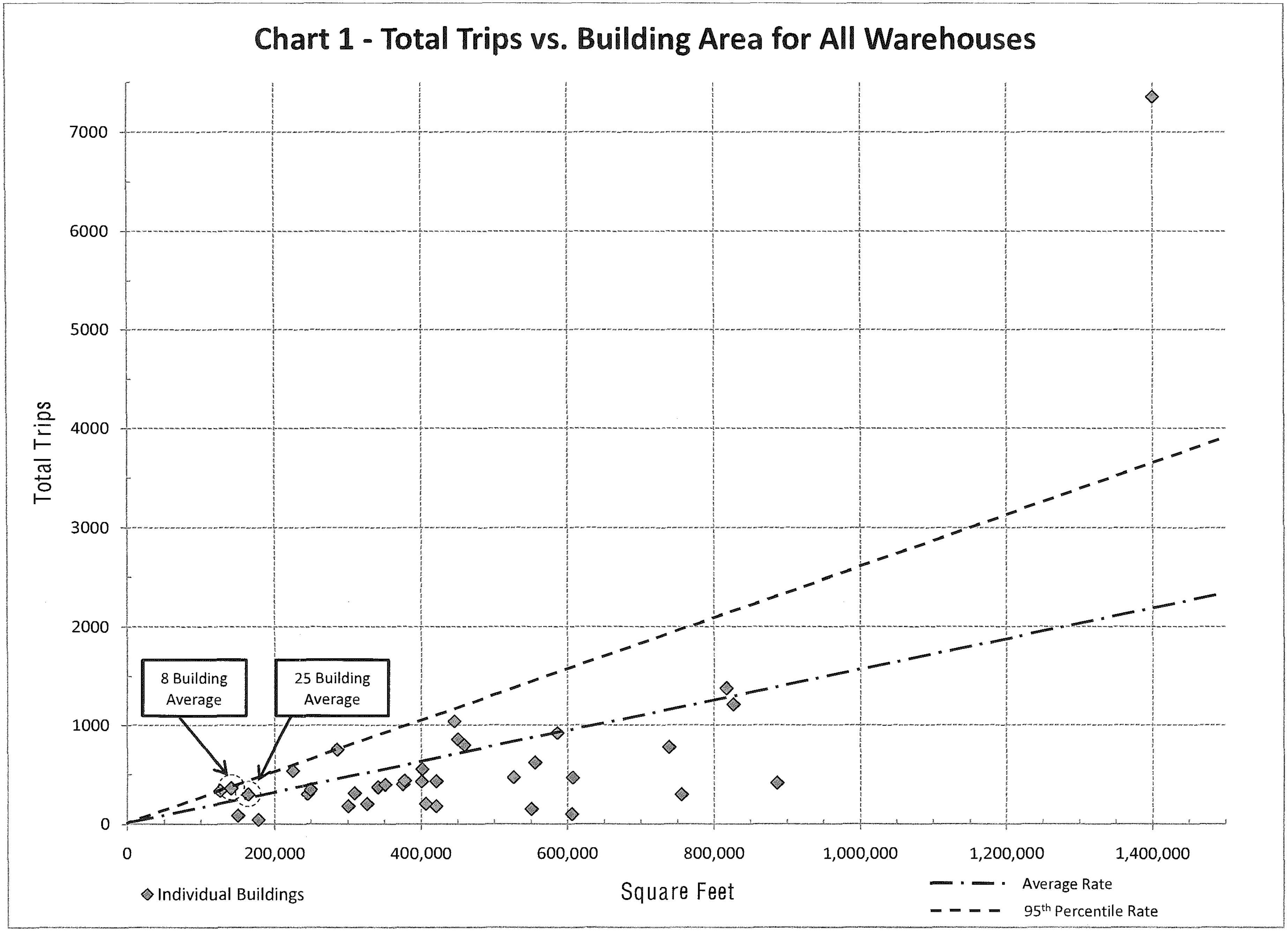
Chart 1 - Total Trips vs. Building Area for All Warehouses
Total Trips
7000
6000
5000
4000
3000
2000
1000
0
0
200,000
400,000
600,000
800,000
1,000,000
1,200,000
1,400,000
Square Feet
8 Building Average
25 Building Average
Individual Buildings
Average Rate
95th Percentile Rate

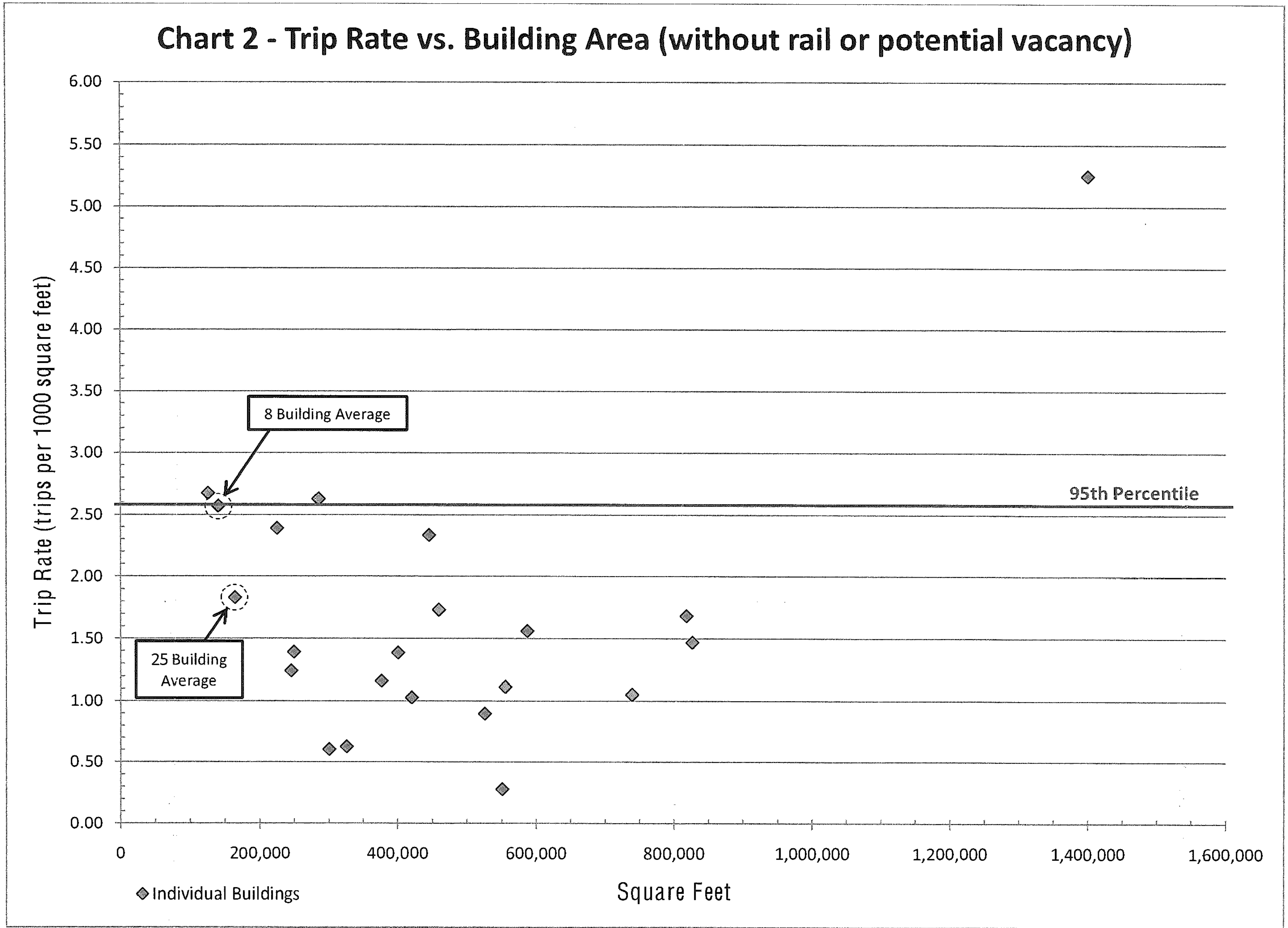
Chart 2 - Trip Rate vs. Building Area (without rail or potential vacancy)
Trip Rate (trips per 1000 square feet)
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
8 Building Average
25 Building Average
95th Percentile
0
200,000
400,000
600,000
800,000
1,000,000
1,200,000
1,400,000
1,600,000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

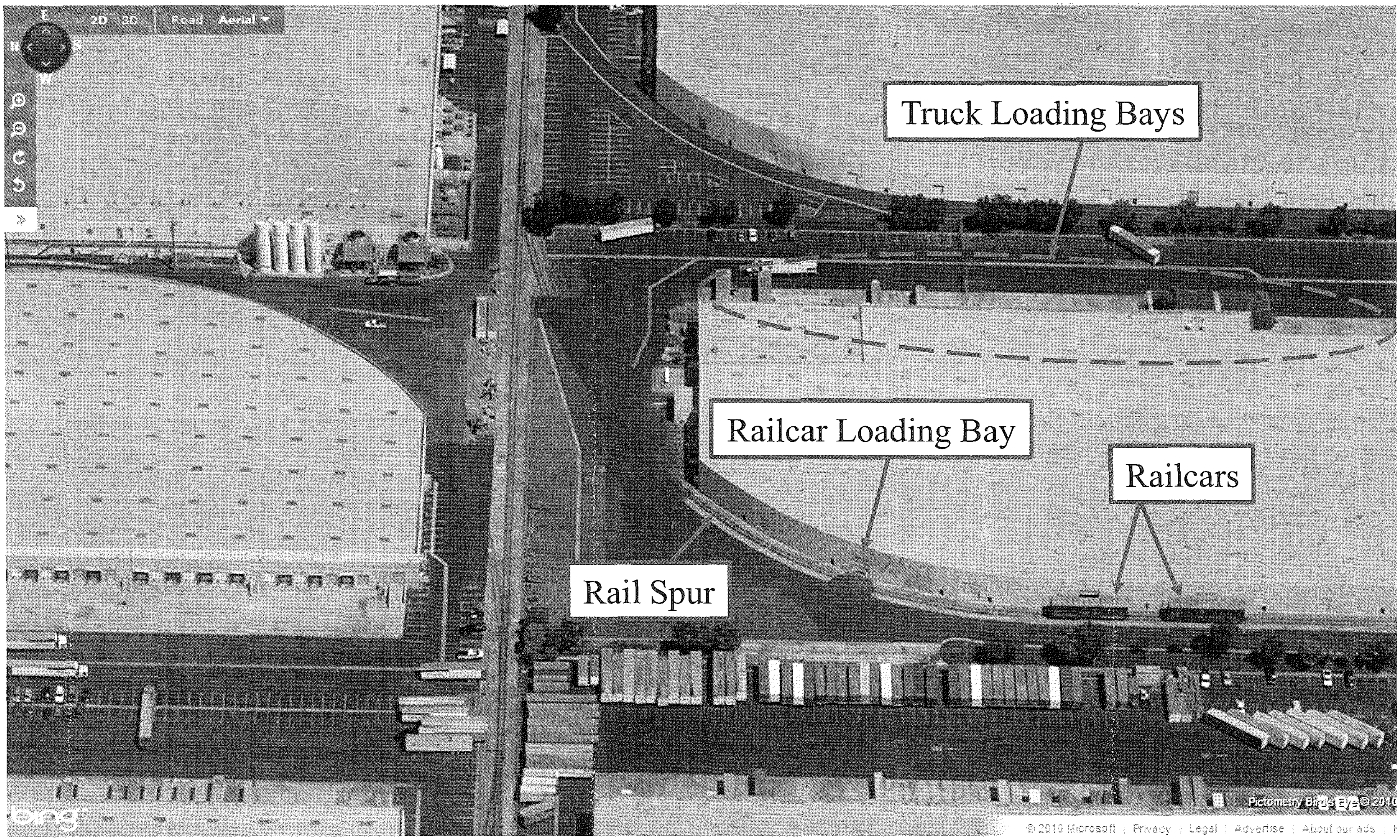

Figure 1 Oblique aerial photograph showing an example of a facility evaluated in the NAIOP San Bernardino County Truck Study. The truck trip rate for this facility was 1.13/TSF

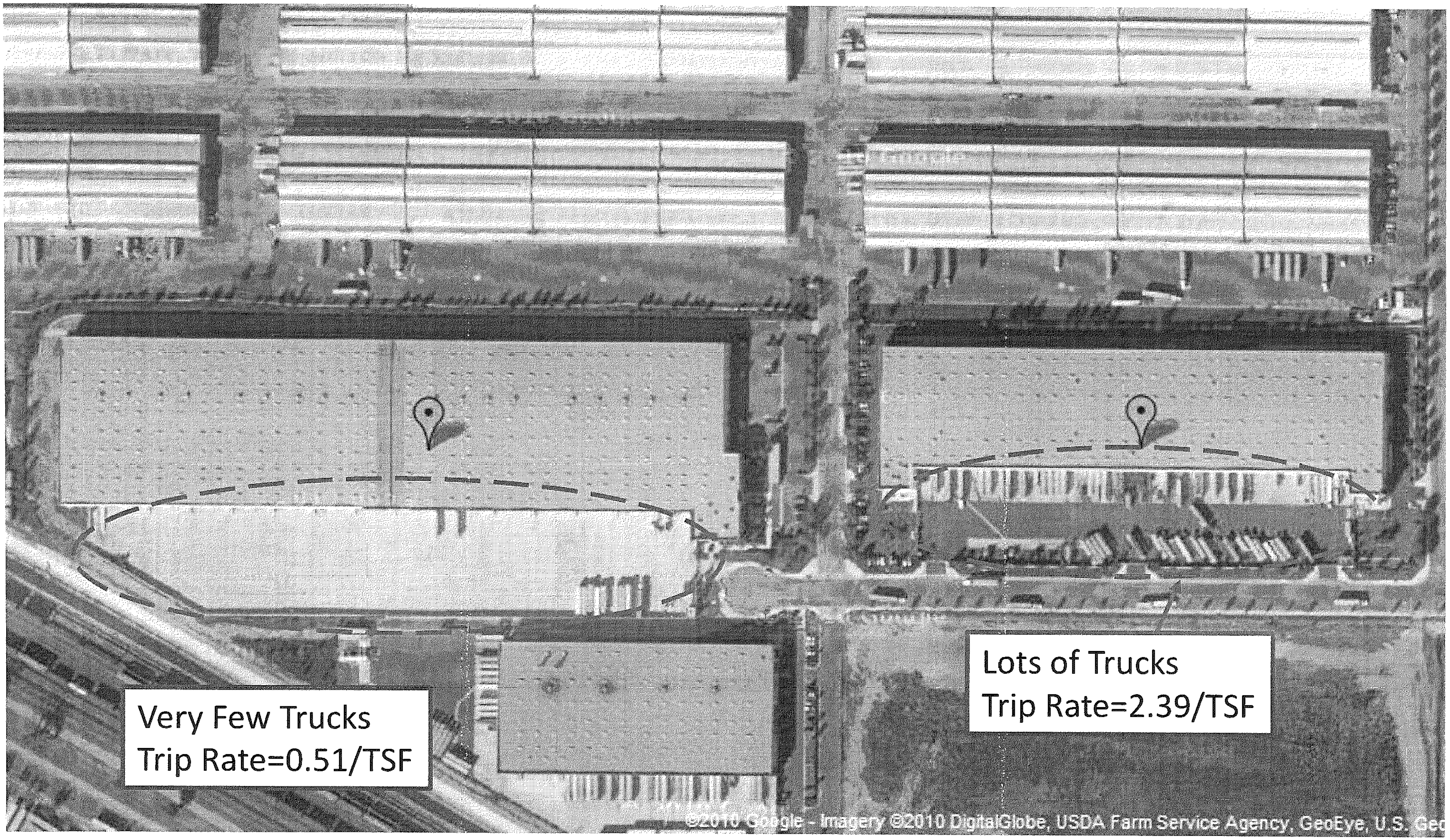

Figure 2 Aerial photograph showing an example of two facilities evaluated in the NAIOP Riverside County Truck Study. The facility on the left is suspected to be at least partially vacant.

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.

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APPENDIX 3.4:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

2013
Area Designations for State Ambient Air Quality Standards
OZONE

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

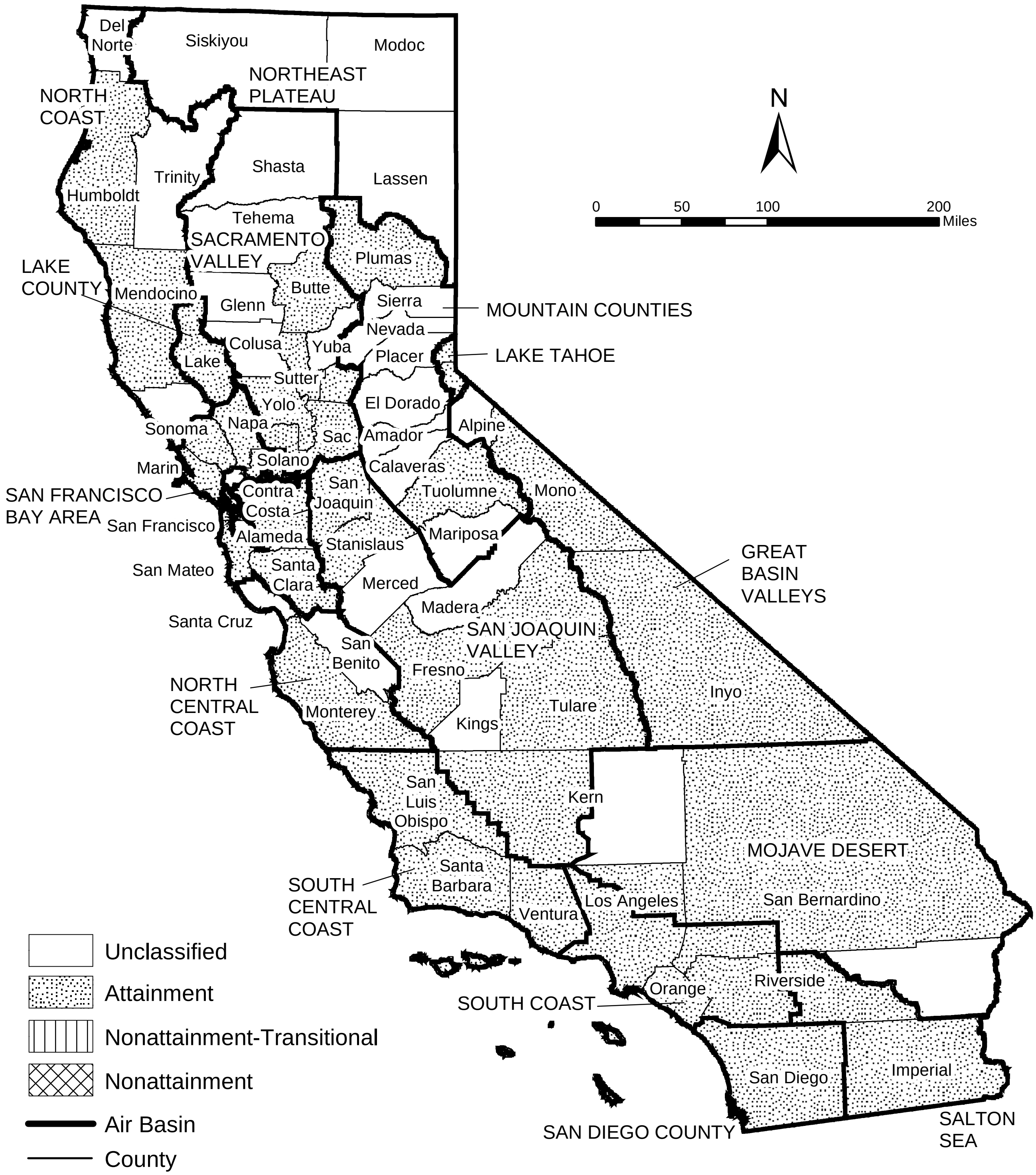
2013
Area Designations for State Ambient Air Quality Standards PM10

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

2013
Area Designations for State Ambient Air Quality Standards PM2.5

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

2013
Area Designations for State Ambient Air Quality Standards CARBON MONOXIDE



Source Date:
June 2013
Air Quality Planning Branch, AQPSD

2013
Area Designations for State Ambient Air Quality Standards
NITROGEN DIOXIDE

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

2013
Area Designations for State Ambient Air Quality Standards
SULFUR DIOXIDE

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

2013
Area Designations for State Ambient Air Quality Standards
LEAD

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards PM10

Source Date:
September 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards PM2.5

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards CARBON MONOXIDE

Unclassified/Attainment

Nonattainment

Air Basin

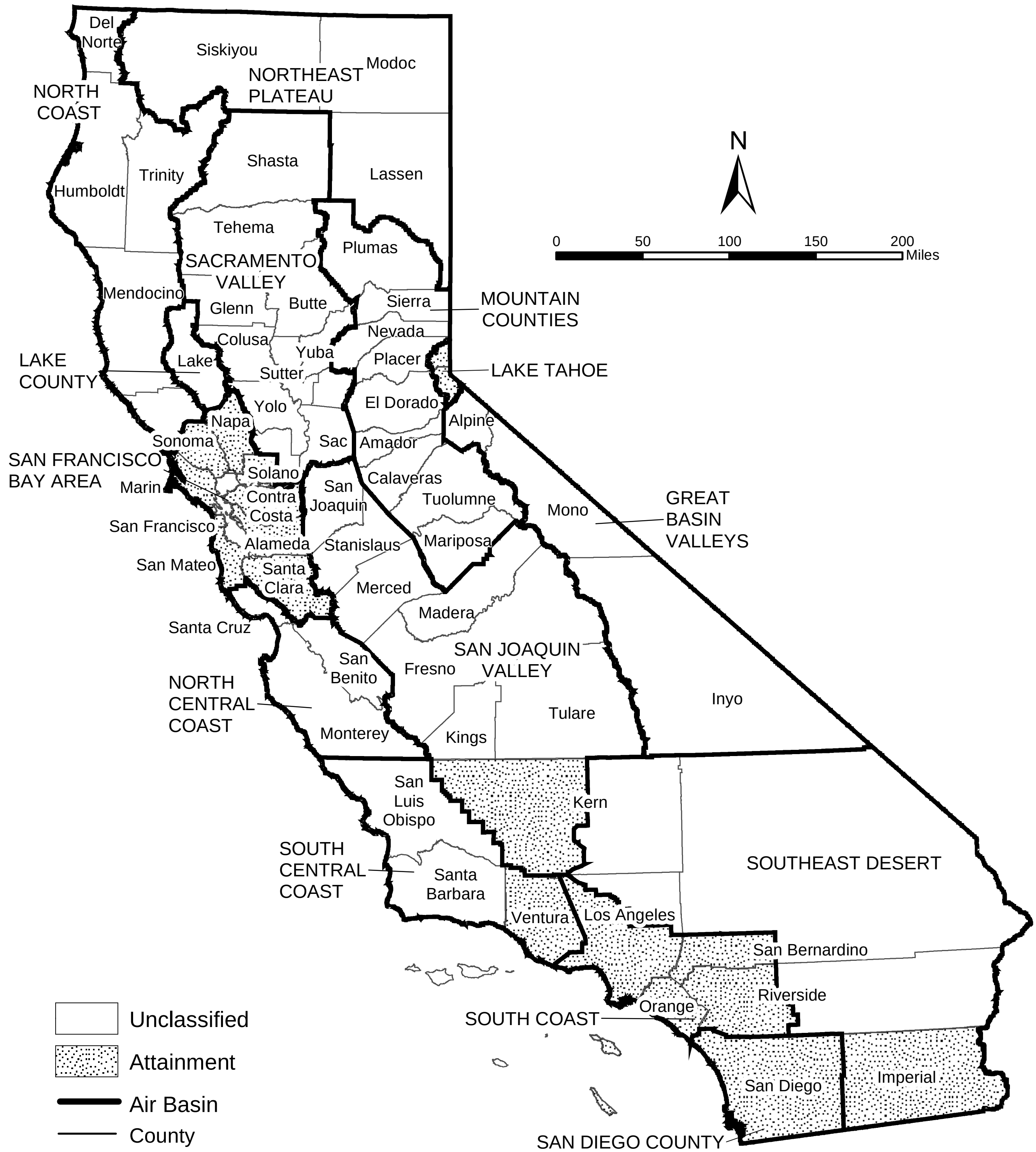
County

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards NITROGEN DIOXIDE

Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards SULFUR DIOXIDE



Source Date:
June 2013
Air Quality Planning Branch, AQPSD

Area Designations for National Ambient Air Quality Standards LEAD

Source Date:
June 2013
Air Quality Planning Branch, AQPSD