APPENDIX B

Traffic and Circulation

URBAN CROSSROADS
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November 14, 2018

Mr. Collin Ramsey
DUDEK
27372 Calle Arroyo
San Juan Capistrano, CA 92675

SUBJECT: 6TH AND CENTER WAREHOUSE TRIP GENERATION EVALUATION

Dear Mr. Collin Ramsey:

The following letter summarizes the findings for the Trip Generation Evaluation prepared for the proposed 6th and Center Warehouse development (referred to as "Project") located north of 6th Street and east of Center Avenue, in the City of Rancho Cucamonga.

SUMMARY OF FINDINGS

The proposed Project is anticipated to generate less than 50 peak hour trips during both the morning (7-9 AM) and evening (4-6 PM) peak hours. The Project's potential to impact off-site intersections is anticipated to be less-than-significant as the Project would generate less than the 50 peak hour trip threshold utilized in the County of San Bernardino's Congestion Management Plan (CMP) TIA guidelines.

PROPOSED PROJECT

PROJECT DESCRIPTION

It is our understanding that the Project is proposed to consist of a single warehouse building of approximately 117,293 square feet.

PROJECT TRIP GENERATION

The trip generation rates used for this assessment are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their <u>Trip Generation Manual</u> (10th Edition, 2017). The ITE <u>Trip Generation Manual</u> is a nationally recognized source for estimating site-specific trip generation.

Based on our understanding of the type of operations to likely occupy the future building space, the Warehousing land use (ITE Land Use Code 150) has been utilized for the purposes of this trip generation evaluation. Total truck mix percentage was obtained from the ITE <u>Trip Generation Handbook</u> (3rd Edition, 2017), which identifies an average of 20% of trucks for the warehousing land use. However, the ITE <u>Trip Generation Handbook</u> does not provide additional guidance on the mix of trucks by axle type. As such, the SCAQMD *Warehouse Truck Trip Study Data Results and Usage* (2014) is used to determine the mix of trucks by axle type.

Lastly, PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. Trip generation rates for actual vehicles and with PCE factors are shown on Table 1.

As shown on Table 2, the proposed Project is anticipated to generate a net total of 267 PCE trip-ends per day, 26 PCE AM peak hour trips and 28 PCE PM peak hour trips.

CONCLUSIONS

The proposed Project is anticipated to generate approximately 26 AM peak hour trips and 28 PM PCE peak hour trips. Based on the County of San Bernardino's Congestion Management Plan (CMP) TIA guidelines, which the City of Rancho Cucamonga follows, the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed Project will add 50 or more peak hour trips. It should be noted that the Project will contribute less than 50 peak hour trips to the study area intersections therefore additional off-site analysis is not required.

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi
Senior Associate

TABLE 1: TRIP GENERATION RATES

Land Use	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates (Actual Vehicles)[1]									
Warehouse[3,4]	TSF	150	0.131	0.039	0.170	0.051	0.139	0.190	1.740
Passenger Cars (80.00%)			0.105	0.031	0.136	0.041	0.111	0.152	1.392
2-Axle Trucks (3.34%)			0.004	0.001	0.005	0.002	0.005	0.007	0.058
3-Axle Trucks (4.14%)			0.005	0.002	0.007	0.002	0.006	0.008	0.072
4-Axle+ Trucks (12.52%)			0.016	0.005	0.021	0.006	0.017	0.023	0.218
Trip Generation Rates (PCE)[1]									
Warehouse[3,4]	TSF	150	0.131	0.039	0.170	0.051	0.139	0.190	1.740
Passenger Cars (80.00%)			0.105	0.031	0.136	0.041	0.111	0.152	1.392
2-Axle Trucks (3.34%) (PCE = 1.5)[5]			0.006	0.002	0.008	0.003	0.008	0.011	0.087
3-Axle Trucks (4.14%) (PCE = 2.0)[5]			0.010	0.004	0.014	0.004	0.012	0.016	0.144
4-Axle+ Trucks (12.52%) (PCE = 3.0)[5]			0.048	0.015	0.063	0.018	0.051	0.069	0.654

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
Normalized % - Without Cold Storage
16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks

[5] PCE rates are per San Bernardino County Transportation Authority (SBCTA).

TABLE 2: PROJECT TRIP GENERATION SUMMARY

Project	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Summary (Actual Vehicles)									
6th and Center Warehouse	117.293	TSF							
Passenger Cars:			12	4	16	5	13	18	163
Truck Trips:									
2-axle:			0	0	0	0	1	1	7
3-axle:			1	0	1	0	1	1	8
4+-axle:			2	1	3	1	2	3	26
- Net Truck Trips (Actual Trucks)			*3*	*1*	*4*	*1*	*4*	*5*	*41*
TOTAL NET TRIPS (Actual Vehicles)[1]			***15***	***5***	***20***	***6***	***17***	***23***	***204***
Trip Generation Summary (PCE)									
6th and Center Warehouse	117.293	TSF							
Passenger Cars:			12	4	16	5	13	18	163
Truck Trips:									
2-axle:			1	0	1	0	1	1	10
3-axle:			1	0	1	0	1	1	17
4+-axle:			6	2	8	2	6	8	77
- Net Truck Trips (PCE)			*8*	*2*	*10*	*2*	*8*	*10*	*104*
TOTAL NET TRIPS (PCE)[2]			***20***	***6***	***26***	***7***	***21***	***28***	***267***

[1] TOTAL NET TRIPS (Actual Vehicles) = Passenger Cars + Net Truck Trips (Actual Trucks).
[2] TOTAL NET TRIPS (PCE) = Passenger Cars + Net Truck Trips (PCE).

APPENDIX C

Air Quality, Greenhouse Gas Emissions, and Health Risk Assessment

6th and Center Warehouse

AIR QUALITY IMPACT ANALYSIS

CITY OF RANCHO CUCAMONGA

PREPARED BY:

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NOVEMBER 2, 2018

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LIST OF ABBREVIATED TERMS

(1)	Reference
$\mu g/m^3$	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
BACM	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
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
Pb	Lead
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	6th and Center Warehouse
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

EXECUTIVE SUMMARY

The results of this *6th and Center Warehouse Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.6	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Operational Emissions	3.7	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.8	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.9	*Less Than Significant*	*n/a*
Sensitive Receptors	3.10	*Less Than Significant*	*n/a*
Odors	3.11	*Less Than Significant*	*n/a*
Cumulative Impacts	3.12	*Less Than Significant*	*n/a*

1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed 6th and Center Warehouse ("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 thresholds established by the South Coast Air Quality Management District (SCAQMD).

1.1 SITE LOCATION

The proposed 6th and Center Warehouse Project is located north of 6th Street and east of Center Avenue, in the City of Rancho Cucamonga, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is proposed to include the development of 117,293 square feet of general warehouse use, as shown on Exhibit 1-B. For the purposes of this AQIA, it is assumed that the Project will be developed in a single phase with an Opening Year of 2020.

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

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

BACM AQ-1

All applicable measures shall be incorporated into Project plans and specifications as implementation of Rule 403, which include but are not limited to (6):

- 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, with complete coverage of disturbed areas, at least three (3) times daily during dry weather; 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

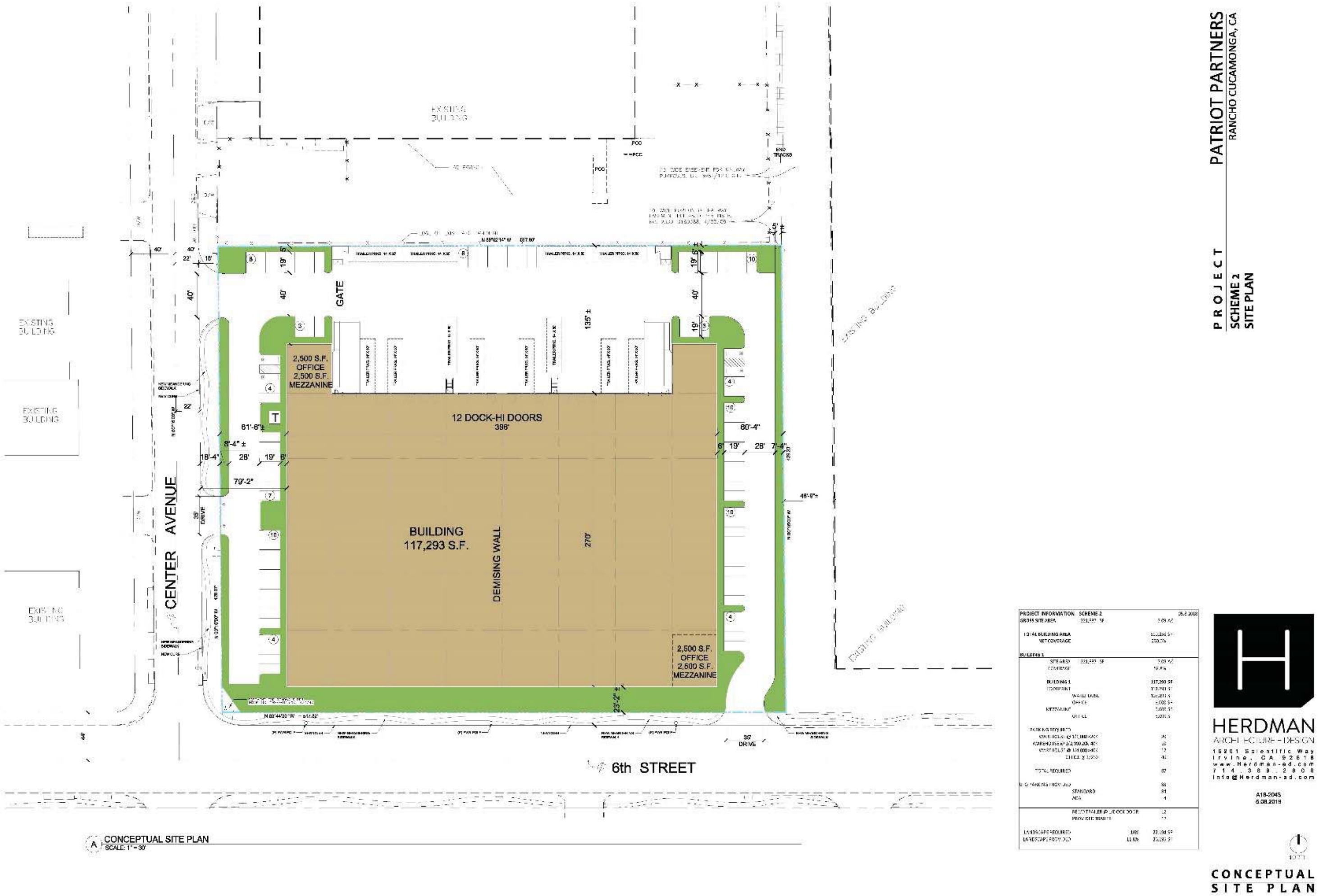
BACM AQ-2

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 1113 (7):

- In order to limit the VOC content of architectural coatings used in the SCAB, architectural coatings shall be no more than a low VOC default level of 50 g/L unless otherwise specified in the SCAQMD Table of Standards (pg. 32-33).

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



1.4 CONSTRUCTION-SOURCE MITIGATION MEASURES

Project construction-source emissions will be less than significant. Therefore, no mitigation measures are required.

1.5 OPERATIONAL-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

Project operational-source emissions will be less than significant. Therefore, no mitigation measures are required.

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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 (8). 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 sub-region 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 ½ hours of possible sunshine.

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

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

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

2.3 WIND PATTERNS AND PROJECT LOCATION

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

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

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 are shown in Table 2-1 (9).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-1. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O_3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 $\mu g/m^3$)		0.070 ppm (137 $\mu g/m^3$)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	12.0 $\mu g/m^3$	15 $\mu g/m^3$	
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)[10]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Gas Phase Chemiluminescence	100 ppb (188 $\mu g/m^3$)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)		0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet Fluorescence	75 ppb (196 $\mu g/m^3$)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 $\mu g/m^3$)	
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[12,13]	30 Day Average	1.5 $\mu g/m^3$	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 $\mu g/m^3$ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 $\mu g/m^3$		
Visibility Reducing Particles[14]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (10/1/15)

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

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

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

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

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

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

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

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

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

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

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

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

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

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

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (10/1/15)**

2.5 REGIONAL AIR QUALITY

The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Lead (Pb) air monitoring sites throughout the air district (10). In 2017, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM_{10}, and $PM_{2.5}$ at most monitoring locations. No areas of the SCAB exceeded federal or state standards for NO_2, SO_2, CO, sulfates or lead (10). See Table 2-3, for attainment designations for the SCAB (11) (12). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

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	Nonattainment ("Extreme")
Ozone - 8 hour standard	Nonattainment	Nonattainment ("Extreme")
PM_{10}	Nonattainment	Attainment (Maintenance)
$PM_{2.5}$	Nonattainment	Nonattainment ("Serious")
Carbon Monoxide	Attainment	Attainment (Maintenance)
Nitrogen Dioxide	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Unclassifiable/Attainment
Lead[1]	Attainment	Nonattainment (Partial)

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm
Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the South Coast Air Basin

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Inhalable Particulates (PM_{10}) and Ultra-Fine Particulates ($PM_{2.5}$) is the South Coast Air Quality Management District Southwest San Bernardino Valley monitoring station, located approximately 5.12 miles northeast of the Project site in Ontario (SRA 33). Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2) is the South Coast Air Quality Management District Northwest San Bernardino Valley monitoring station, located approximately 3.09 miles northwest of the Project site in Upland (SRA 32) (13). It should be noted that the Northwest San Bernardino Valley monitoring station was utilized in lieu of the Southwest San Bernardino Valley monitoring station only in instances where data was not available from the Southwest San Bernardino Valley 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 considered to be representative of the local air quality at the Project site. Data for O_3, NO_2, PM_{10}, and $PM_{2.5}$ for 2015 through 2017 was obtained from CARB's iADAM Air Quality Data Statistics (14). Data for CO

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

was obtained from the SCAQMD Air Quality Data Tables (15). It should be noted that the CO data for 2017 is currently unavailable from both CARB and SCAQMD. Additionally, data for SO_2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO_2 concentrations.

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2015-2017

POLLUTANT	STANDARD	YEAR		
		2015	2016	2017
Ozone				
Maximum Federal 1-Hour Concentration (ppm)		0.136	0.156	0.150
Maximum Federal 8-Hour Concentration (ppm)		0.106	0.116	0.127
Number of Days Exceeding Federal 1-Hour Standard		49	53	66
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	69	89	89
Number of Days Exceeding Federal 8-Hour Standard	> 0.070 ppm	2	10	9
Number of Days Exceeding State 8-Hour Standard	> 0.070 ppm	66	88	87
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration	> 35 ppm	2.1	1.7	--
Maximum 8-Hour Concentration	> 20 ppm	1.3	1.3	--
Nitrogen Dioxide (NO_2)				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.079	0.090	0.093
Maximum State 1-Hour Concentration	> 0.18 ppm	0.079	0.089	0.093
Annual Federal Standard Design Value		--	31	32
Annual State Standard Design Value		--	30	32
Number of Days Exceeding Federal 1-Hour Standard	> 0.18 ppm	0	0	0
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Particulate Matter ≤ 10 Microns (PM_{10})				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	77.7	184.0	106.5
Annual Federal Arithmetic Mean ($\mu g/m^3$)		28.1	26.3	32.8
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	--	1	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	52.7	49.5	67.8
Maximum State 24-Hour Concentration ($\mu g/m^3$)		52.7	49.5	67.8
Annual Federal Arithmetic Mean ($\mu g/m^3$)		14.4	14.7	14.6
Number of Samples Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	12.4	7.3	9.2

Source: Data for O_3, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from CARB's iADAM. Data for CO was obtained from SCAQMD Air Quality Data Tables.
-- = data not available from ARB or SCAQMD

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 (SO_2): Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).
- Nitrogen Oxides (Oxides of Nitrogen, or NO_X): Nitrogen oxides (NO_X) consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.
- Ozone (O_3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.
- $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.
- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical

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

- Reactive Organic Gases (ROG): Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms ROG and VOC (see previous) interchangeably.
- Lead (Pb): Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

Health Effects of Air Pollutants

Ozone

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

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

Carbon Monoxide

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

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

Particulate Matter

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

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term 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 PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

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

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

Sulfur Dioxide

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

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

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

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

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

Odors

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

2.7 REGULATORY BACKGROUND

2.7.1 FEDERAL REGULATIONS

The U.S. EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and lead (16). 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 (17). The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and lead. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3-1 (previously presented) provides the NAAQS within the basin.

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

2.7.2 CALIFORNIA REGULATIONS

California Air Resource Board (CARB). 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 (18) (16).

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

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

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017 and is applicable to the Project.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures (5.303.3) or
    - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

2.7.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB for PM_{10}, $PM_{2.5}$, and ozone. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (19). 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 3.9.

2.8 REGIONAL AIR QUALITY IMPROVEMENT

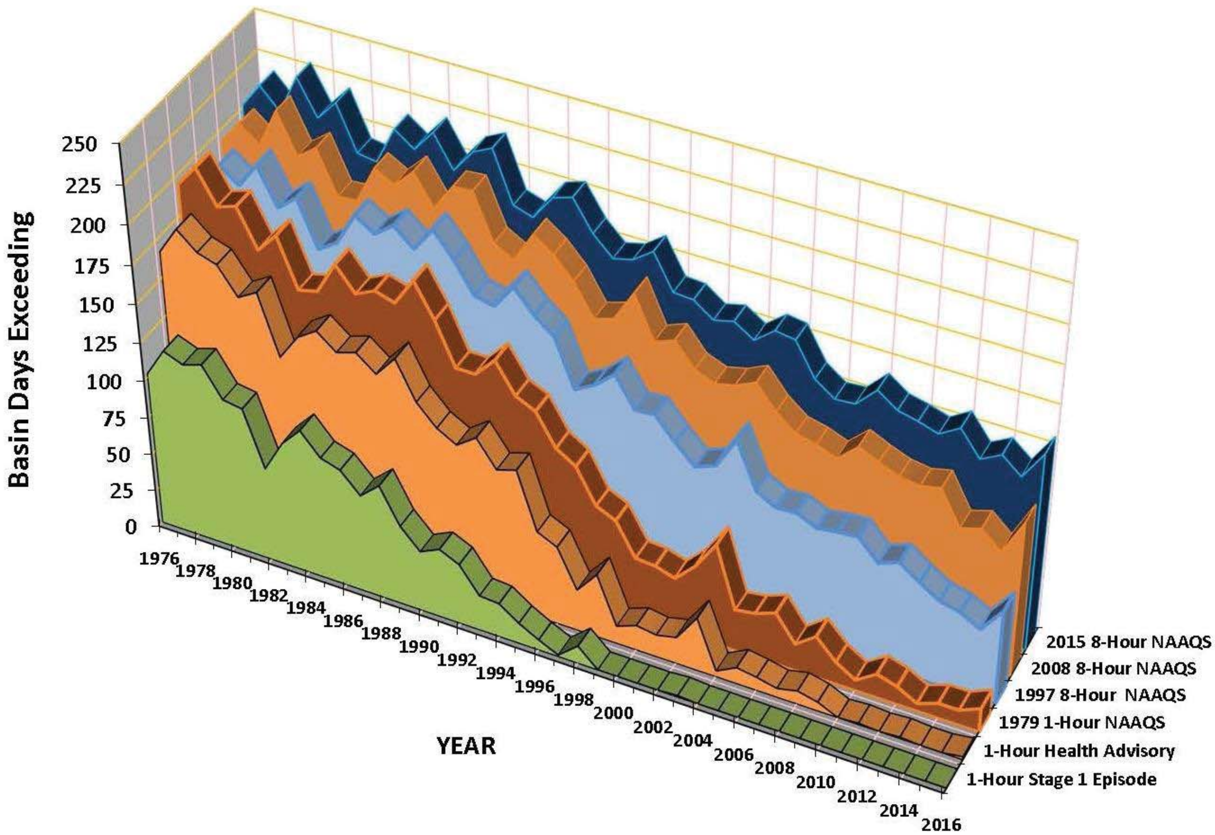
The Project is within the jurisdiction of the SCAQMD. In 1976, California adopted the Lewis Air Quality Management Act which created SCAQMD from a voluntary association of air pollution control districts in Los Angeles, Orange, Riverside, and San Bernardino counties. The geographic area of which SCAQMD consists is known as the Basin. SCAQMD develops comprehensive plans and regulatory 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 1970s and 1980s resulted in dramatic improvement in Basin air quality. Nearly all control programs developed through the early 1990s relied on (i) the development and application of cleaner technology; (ii) add-on emission controls, and (iii) uniform CEQA review throughout the Basin. Industrial emission sources have been significantly reduced by this approach and vehicular emissions have been reduced 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 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," (20).

Ozone, NO_X, VOC, and CO have been decreasing in the Basin since 1975 and are projected to continue to decrease through 2020 (21). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO_X and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_X 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. Ozone levels in the SCAB have decreased substantially over the last 30 years as shown in Table 2-4 (22). Today, the maximum measured concentrations are approximately one-third of concentrations within the late 70's.

TABLE 2-4: SOUTH COAST AIR BASIN OZONE TREND

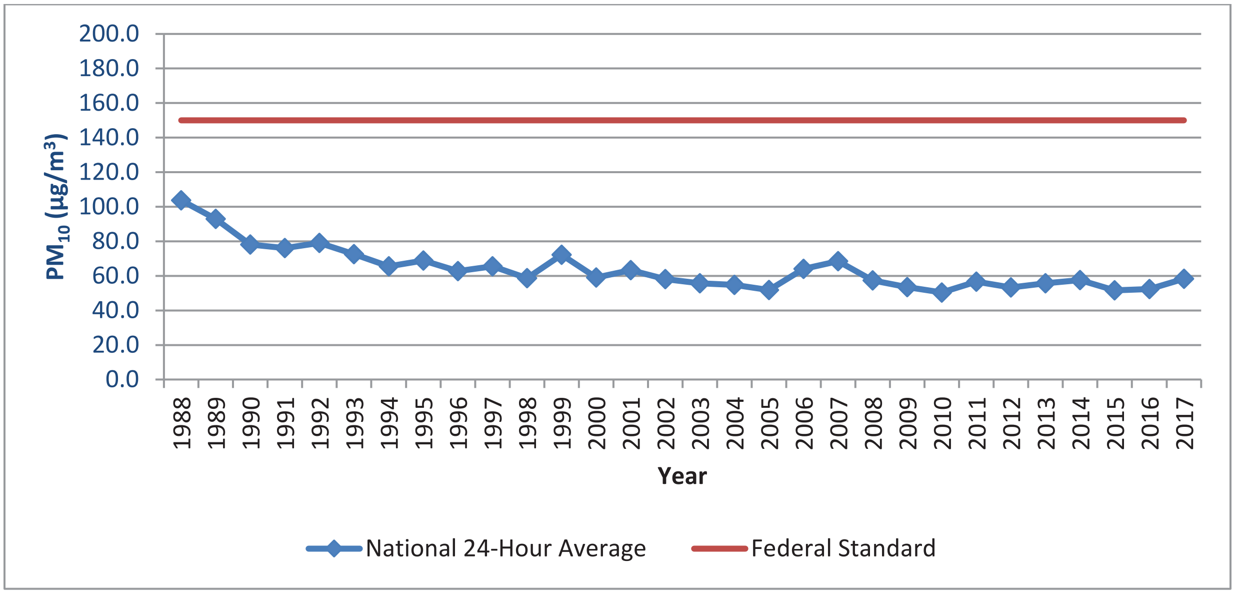


Source: Air Quality Management District

The overall trends of PM_{10} and $PM_{2.5}$ levels in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM_{10} have remained somewhat constant in the Basin and direct emissions of $PM_{2.5}$ 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.

As with other pollutants, the most recent PM_{10} statistics and also show overall improvement as illustrated in Tables 2-5 and 2-6. During the period for which data are available, the 24-hour national annual average concentration for PM_{10} decreased by approximately 44 percent, from 103.7 µg/m³ in 1988 to 58.2 µg/m³ in 2017 (23). Although the values are below the federal standard, it should be noted that there are days within the year where the concentrations will exceed the threshold. The 24-hour state annual average for emissions for PM_{10}, have decreased by approximately 56 percent since 1988 (23). Although data in the late 1990's show some variability, this is probably due to meteorology rather than a change in emissions. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop.

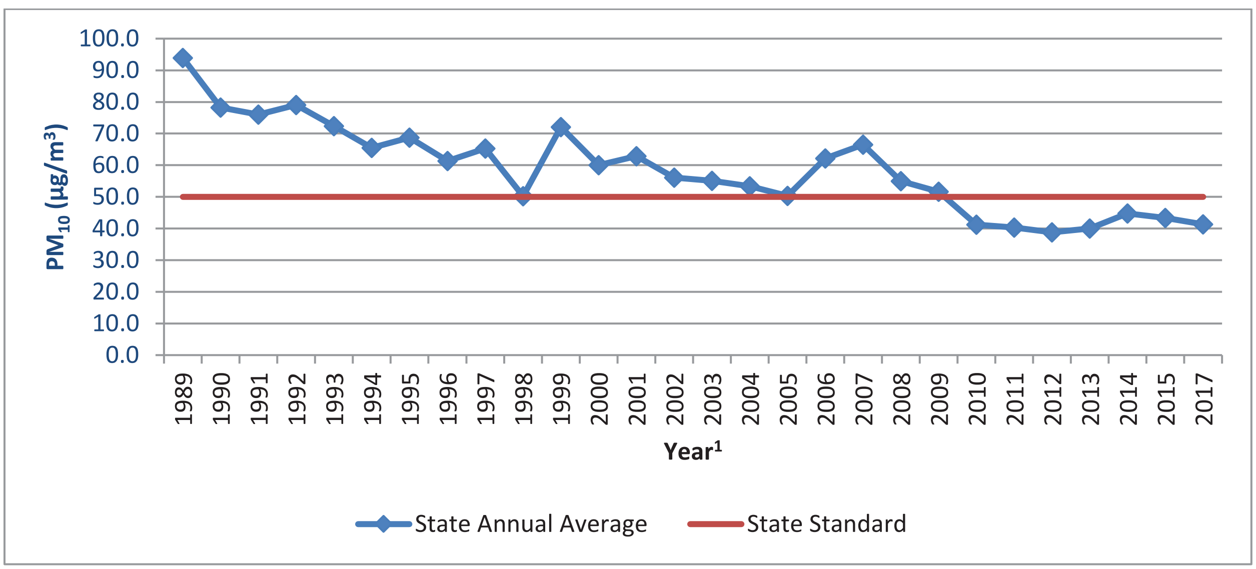
TABLE 2-5: SOUTH COAST AIR BASIN (NATIONAL 24-HOUR AVERAGE) PM_{10} TREND[1]



Source: California Air Resource Board

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

TABLE 2-6: SOUTH COAST AIR BASIN (STATE 24-HOUR AVERAGE) PM_{10} TREND[1]

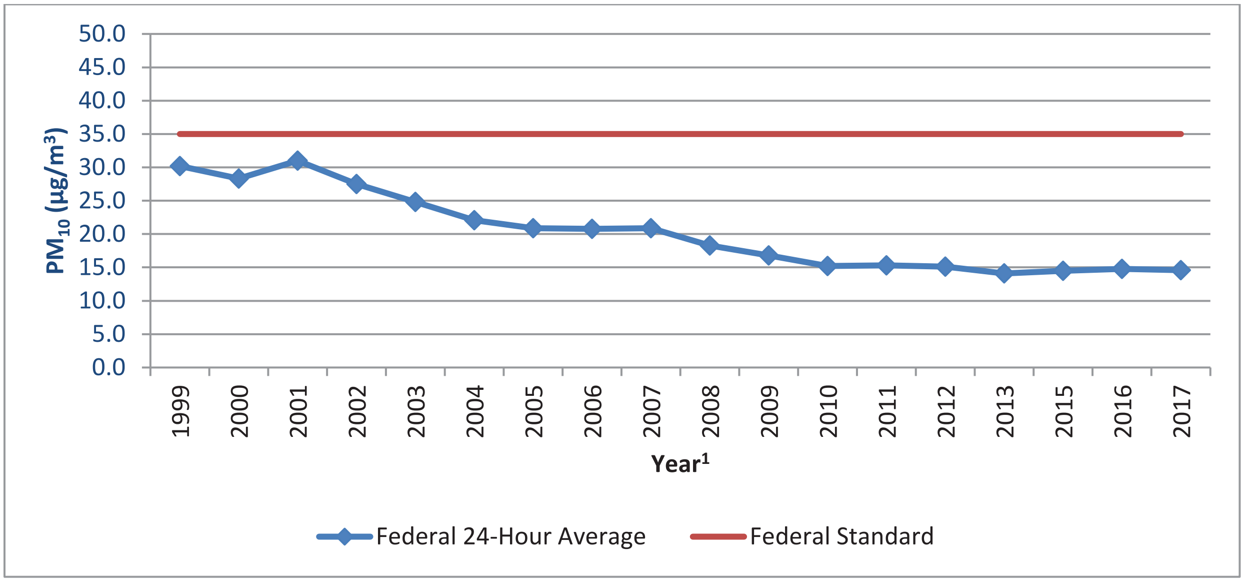


Source: California Air Resource Board

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

Tables 2-7 and 2-8 shows the most recent 24-hour average $PM_{2.5}$ concentrations in the SCAB from 1999 through 2017. Overall, the national and state annual average concentrations have decreased by almost 52 percent and 30 percent respectively (23). The SCAB is currently designated as nonattainment for the State and federal $PM_{2.5}$ standards.

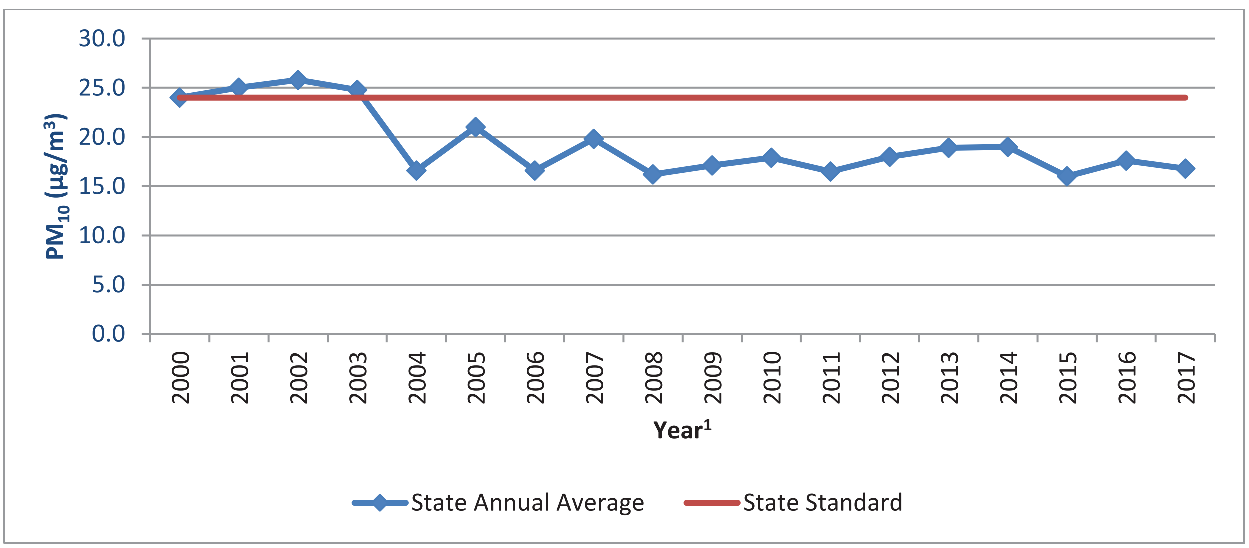
TABLE 2-7: SOUTH COAST AIR BASIN (NATIONAL 24-HOUR AVERAGE) $PM_{2.5}$ TREND[1]



Source: California Air Resource Board

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

TABLE 2-8: SOUTH COAST AIR BASIN (STATE 24-HOUR AVERAGE) $PM_{2.5}$ TREND[1]



Source: California Air Resource Board

[1] Some year have been omitted from the table as insufficient data (or no) data has been reported. Years with reported value of "0" have also been omitted.

While the 2012 AQMP PM_{10} attainment demonstration and the 2015 associated supplemental SIP submission indicated that attainment of the 24-hour standard was predicted to occur by the end of 2015, it could not anticipate the effect of the ongoing drought on the measured $PM_{2.5}$.

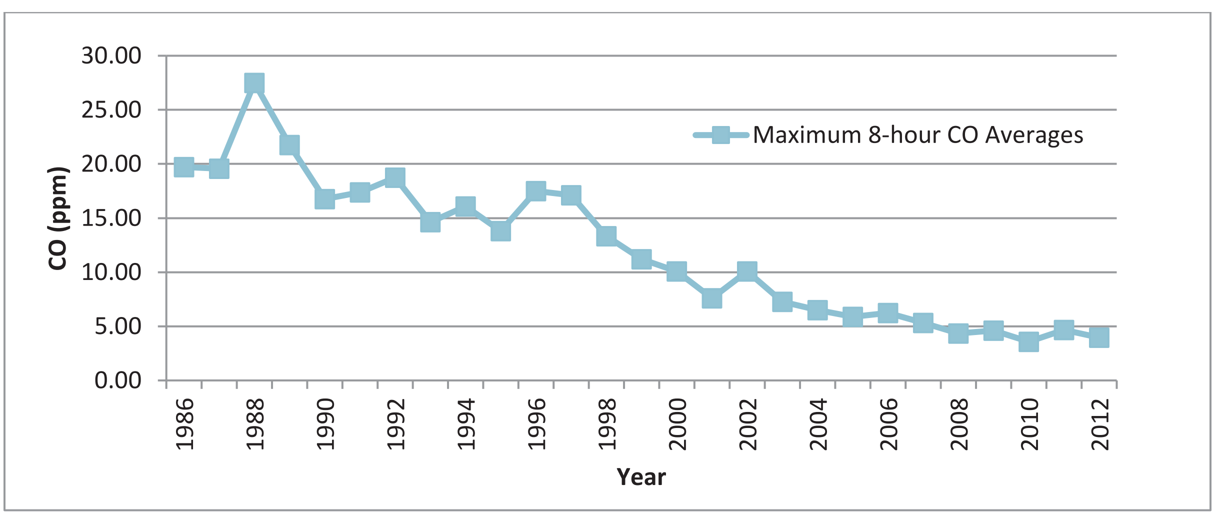
The 2006 to 2010 base period used for the 2012 attainment demonstration had near-normal rainfall. While the trend of $PM_{2.5}$- equivalent emission reductions continued through 2015, the severe drought conditions contributed to the $PM_{2.5}$ increases observed after 2012. As a result of the disrupted progress toward attainment of the federal 24-hour $PM_{2.5}$ standard, SCAQMD submitted a request and the U.S. EPA approved, in January 2016, a "bump up" to the nonattainment classification from "moderate" to "serious," with a new attainment deadline as soon as practicable, but not beyond December 31, 2019.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (24). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories (25).

The most recent CO concentrations in the SCAB are shown in Tables 2-9 and 2-10 (23). CO concentrations in the SCAB have decreased markedly — a total decrease of more about 80 percent in the peak 8-hour concentration since 1986. It should be noted 2012 is the most recent year where 8-hour CO averages and related statistics are available in the South Coast Air Basin. The number of exceedance days has also declined. 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.

Part of the control process of the SCAQMD's duty to greatly improve the air quality in the Basin is the uniform CEQA review procedures required by SCAQMD's CEQA Handbook (26). The single threshold of significance used to assess Project direct and cumulative impacts has in fact "worked" as evidenced by the track record of the air quality in the Basin dramatically improving over the course of the past decades. As stated by the SCAQMD, the District's thresholds of significance are based on factual and scientific data and are therefore appropriate thresholds of significance to use for this Project.

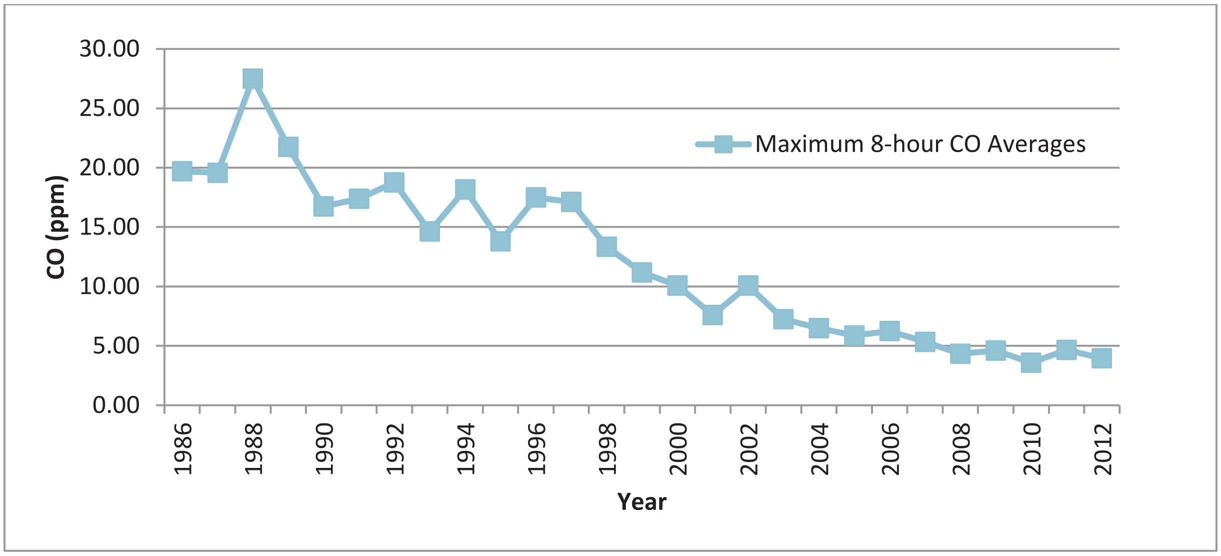
TABLE 2-9: SOUTH COAST AIR BASIN (NATIONAL 24-HOUR AVERAGE) CARBON MONOXIDE TREND[1]



Source: California Air Resource Board

[1] The most recent year where 8-hour concentration data is available is 2012.

TABLE 2-10: SOUTH COAST AIR BASIN (STATE 24-HOUR AVERAGE) CARBON MONOXIDE TREND[1]



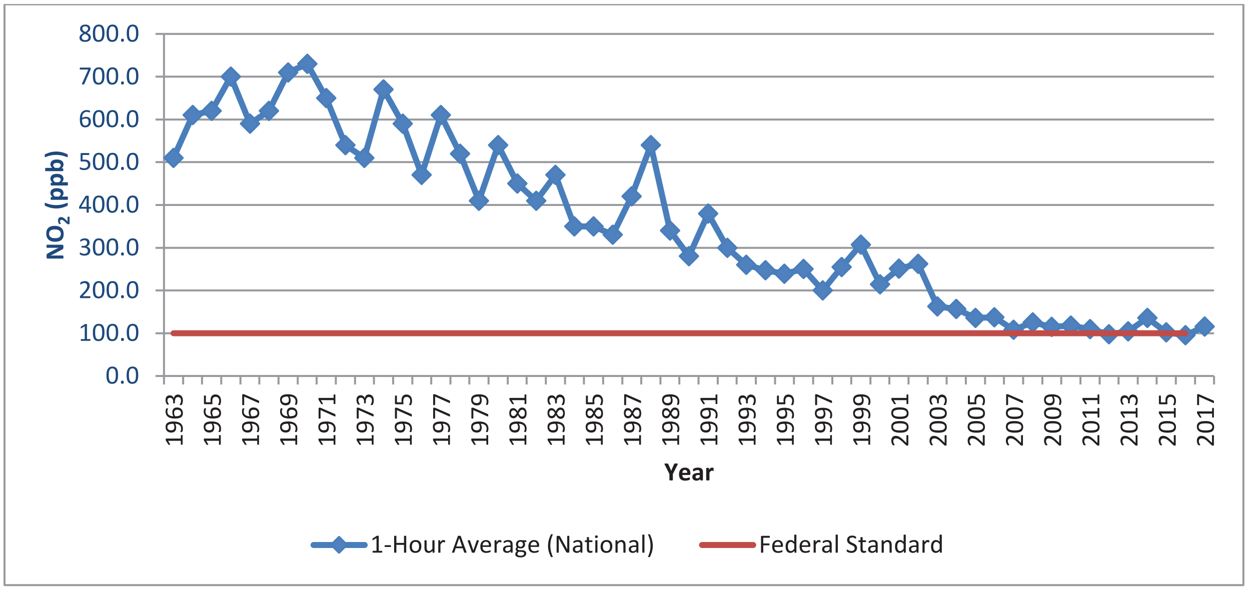
Source: California Air Resource Board

[1] The most recent year where 8-hour concentration data is available is 2012.

The most recent NO_2 data for the SCAB is shown in Tables 2-11 and 2-12 (23). Over the last 50 years, NO_2 values have decreased significantly; the peak 1-hour national and state averages for 2017 is approximately 77 percent lower than what it was during 1963. The SCAB attained the State 1-hour NO_2 standard in 1994, bringing the entire State into attainment. A new state annual average standard of 0.030 parts per million was adopted by the ARB in February 2007 (27). 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.

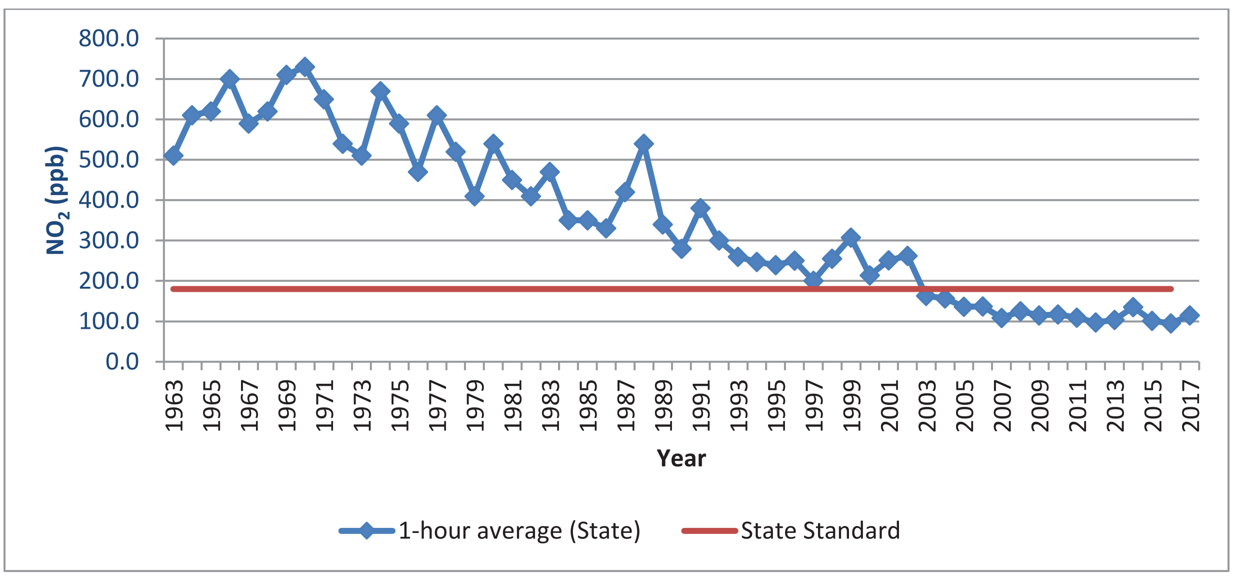
The American Lung Association website includes data collected from State air quality monitors that are used to compile an annual State of the Air report. The latest State of the Air Report compiled for the Basin was in 2017 (28). As noted in this report, air quality in the Basin has significantly improved 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 38% regionally in the initial 2000 State of the Air report (1996–1998) to 69% in the 2004 report and continues to decrease the number of days. The region has also seen dramatic reduction in particle pollution since the initial 2000 State of the Air report (28).

TABLE 2-11: SOUTH COAST AIR BASIN (NATIONAL 24-HOUR AVERAGE) NITROGEN DIOXIDE TREND



Source: California Air Resource Board

TABLE 2-12: SOUTH COAST AIR BASIN (STATE 24-HOUR AVERAGE) NITROGEN DIOXIDE TREND

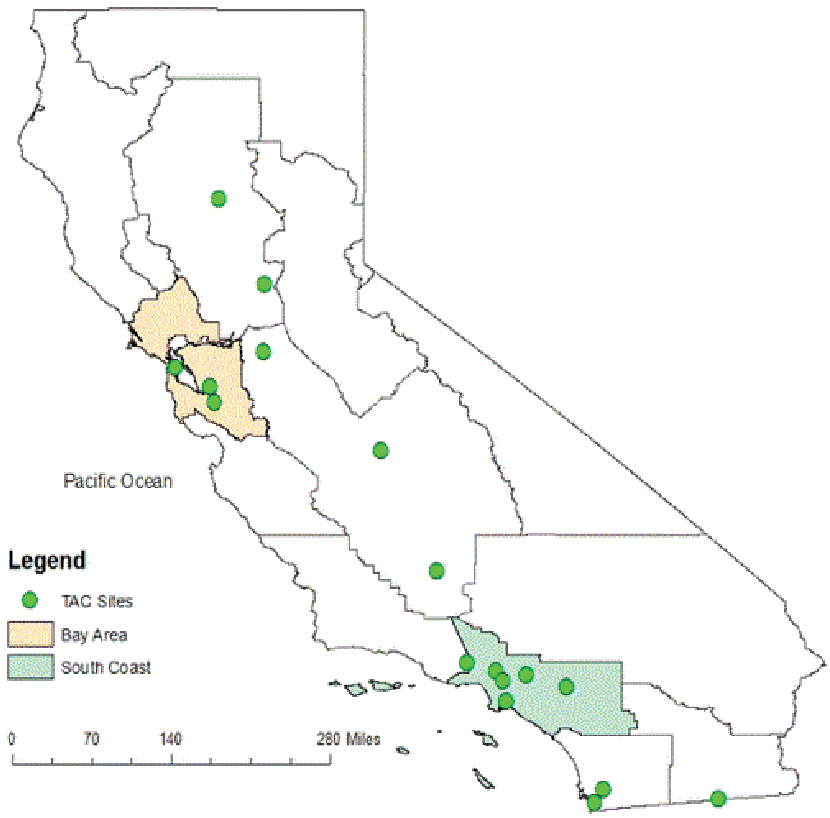


Source: California Air Resource Board

TOXIC AIR CONTAMINANTS (TACs) TRENDS

In 1984, as a result of public concern for exposure to airborne carcinogens, the CARB adopted regulations to reduce the amount of air toxic contaminant emissions resulting from mobile and area sources, such as cars, trucks, stationary products, and consumer products. According to the *Ambient and Emission Trends of Toxic Air Contaminants in California* journal article (29) which was prepared for CARB, results show that between 1990-2012, ambient concentration and emission trends for the seven TACs responsible for most of the known cancer risk associated with airborne exposure in California have declined significantly (between 1990 and 2012). The seven TACs studied include those that are derived from mobile sources: diesel particulate matter (DPM), benzene, and 1,3-butadiene; those that are derived from stationary sources: perchloroethylene and hexavalent chromium; and those derived from photochemical reactions of emitted VOCs: formaldehyde and acetaldehyde[2]. TACs data was gathered at monitoring sites from both the Bay Area and South Coast Air Basins, as shown on Exhibit 2-A; Several of the sites in the SCAB include Reseda, Compton, Rubidoux, Burbank, and Fontana. The decline in ambient concentration and emission trends of these TACs are a result of various regulations CARB has implemented to address cancer risk.

EXHIBIT 2-A: CALIFORNIA TOXIC AIR CONTAMINANT SITES



Source: California Air Resources Board

Mobile Source TACs

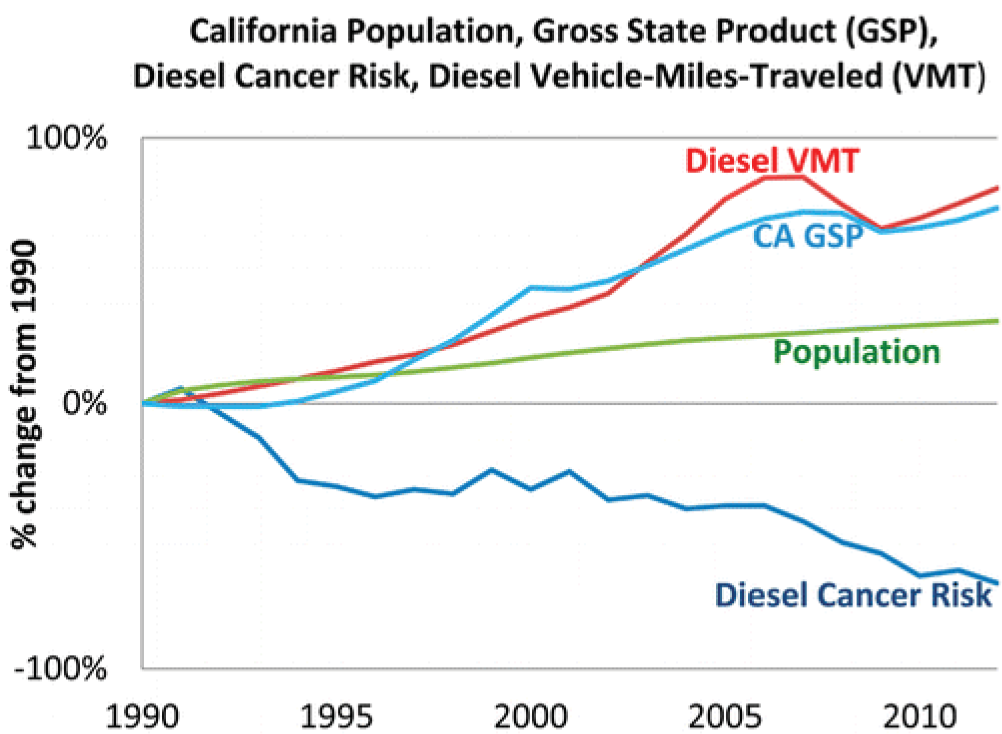
CARB introduced two programs that aimed at reducing mobile emissions for light and medium duty vehicles through vehicle emissions controls and cleaner fuel. In California, light-duty vehicles sold after 1996 are equipped with California's second-generation On-Board Diagnostic (OBD-II) system. The OBD II system monitors virtually every component that can affect the emission performance of the vehicle to ensure that the vehicle remains as clean as possible over its entire life and assists repair technicians in diagnosing and fixing problems with the computerized engine

2 It should be noted that ambient DPM concentrations are not measured directly. Rather, a surrogate method using the coefficient of haze (COH) and elemental carbon (EC) is used to estimate DPM concentrations.

controls. If a problem is detected, the OBD II system illuminates a warning lamp on the vehicle instrument panel to alert the driver. This warning lamp typically contains the phrase Check Engine or Service Engine Soon. The system will also store important information about the detected malfunction so that a repair technician can accurately find and fix the problem. ARB has recently developed similar OBD requirements for heavy-duty vehicles over 14,000 lbs. CARB's phase II Reformulated Gasoline (RFG-2) regulation, adopted in 1996, also led to a reduction of mobile source emissions. Through such regulations, benzene levels declined 88% from 1990-2012. 1,3-Butadiene concentrations also declined 85% from 1990-2012 as a result of the use of reformulated gasoline and motor vehicle regulations (29).

In 2000, CARB's Diesel Risk Reduction Plan (DRRP) recommended the replacement and retrofit of diesel-fueled engines and the use of ultra-low-sulfur (<15ppm) diesel fuel. As a result of these measures, DPM concentrations have declined 68% since 2000, even though the state's population increased 31% and the amount of diesel vehicles miles traveled increased 81%, as shown on Exhibit 2-B. With the implementation of these diesel-related control regulations, ARB expects a DPM decline of 71% for 2000-2020.

EXHIBIT 2-B: DIESEL PARTICULATE MATTER AND DIESEL VEHICLE MILES TREND



Source: California Air Resources Board

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 diesel particulate matter (DPM). More specifically, the CARB Drayage Truck Regulation (30), the CARB statewide On-road Truck and Bus

Regulation (31), and the Ports of Los Angeles and Long Beach "Clean Truck Program" (CTP) require accelerated implementation of "clean trucks" into the statewide truck fleet (32). 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 (HDT), in terms of grams of DPM generated per mile traveled, will dramatically be reduced due to the aforementioned regulatory requirements.

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. The SCAQMD initiated a comprehensive urban toxic air pollution study, called MATES-II (for Multiple Air Toxics Exposure Study). 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 estimates the average excess cancer risk level from exposure to TACs is an approximately 17% decrease in comparison to the MATES-II study.

Nonetheless, the SCAQMD's most recent in-depth analysis of the toxic air contaminants and their resulting health risks for all of Southern California was from the *Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV,"* which shows that cancer risk has decreased more than 55% between MATES III (2005) and MATES IV (2012) (25).

MATES-IV study represents the baseline health risk for a cumulative analysis. MATES-IV calculated cancer risks based on monitoring data collected at ten fixed sites within the South Coast Air Basin (SCAB). None of the fixed monitoring sites are within the local area of the Project site. However, MATES-IV has extrapolated the excess cancer risk levels throughout the basin by modeling the specific grids. MATES-IV modeling predicted an excess cancer risk of 1,149.12 in one million for the Project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68% of the total risk shown in MATES-IV. Cumulative Project generated TACs are limited to DPM.

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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 SCAQMD has developed regional and localized significance thresholds for regulated pollutants, as summarized at Table 3-1 (33). The SCAQMD's CEQA Air Quality Significance Thresholds (March 2015) 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. It should be noted that the SCAQMD provides a threshold for emissions of lead, however for purposes of this analysis no lead emissions are calculated as there are no substantive sources of lead emissions. Additionally, the air quality modeling program (discussed below) does not calculate any emissions of lead from typical construction or operational activities.

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS (1 OF 2)

Pollutant	Construction	Operations
	Regional Thresholds	
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Source: Regional Thresholds presented in this table are based on the SCAQMD Air Quality Significance Thresholds, March 2015

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS (2 OF 2)

Pollutant	Construction	Operations
Localized Thresholds		
NO_X	220 lbs/day (site preparation)	270 lbs/day
	187 lbs/day (grading)	
CO	1,713 lbs/day (site preparation)	2,193 lbs/day
	1,392 lbs/day (grading)	
PM_{10}	241 lbs/day (site preparation)	78 lbs/day
	187 lbs/day (grading)	
$PM_{2.5}$	160 lbs/day (site preparation)	41 lbs/day
	153 lb/day (grading)	
	7 lbs/day (Grading)	

Source: Localized Thresholds presented in this table are based on the SCAQMD Final Localized Significance Threshold Methodology, July 2008

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 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (34). 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 through 3.2.

3.4 CONSTRUCTION EMISSIONS

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

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

Construction is expected to commence in November 2018 and will last through January 2020. Construction duration by phase is shown on Table 3-2. 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 time passes and the analysis year increases due to emission regulations becoming more stringent.[3] The duration of construction activity and associated construction equipment were based on similar projects, CalEEMod defaults, and consultation with the Client. 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. 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 3-3.

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. It is our understanding the Project site with not require demolition and that the Project site is expected to balance (will not require soil import/export).

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 CalEEMod model defaults.

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	11/12/2018	11/23/2018	10
Grading	11/24/2018	12/21/2018	20
Building Construction	12/22/2018	11/08/2019	230
Paving	11/09/2019	12/06/2019	20
Architectural Coating	11/09/2019	01/03/2020	40

3 As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2, Section 4.3 "OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Activity	Equipment	Number	Hours Per Day
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	3	8
	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
Building Construction	Cranes	1	8
	Crawler Tractors	3	8
	Forklifts	3	8
	Generator Sets	1	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1403 (Asbestos); Rule 1113 (Architectural Coatings) (35); Rule 431.2 (Low Sulfur Fuel) (36); Rule 403 (Fugitive Dust) (6); and Rule 1186 / 1186.1 (Street Sweepers) (37). It should be noted that Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation is required.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION

Year	Emissions (pounds per day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2018	6.16	71.68	25.14	0.06	11.19	6.88
2019	30.22	44.08	24.00	0.06	3.12	2.07
2020	28.32	2.31	3.14	0.01	0.36	0.21
Maximum Daily Emissions	**30.22**	**71.68**	**25.14**	**0.06**	**11.19**	**6.88**
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 VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

<u>Architectural Coatings</u>

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.

<u>Consumer Products</u>

Consumer products 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 warehouse uses proposed by the Project, no substantive on-site use of consumer products is anticipated.

<u>Landscape Maintenance Equipment</u>

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.

3.5.2 ENERGY SOURCE EMISSIONS

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.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project-related operational air quality impacts derive predominantly from mobile sources. In this regard, approximately 87 percent (by weight) of all Project operational-source emissions would be generated by mobile sources (vehicles). Neither the Project Applicant nor the City has any regulatory control over these tail pipe emissions. Rather, vehicle tail pipe source emissions are regulated by CARB and USEPA. As summarized previously herein, as the result of CARB and USEPA actions, Basin-wide vehicular-source emissions have been reduced dramatically over the past years and are expected to further decline as clean vehicle and fuel technologies improve.

The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *6th and Center Warehouse Trip Generation Evaluation* (Urban Crossroads 2018) were utilized in this analysis (38).

Per the *6th and Center Warehouse Trip Generation Evaluation*, the Project is expected to generate a net total of approximately 204 trip-ends per day (actual vehicles) (38). The Project trip generation includes 41 truck trip-ends per day from the proposed Project site including 16.67% 2-axle trucks, 20.69% 3-axle trucks, and 62.64% 4+-axle trucks.

3.5.3.1 Trip Length

For passenger car trips, a one-way trip length of 16.6 miles was assumed as contained in the CalEEMod™ model defaults. For trucks, an average one-way trip length of 55.01 miles was derived from distances from the Project site to the far edges of the South Coast Air Basin (SCAB). Assuming 50% of trucks travel to the Port of Los Angles and Port of Long Beach and the remaining 50% of trucks travel to either the Cajon Pass, Desert Center, Santa Clarita and/or the San Diego County Line, a weighted truck trip length of 55.01 miles was determined. For purposes of analysis, and as a conservative measure, a truck trip length of 55 miles was used. It is appropriate to stop the VMT calculation at the boundary of the SCAB because any activity beyond that boundary would be speculative and occur in a different Air Basin; this approach is also consistent with professional industry practice. The approach for analysis purposes in this AQIA report represents a conservative estimate of emissions and almost certainly overstates the emissions impact from the Project.

- Project site to the Port of Los Angeles/Long Beach: 61 miles;
- Project site to Banning Pass: 59 miles;
- Project site to San Diego County Line: 67 miles:
- Project site to Cajon Pass: 28 miles;
- Project site to Downtown Los Angeles: 44 miles;

Average Weighted Truck Trip Length = 55.01 miles

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.

3.5.4 OPERATIONAL EMISSIONS SUMMARY

The estimated maximum peak operational emissions are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.2 and 3.3. Under the assumed scenarios, emissions resulting from the Project operations would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-5: SUMMARY OF PEAK OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	**Emissions (pounds per day)**					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Source	2.67	2.10E-04	0.02	0.00	8.00E-05	8.00E-05
Energy Source	7.04E-03	0.06	0.05	3.80E-04	4.86E-03	4.86E-03
Mobile (Passenger Cars)	0.23	0.35	5.11	0.02	2.07	0.56
Mobile (Trucks)	0.63	17.84	4.90	0.07	2.11	0.67
Total Maximum Daily Emissions	**3.53**	**18.25**	**10.09**	**0.08**	**4.19**	**1.24**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**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	2.67	2.10E-04	0.02	0.00	8.00E-05	8.00E-05
Energy Source	7.04E-03	0.06	0.05	3.80E-04	4.86E-03	4.86E-03
Mobile (Passenger Cars)	0.21	0.38	4.54	0.02	2.07	0.56
Mobile (Trucks)	0.64	18.38	4.99	0.07	2.11	0.67
Total Maximum Daily Emissions	**3.52**	**18.83**	**9.60**	**0.08**	**4.19**	**1.24**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFICANCE - 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) (21). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

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

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

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (39).

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.

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Southwest San Bernardino Valley monitoring station (SRA 33). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$). 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 (41) 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 LST impacts are appropriately evaluated through dispersion modeling.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-6 is used to determine the maximum daily disturbed-acreage for use in determining the applicability of the SCAQMD's LST look-up tables. Based on Table 3-6, the proposed Project could actively disturb approximately 3.5 ace per day for site preparation activities and 2.5 acres per day for the grading activities. The acres disturbed is based on the equipment list and days in for demolition, site preparation, and grading according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday (as shown on Table 3-6). The equipment-specific grading rates are summarized in the CalEEMod user's guide, *Appendix A: Calculation Details for CalEEMod* (October 2017).

TABLE 3-6: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Site Preparation	Crawler Tractors	4	0.5	8	2
	Rubber Tired Dozers	3	0.5	8	1.5
Total acres disturbed per day during Site Preparation					3.5
Grading	Crawler Tractors	3	0.5	8	1.5
	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
Total acres disturbed per day during Grading					2.5

Sensitive Receptors

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors"; they are also known to be locations where an individual can remain for 24 hours.

Sensitive receptors in the vicinity of the Project site are illustrated at Exhibit 3-A and include single-family residential dwellings and commercial businesses located at receptor locations R1 to R5. The nearest sensitive receptor is represented by location R3 where an existing residential home is located roughly 2,043 feet/622.71 meters northeast of the Project site boundary.

Localized air quality impacts were evaluated at sensitive receptor land uses nearest the Project site. To assess the stationary source operational and construction air impacts, the following 5 sensitive receptor locations, as shown on Exhibit 3-A, were identified.

R1: Located approximately 2,727 feet south of the Project site, R1 represents existing residential homes on 4th Street.

R2: Location R2 represents existing residential homes located approximately 3,595 feet southeast of the Project site on 4th Street.

R3: Location R3 represents the residential home located roughly 2,043 feet northeast of the Project site on 8th Street.

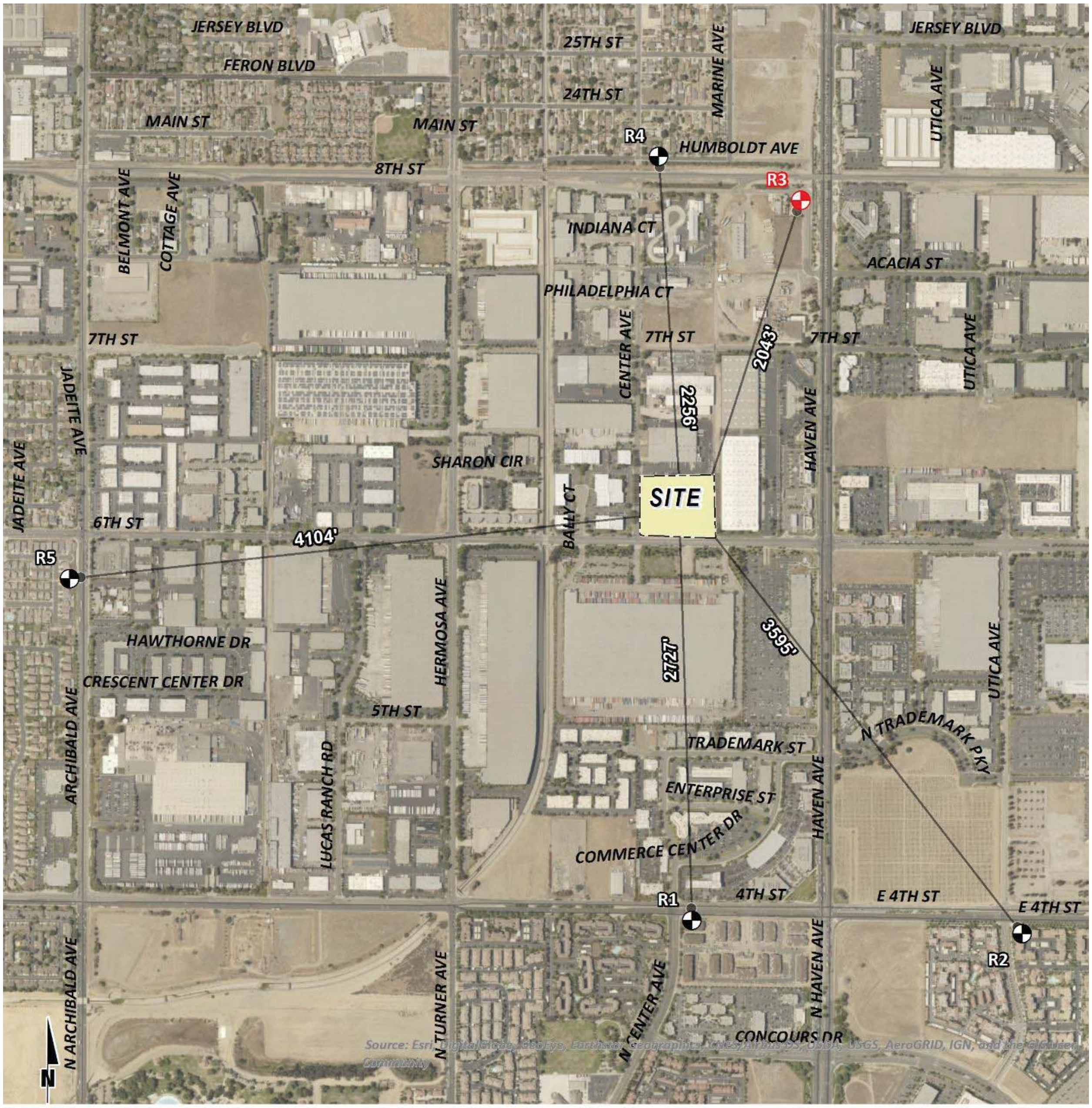
R4: Location R4 represents the existing residential community at roughly 2,256 feet north of the Project site on 8th Street.

R5: Location R5 represents the existing office use located roughly 4,104 feet west of the Project site on Archibald Avenue.

As previously stated, the nearest sensitive receptor is located roughly 2,043 feet/622.71 meters northeast of the Project site boundary. As a conservative measure, a 500-meter receptor distance will be used.

The *Methodology* explicitly states that "*LSTs base on shorter averaging periods, such as the* NO_2 *and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours* (42)." Consistent with the SCAQMD's Final LST Methodology, the nearest industrial or commercial use to the Project site will be used to determine operational and construction air impacts for emissions of NO_2 and CO. The nearest industrial or commercial use is a manufacturing facility immediately adjacent to the Project site. As such, a 25-meter receptor distance is utilized as a screening threshold to determine LSTs for emissions of NO_2 and CO and a 500-meter receptor distance will be used for PM_{10} and $PM_{2.5}$.

EXHIBIT 3-A: SENSITIVE RECEPTOR LOCATIONS



Legend

Residential Receptor

TYPE

- Residential Receptor (R1)
- Maximally Exposed Individual Residential Receptor

CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Since the total acreage disturbed is less than five acres per day for the demolition, site preparation, and grading activities of construction, the SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized, consistent with SCAQMD guidance, in order to interpolate the threshold values for the other disturbed acreage not identified. As previously stated, a 25-meter receptor distance is utilized as a screening threshold to determine LSTs for emissions of NO_2 and CO and a 500-meter receptor distance will be used for PM_{10} and $PM_{2.5}$.

Table 3-7 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Outputs from the model runs for construction LSTs are provided in Appendix 3.1. It should be noted that credit for BACMs AQ-1 have been taken. Under the assumed scenarios, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation is required.

TABLE 3-7: LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION

On-Site Site Preparation Emissions	Emissions (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.60**	**23.73**	**10.99**	**6.83**
SCAQMD Localized Threshold	220	1,713	241	160
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**48.23**	**17.52**	**5.13**	**3.18**
SCAQMD Localized Threshold	187	1,392	187	153
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

The Project is located on 5.09 acre parcel. As noted previously, the LST methodology provides look-up tables for sites with an area with daily disturbance of 5 acres or less. For projects that exceed 5 acres, the 5-acre LST look-up tables can be used as a screening tool to determine which pollutants require additional detailed analysis. This approach is conservative as it assumes that all on-site emissions associated with the project would occur within a concentrated 5-acre area. This screening method would therefore over-predict potential localized impacts, because by assuming that on-site operational activities are occurring over a smaller area, the resulting concentrations of air pollutants are more highly concentrated once they reach the smaller site boundary than they would be for activities if they were spread out over a larger surface area. On a larger site, the same amount of air pollutants generated would disperse over a larger surface area and would result in a lower concentration once emissions reach the project-site boundary.

As such, LSTs for a 5-acre site during operations are used as a screening tool to determine if further detailed analysis is required.

Table 3-8 shows the calculated emissions for the Project's operational activities compared with the applicable LSTs. The LST analysis includes on-site sources only; however, the CalEEMod™ model outputs do not separate on-site and off-site emissions from mobile sources. In an effort to establish a maximum potential impact scenario for analytic purposes, the emissions shown on Table 3-8 represent all on-site Project-related stationary (area) sources and five percent (5%) of the Project-related mobile sources. Considering that the weighted trip length used in CalEEMod™ for the Project is approximately 16.6 miles for passenger cars and 55 miles for trucks, 5% of this total would represent an on-site travel distance of approximately 0.83 mile/ 4,383 feet for each passenger car and approximately 2.75 miles/ 14,520 feet for each truck. Thus the 5% assumption is conservative and would tend to overstate the actual impact. Modeling based on these assumptions demonstrates that even within broad encompassing parameters, Project operational-source emissions would not exceed applicable LSTs.

As previously noted, a 500-meter receptor distance is utilized to determine the LSTs for emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$.

LOCALIZED THRESHOLDS FOR OPERATIONAL ACTIVITY

Applicable localized thresholds from the SCAQMD's mass-rate LST lookup tables for a five-acre project site are as follows:

- NO_X: 270 pounds per day;
- CO: 2,193 pounds per day.
- PM_{10}: 78 pounds per day; or
- $PM_{2.5}$: 41 pounds per day.

If emissions exceed the applicable LST thresholds for operational activity, then additional dispersion modeling needs to be conducted to determine if there is an actual exceedance of the AAQS.

As shown on Table 3-8 operational emissions will 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 3-8: LOCALIZED SIGNIFICANCE OPERATIONS SUMMARY

Peak Operational Emissions	Emissions (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**2.72**	**0.97**	**0.21**	**0.07**
SCAQMD Localized Threshold	270	2,193	78	41
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

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.

An adverse CO concentration, known as a "hot spot", 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 (43).

It has long been recognized that CO hotspots 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 concentration in the SCAB is now designated as attainment, as previously noted in Table 2-3. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-4.

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, as shown on Table 3-9.

TABLE 3-9: CO MODEL RESULTS

Intersection Location	Carbon Monoxide Concentrations (parts per million)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	3.7
Sunset-Highland	4	4.5	3.5
La Cienega-Century	3.7	3.1	5.2
Long Beach-Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the 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 traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (43). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and

Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

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 (44).

TABLE 3-10: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Wilshire-Veteran	560/933	721/1,400	4,954/2,069	1,830/3,317	8,062/7,719
Sunset-Highland	1,551/2,238	2,304/1,832	1,417/1,764	1,342/1,540	6,614/5,374
La Cienega-Century	821/1,674	1,384/2,029	2,540/2,243	1,890/2,728	6,634/8,674
Long Beach-Imperial	756/1,150	479/944	1,217/2,020	1,760/1,400	4,212/5,514

Source: 2003 AQMP
Notes: vph-vehicles per hour

The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" 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.

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.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (24). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories (45). The Project's consistency with the AQMP will be determined using the 2016 AQMP is discussed below:

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) (46). 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

Consistency Criterion No. 1 refers to violations of the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if LSTs or regional significance thresholds were exceeded. As evaluated, the Project's regional and localized construction-source emissions would not exceed applicable regional significance threshold and LST thresholds, respectively. As such, a less than significant impact is expected.

Operational Impacts

The Project would not exceed the applicable regional significance thresholds and LST thresholds for operational activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

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.

Overview

The 2016 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 Rancho Cucamonga General Plan is considered to be consistent with the AQMP.

Construction Impacts

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts

The City of Rancho Cucamonga designates the Project site as General Industrial. The General Industrial land use designation permits a wide range of industrial activities that include manufacturing, assembling, fabrication, wholesale supply, heavy commercial, green technology, and office uses (47). The proposed Project includes the development of 117,293 square feet of general warehouse use. The Project land uses are generally consistent with the land uses allowed under the City land use designations for the Project site. As such, the Project would be consistent with the growth projections and no changes are proposed to these existing designations.

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

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 is permitted/conditionally permitted in the adopted City General Plan. The Project is therefore 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. Therefore, sensitive receptors would not be subjected to a significant air quality impact during Project construction.

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 3.9. Thus a less than significant impact to sensitive receptors during operational activity is expected.

3.11 ODORS

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 warehouse refuse. 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, thereby precluding substantial generation of odors due to temporary holding of refuse on-site Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (48).

3.12 CUMULATIVE IMPACTS

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

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (49). In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

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 cumulatively 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. As previously noted, the Project will not exceed the applicable SCAQMD regional threshold for construction and operational-source emissions. As such, the Project will not result in a cumulatively significant impact for construction or operational activity.

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4 FINDINGS & CONCLUSIONS

CONSTRUCTION-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project would not exceed the numerical thresholds of significance established by the South Coast Air Quality Management District (SCAQMD) for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

LOCALIZED IMPACTS

Project construction-source emissions would not exceed the SCAQMD's localized significance thresholds for any criteria pollutant. Therefore, a less than significant impact would occur.

ODORS

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

OPERATIONAL-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project would not exceed the numerical thresholds of significance established by the SCAQMD. Thus a less than significant impact would occur for Project-related operational-source emissions and no mitigation measures are required.

LOCALIZED IMPACTS

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.

ODORS

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 refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (48). 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.

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6 CERTIFICATION

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed 6th and Center Warehouse Project. The information contained in this air quality impact assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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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 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

TABLE 2-3

National Ambient Air Quality Standards (NAAQS) Attainment Status - South Coast Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Nonattainment ("extreme")	2/26/2023 (revised deadline)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment ("extreme")	Pending (beyond 2032)
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment ("extreme")	7/20/2032
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment ("extreme")	6/15/2024
PM2.5[e]	(2006) **24-Hour** (35 µg/m³)	Nonattainment ("serious")	12/31/2019
	(2012) **Annual** (12.0 µg/m³)	Nonattainment ("moderate")	12/31/2021
	(1997) **Annual** (15.0 µg/m³)	Attainment (final determination pending)	4/5/2015 (attained 2013)
PM10[f]	(1987) **24-hour** (150 µg/m³)	Attainment (Maintenance)	7/26/2013 (attained)
Lead (Pb)[g]	(2008) **3-Months Rolling** (0.15 µg/m³)	Nonattainment (Partial) (Attainment determination to be requested)	12/31/2015
CO	(1971) **1-Hour** (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	(1971) **8-Hour** (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
NO_2[h]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
SO_2[i]	(2010) **1-Hour** (75 ppb)	Designations Pending (expect Unclassifiable/Attainment)	N/A (attained)
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable
b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration
c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05 ; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard; original attainment date was 11/15/2010; the revised attainment date is 2/6/23
d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained
e) The attainment deadline for the 2006 24-hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; U.S.EPA approved reclassification to "serious," effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m³; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 U.S. EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m³) and 24-hour PM2.5 (65 µg/m³) NAAQS, effective August 24, 2016
f) The annual PM10 NAAQS was revoked, effective 12/18/06; the 24-hour PM10 NAAQS deadline was 12/31/2006; the Basin's Attainment Re-designation Request and PM10 Maintenance Plan was approved by U.S. EPA on 6/26/13, effective 7/26/13
g) Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending
h) New 1-hour NO_2 NAAQS became effective 8/2/10, with attainment designations 1/20/12; annual NO_2 NAAQS retained
i) The 1971 annual and 24-hour SO2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour NAAQS; final area designations expected by 12/31/20 due to new source-specific monitoring requirements; Basin expected to be in attainment due to ongoing clean data

TABLE 2-4

National Ambient Air Quality Standards (NAAQS) Attainment Status
Coachella Valley Portion of the Salton Sea Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Attainment	11/15/2007 (attained 12/31/2013)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment (Severe)	Pending
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment (Severe-15)	7/20/2027
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment (Severe-15)	6/15/2019
PM2.5[e]	(2006) **24-Hour** (35 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
	(2012) **Annual** (12.0 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
	(1997) **Annual** (15.0 µg/m^3)	Unclassifiable/Attainment	N/A (attained)
PM10[f]	(1987) **24-hour** (150 µg/m^3)	Nonattainment ("serious")	12/31/2006
Lead (Pb)	(2008) **3-Months Rolling** (0.15 µg/m^3)	Unclassifiable/Attainment	Unclassifiable/ Attainment
CO	(1971) **1-Hour** (35 ppm)	Unclassifiable/Attainment	N/A (attained)
	(1971) **8-Hour** (9 ppm)	Unclassifiable/Attainment	N/A (attained)
NO_2[g]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Unclassifiable/Attainment	N/A (attained)
SO_2[h]	(2010) **1-Hour** (75 ppb)	Designations Pending	N/A
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	Unclassifiable/ Attainment

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable
b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration
c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05; the Southeast Desert Modified Air Quality Management Area, including the Coachella Valley, had not timely attained this standard by the 11/15/07 "severe-17" deadline, based on 2005-2007 data; on 8/25/14, U.S. EPA proposed a clean data finding based on 2011–2013 data and a determination of attainment for the former 1-hour ozone NAAQS for the Southeast Desert nonattainment area; this rule was finalized by U.S. EPA on 4/15/15, effective 5/15/15, that included preliminary 2014 data
d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the 1997 and 2008 ozone NAAQS until they are attained
e) The annual PM2.5 standard was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m^3
f) The annual PM10 standard was revoked, effective 12/18/06; the 24-hour PM10 NAAQS attainment deadline was 12/31/2006; the Coachella Valley Attainment Re-designation Request and PM10 Maintenance Plan was postponed by U.S. EPA pending additional monitoring and analysis in the southeastern Coachella Valley
g) New 1-hour NO_2 NAAQS became effective 8/2/10; attainment designations 1/20/12; annual NO_2 NAAQS retained
h) The 1971 Annual and 24-hour SO_2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard; final area designations expected by 12/31/2020 with SSAB expected to be designated Unclassifiable/Attainment

The current status of CAAQS attainment for the pollutants with State standards is presented in Table 2-5 for the Basin and the Riverside County portion of the SSAB (Coachella Valley).

TABLE 2-5

California Ambient Air Quality Standards (CAAQS) Attainment Status
South Coast Air Basin and Coachella Valley portion of Salton Sea Air Basin

Pollutant	Averaging Time and Level[b]	Designation[a]	
		South Coast Air Basin	Coachella Valley
Ozone (O_3)	**1-Hour** (0.09 ppm)[c]	Nonattainment	Nonattainment
	8-Hour (0.070 ppm)[d]	Nonattainment	Nonattainment
PM2.5	**Annual** (12.0 µg/m^3)	Nonattainment	Attainment
PM10	**24-Hour** (50 µg/m^3)	Nonattainment	Nonattainment
	Annual (20 µg/m^3)	Nonattainment	Nonattainment
Lead (Pb)	**30-Day Average** (1.5 µg/m^3)	Attainment	Attainment
CO	**1-Hour** (20 ppm)	Attainment	Attainment
	8-Hour (9.0 ppm)	Attainment	Attainment
NO_2	**1-Hour** (0.18 ppm)	Attainment	Attainment
	Annual (0.030 ppm)	Attainment	Attainment
SO_2	**1-Hour** (0.25 ppm)	Attainment	Attainment
	24-Hour (0.04 ppm)	Attainment	Attainment
Sulfates	**24-Hour** (25 µg/m^3)	Attainment	Attainment
H_2S[c]	**1-Hour** (0.03 ppm)	Unclassified	Unclassified [c)]

a) CA State designations shown were updated by CARB in 2016, based on the 2013–2015 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events; Source: http://www.arb.ca.gov/desig/statedesig.htm#current

b) CA State standards, or CAAQS, for ozone, CO, SO_2, NO_2, PM10 and PM2.5 are values not to be exceeded; lead, sulfates, and H_2S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations

c) SCAQMD began monitoring H_2S in the southeastern Coachella Valley in November 2013 due to odor events related to the Salton Sea; three full years of data are not yet available for a State designation, but nonattainment is anticipated for the H_2S CAAQS in at least part of the Coachella Valley

The 1979 federal 1-hour ozone standard (0.12 ppm) was revoked by the U.S. EPA and replaced by the 8-hour average ozone standard (0.08 ppm), effective June 15, 2005. However, the Basin and the former Southeast Desert Modified Air Quality Management Area (which included the Coachella Valley) had not attained the 1-hour federal ozone NAAQS by the attainment dates in 2010 and 2007, respectively, and, therefore, had continuing obligations under the former standard. On August 25, 2014, U.S. EPA

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APPENDIX 3.1:

CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS

6th and Center Warehouse (Construction - Unmitigated)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Architectural Coating activities to be conducted concurrent with Paving activities.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment -

Off-road Equipment - Hours are based on an 8-hour workday.

Grading -

Architectural Coating -

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	1/31/2020	1/3/2020
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	1/18/2019	12/21/2018
tblConstructionPhase	PhaseEndDate	1/3/2020	12/6/2019
tblConstructionPhase	PhaseEndDate	12/21/2018	11/23/2018
tblConstructionPhase	PhaseStartDate	1/4/2020	11/9/2019
tblConstructionPhase	PhaseStartDate	1/19/2019	12/22/2018
tblConstructionPhase	PhaseStartDate	12/22/2018	11/24/2018
tblConstructionPhase	PhaseStartDate	12/7/2019	11/9/2019

tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	110.25	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00

tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	27,123,312.50	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					
2018	6.1580	71.6792	25.1443	0.0628	20.3885	3.1167	23.5052	10.2131	2.8674	13.0804	0.0000	6,272.6042	6,272.6042	1.7919	0.0000	6,303.9740
2019	30.2157	44.0787	24.0022	0.0624	1.2699	1.8497	3.1197	0.3420	1.7288	2.0709	0.0000	6,174.2939	6,174.2939	1.2370	0.0000	6,205.2193
2020	28.3270	2.3084	3.1413	6.0000e-003	0.2124	0.1495	0.3619	0.0563	0.1494	0.2057	0.0000	578.6334	578.6334	0.0349	0.0000	579.5056
Maximum	**30.2157**	**71.6792**	**25.1443**	**0.0628**	**20.3885**	**3.1167**	**23.5052**	**10.2131**	**2.8674**	**13.0804**	**0.0000**	**6,272.6042**	**6,272.6042**	**1.7919**	**0.0000**	**6,303.9740**

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					
2018	6.1580	71.6792	25.1443	0.0628	8.0742	3.1167	11.1909	4.0156	2.8674	6.8830	0.0000	6,272.6042	6,272.6042	1.7919	0.0000	6,303.9740
2019	30.2157	44.0787	24.0022	0.0624	1.2699	1.8497	3.1197	0.3420	1.7288	2.0709	0.0000	6,174.2939	6,174.2939	1.2370	0.0000	6,205.2193
2020	28.3270	2.3084	3.1413	6.0000e-003	0.2124	0.1495	0.3619	0.0563	0.1494	0.2057	0.0000	578.6334	578.6334	0.0349	0.0000	579.5056
Maximum	**30.2157**	**71.6792**	**25.1443**	**0.0628**	**8.0742**	**3.1167**	**11.1909**	**4.0156**	**2.8674**	**6.8830**	**0.0000**	**6,272.6042**	**6,272.6042**	**1.7919**	**0.0000**	**6,303.9740**

	ROG	NOx	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	56.30	0.00	45.63	58.40	0.00	40.36	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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
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	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**	**0.0000**	**0.0518**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
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	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**	**0.0000**	**0.0518**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/23/2018	5	10	
2	Grading	Grading	11/24/2018	12/21/2018	5	20	
3	Building Construction	Building Construction	12/22/2018	11/8/2019	5	230	
4	Paving	Paving	11/9/2019	12/6/2019	5	20	
5	Architectural Coating	Architectural Coating	11/9/2019	1/3/2020	5	40	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 2.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 175,940; Non-Residential Outdoor: 58,647; Striped Parking Area: 6,279 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Crawler Tractors	3	8.00	212	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	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
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	93.00	36.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

<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					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0526	71.6031	23.7339	0.0569		3.1151	3.1151		2.8659	2.8659		5,733.2885	5,733.2885	1.7849		5,777.9098
Total	**6.0526**	**71.6031**	**23.7339**	**0.0569**	**20.1873**	**3.1151**	**23.3024**	**10.1597**	**2.8659**	**13.0256**		**5,733.2885**	**5,733.2885**	**1.7849**		**5,777.9098**

3.2 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

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					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0526	71.6031	23.7339	0.0569		3.1151	3.1151		2.8659	2.8659	0.0000	5,733.2885	5,733.2885	1.7849		5,777.9098
Total	**6.0526**	**71.6031**	**23.7339**	**0.0569**	**7.8730**	**3.1151**	**10.9881**	**3.9623**	**2.8659**	**6.8282**	**0.0000**	**5,733.2885**	**5,733.2885**	**1.7849**		**5,777.9098**

3.2 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.3 Grading - 2018

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					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	3.8906	48.2258	17.5202	0.0439		1.9550	1.9550		1.7986	1.7986		4,414.2701	4,414.2701	1.3742		4,448.6257
Total	**3.8906**	**48.2258**	**17.5202**	**0.0439**	**8.1431**	**1.9550**	**10.0981**	**3.5393**	**1.7986**	**5.3378**		**4,414.2701**	**4,414.2701**	**1.3742**		**4,448.6257**

3.3 Grading - 2018

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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

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					3.1758	0.0000	3.1758	1.3803	0.0000	1.3803			0.0000			0.0000
Off-Road	3.8906	48.2258	17.5202	0.0439		1.9550	1.9550		1.7986	1.7986	0.0000	4,414.2701	4,414.2701	1.3742		4,448.6256
Total	**3.8906**	**48.2258**	**17.5202**	**0.0439**	**3.1758**	**1.9550**	**5.1308**	**1.3803**	**1.7986**	**3.1789**	**0.0000**	**4,414.2701**	**4,414.2701**	**1.3742**		**4,448.6256**

3.3 Grading - 2018

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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.9680	42.7820	19.7151	0.0430		2.0103	2.0103		1.8795	1.8795		4,237.0493	4,237.0493	1.1452		4,265.6805
Total	**3.9680**	**42.7820**	**19.7151**	**0.0430**		**2.0103**	**2.0103**		**1.8795**	**1.8795**		**4,237.0493**	**4,237.0493**	**1.1452**		**4,265.6805**

3.4 Building Construction - 2018

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	0.1599	4.3699	1.2061	9.1600e-003	0.2304	0.0324	0.2628	0.0663	0.0310	0.0973		974.7232	974.7232	0.0734		976.5569
Worker	0.5448	0.3936	4.2231	0.0107	1.0395	8.2900e-003	1.0478	0.2757	7.6400e-003	0.2833		1,060.8317	1,060.8317	0.0362		1,061.7367
Total	**0.7047**	**4.7635**	**5.4291**	**0.0198**	**1.2699**	**0.0407**	**1.3106**	**0.3420**	**0.0386**	**0.3806**		**2,035.5549**	**2,035.5549**	**0.1096**		**2,038.2935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.9680	42.7820	19.7151	0.0430		2.0103	2.0103		1.8795	1.8795	0.0000	4,237.0493	4,237.0493	1.1452		4,265.6805
Total	**3.9680**	**42.7820**	**19.7151**	**0.0430**		**2.0103**	**2.0103**		**1.8795**	**1.8795**	**0.0000**	**4,237.0493**	**4,237.0493**	**1.1452**		**4,265.6805**

3.4 Building Construction - 2018

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	0.1599	4.3699	1.2061	9.1600e-003	0.2304	0.0324	0.2628	0.0663	0.0310	0.0973		974.7232	974.7232	0.0734		976.5569
Worker	0.5448	0.3936	4.2231	0.0107	1.0395	8.2900e-003	1.0478	0.2757	7.6400e-003	0.2833		1,060.8317	1,060.8317	0.0362		1,061.7367
Total	**0.7047**	**4.7635**	**5.4291**	**0.0198**	**1.2699**	**0.0407**	**1.3106**	**0.3420**	**0.0386**	**0.3806**		**2,035.5549**	**2,035.5549**	**0.1096**		**2,038.2935**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949		4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**		**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

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	0.1450	4.1222	1.1090	9.0700e-003	0.2304	0.0277	0.2581	0.0663	0.0265	0.0929		965.9386	965.9386	0.0707		967.7061
Worker	0.4959	0.3472	3.7701	0.0103	1.0395	8.0900e-003	1.0476	0.2757	7.4500e-003	0.2831		1,027.3298	1,027.3298	0.0321		1,028.1323
Total	**0.6409**	**4.4693**	**4.8791**	**0.0194**	**1.2699**	**0.0358**	**1.3057**	**0.3420**	**0.0340**	**0.3760**		**1,993.2684**	**1,993.2684**	**0.1028**		**1,995.8384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949	0.0000	4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**	**0.0000**	**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

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	0.1450	4.1222	1.1090	9.0700e-003	0.2304	0.0277	0.2581	0.0663	0.0265	0.0929		965.9386	965.9386	0.0707		967.7061
Worker	0.4959	0.3472	3.7701	0.0103	1.0395	8.0900e-003	1.0476	0.2757	7.4500e-003	0.2831		1,027.3298	1,027.3298	0.0321		1,028.1323
Total	**0.6409**	**4.4693**	**4.8791**	**0.0194**	**1.2699**	**0.0358**	**1.3057**	**0.3420**	**0.0340**	**0.3760**		**1,993.2684**	**1,993.2684**	**0.1028**		**1,995.8384**

3.5 Paving - 2019

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	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7688**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

Unmitigated Construction Off-Site

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					
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	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Mitigated Construction On-Site

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					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7688**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

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	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**28.2656**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.6 Architectural Coating - 2019

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	0.1013	0.0709	0.7702	2.1100e-003	0.2124	1.6500e-003	0.2140	0.0563	1.5200e-003	0.0579		209.8846	209.8846	6.5600e-003		210.0485
Total	**0.1013**	**0.0709**	**0.7702**	**2.1100e-003**	**0.2124**	**1.6500e-003**	**0.2140**	**0.0563**	**1.5200e-003**	**0.0579**		**209.8846**	**209.8846**	**6.5600e-003**		**210.0485**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**28.2656**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.6 Architectural Coating - 2019

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	0.1013	0.0709	0.7702	2.1100e-003	0.2124	1.6500e-003	0.2140	0.0563	1.5200e-003	0.0579		209.8846	209.8846	6.5600e-003		210.0485
Total	**0.1013**	**0.0709**	**0.7702**	**2.1100e-003**	**0.2124**	**1.6500e-003**	**0.2140**	**0.0563**	**1.5200e-003**	**0.0579**		**209.8846**	**209.8846**	**6.5600e-003**		**210.0485**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479		375.2641	375.2641	0.0291		375.9904
Total	**28.2333**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**		**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

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					
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	0.0938	0.0633	0.6994	2.0400e-003	0.2124	1.6100e-003	0.2140	0.0563	1.4800e-003	0.0578		203.3693	203.3693	5.8300e-003		203.5152
Total	**0.0938**	**0.0633**	**0.6994**	**2.0400e-003**	**0.2124**	**1.6100e-003**	**0.2140**	**0.0563**	**1.4800e-003**	**0.0578**		**203.3693**	**203.3693**	**5.8300e-003**		**203.5152**

Mitigated Construction On-Site

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					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479	0.0000	375.2641	375.2641	0.0291		375.9904
Total	**28.2333**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**	**0.0000**	**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

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	0.0938	0.0633	0.6994	2.0400e-003	0.2124	1.6100e-003	0.2140	0.0563	1.4800e-003	0.0578		203.3693	203.3693	5.8300e-003		203.5152
Total	**0.0938**	**0.0633**	**0.6994**	**2.0400e-003**	**0.2124**	**1.6100e-003**	**0.2140**	**0.0563**	**1.4800e-003**	**0.0578**		**203.3693**	**203.3693**	**5.8300e-003**		**203.5152**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	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	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

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**

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	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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

6th and Center Warehouse (Construction - Unmitigated)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 10 **Operational Year** 2020

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Architectural Coating activities to be conducted concurrent with Paving activities.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment -

Off-road Equipment - Hours are based on an 8-hour workday.

Grading -

Architectural Coating -

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	1/31/2020	1/3/2020
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	1/18/2019	12/21/2018
tblConstructionPhase	PhaseEndDate	1/3/2020	12/6/2019
tblConstructionPhase	PhaseEndDate	12/21/2018	11/23/2018
tblConstructionPhase	PhaseStartDate	1/4/2020	11/9/2019
tblConstructionPhase	PhaseStartDate	1/19/2019	12/22/2018
tblConstructionPhase	PhaseStartDate	12/22/2018	11/24/2018
tblConstructionPhase	PhaseStartDate	12/7/2019	11/9/2019

tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	LoadFactor	0.43	0.43
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentType		Crawler Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	110.25	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00

tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	27,123,312.50	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					
2018	6.1495	71.6726	25.4679	0.0638	20.3885	3.1167	23.5052	10.2131	2.8674	13.0804	0.0000	6,374.2153	6,374.2153	1.7923	0.0000	6,405.5200
2019	30.2010	44.0456	24.2978	0.0633	1.2699	1.8493	3.1192	0.3420	1.7284	2.0704	0.0000	6,273.7362	6,273.7362	1.2344	0.0000	6,304.5953
2020	28.3192	2.3029	3.2187	6.1400e-003	0.2124	0.1495	0.3619	0.0563	0.1494	0.2057	0.0000	592.7034	592.7034	0.0353	0.0000	593.5860
Maximum	**30.2010**	**71.6726**	**25.4679**	**0.0638**	**20.3885**	**3.1167**	**23.5052**	**10.2131**	**2.8674**	**13.0804**	**0.0000**	**6,374.2153**	**6,374.2153**	**1.7923**	**0.0000**	**6,405.5200**

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					
2018	6.1495	71.6726	25.4679	0.0638	8.0742	3.1167	11.1909	4.0156	2.8674	6.8830	0.0000	6,374.2153	6,374.2153	1.7923	0.0000	6,405.5200
2019	30.2010	44.0456	24.2978	0.0633	1.2699	1.8493	3.1192	0.3420	1.7284	2.0704	0.0000	6,273.7362	6,273.7362	1.2344	0.0000	6,304.5953
2020	28.3192	2.3029	3.2187	6.1400e-003	0.2124	0.1495	0.3619	0.0563	0.1494	0.2057	0.0000	592.7034	592.7034	0.0353	0.0000	593.5860
Maximum	**30.2010**	**71.6726**	**25.4679**	**0.0638**	**8.0742**	**3.1167**	**11.1909**	**4.0156**	**2.8674**	**6.8830**	**0.0000**	**6,374.2153**	**6,374.2153**	**1.7923**	**0.0000**	**6,405.5200**

	ROG	NOx	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	56.30	0.00	45.63	58.40	0.00	40.36	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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
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	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**	**0.0000**	**0.0518**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
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	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**	**0.0000**	**8.0000e-005**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**	**0.0000**	**0.0518**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/23/2018	5	10	
2	Grading	Grading	11/24/2018	12/21/2018	5	20	
3	Building Construction	Building Construction	12/22/2018	11/8/2019	5	230	
4	Paving	Paving	11/9/2019	12/6/2019	5	20	
5	Architectural Coating	Architectural Coating	11/9/2019	1/3/2020	5	40	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 2.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 175,940; Non-Residential Outdoor: 58,647; Striped Parking Area: 6,279 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Crawler Tractors	3	8.00	212	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	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
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	93.00	36.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

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					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0526	71.6031	23.7339	0.0569		3.1151	3.1151		2.8659	2.8659		5,733.2885	5,733.2885	1.7849		5,777.9098
Total	**6.0526**	**71.6031**	**23.7339**	**0.0569**	**20.1873**	**3.1151**	**23.3024**	**10.1597**	**2.8659**	**13.0256**		**5,733.2885**	**5,733.2885**	**1.7849**		**5,777.9098**

3.2 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

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					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0526	71.6031	23.7339	0.0569		3.1151	3.1151		2.8659	2.8659	0.0000	5,733.2885	5,733.2885	1.7849		5,777.9098
Total	**6.0526**	**71.6031**	**23.7339**	**0.0569**	**7.8730**	**3.1151**	**10.9881**	**3.9623**	**2.8659**	**6.8282**	**0.0000**	**5,733.2885**	**5,733.2885**	**1.7849**		**5,777.9098**

3.2 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.3 Grading - 2018

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					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	3.8906	48.2258	17.5202	0.0439		1.9550	1.9550		1.7986	1.7986		4,414.2701	4,414.2701	1.3742		4,448.6257
Total	**3.8906**	**48.2258**	**17.5202**	**0.0439**	**8.1431**	**1.9550**	**10.0981**	**3.5393**	**1.7986**	**5.3378**		**4,414.2701**	**4,414.2701**	**1.3742**		**4,448.6257**

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

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					3.1758	0.0000	3.1758	1.3803	0.0000	1.3803			0.0000			0.0000
Off-Road	3.8906	48.2258	17.5202	0.0439		1.9550	1.9550		1.7986	1.7986	0.0000	4,414.270 1	4,414.270 1	1.3742		4,448.625 6
Total	**3.8906**	**48.2258**	**17.5202**	**0.0439**	**3.1758**	**1.9550**	**5.1308**	**1.3803**	**1.7986**	**3.1789**	**0.0000**	**4,414.270 1**	**4,414.270 1**	**1.3742**		**4,448.625 6**

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.9680	42.7820	19.7151	0.0430		2.0103	2.0103		1.8795	1.8795		4,237.0493	4,237.0493	1.1452		4,265.6805
Total	**3.9680**	**42.7820**	**19.7151**	**0.0430**		**2.0103**	**2.0103**		**1.8795**	**1.8795**		**4,237.0493**	**4,237.0493**	**1.1452**		**4,265.6805**

3.4 Building Construction - 2018

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	0.1532	4.3626	1.0865	9.4200e-003	0.2304	0.0319	0.2623	0.0663	0.0305	0.0968		1,003.1689	1,003.1689	0.0683		1,004.8758
Worker	0.5011	0.3593	4.6663	0.0114	1.0395	8.2900e-003	1.0478	0.2757	7.6400e-003	0.2833		1,133.9970	1,133.9970	0.0387		1,134.9637
Total	**0.6543**	**4.7219**	**5.7528**	**0.0208**	**1.2699**	**0.0402**	**1.3101**	**0.3420**	**0.0381**	**0.3802**		**2,137.1660**	**2,137.1660**	**0.1070**		**2,139.8395**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day							lb/day			
Off-Road	3.9680	42.7820	19.7151	0.0430		2.0103	2.0103		1.8795	1.8795	0.0000	4,237.0493	4,237.0493	1.1452		4,265.6805
Total	**3.9680**	**42.7820**	**19.7151**	**0.0430**		**2.0103**	**2.0103**		**1.8795**	**1.8795**	**0.0000**	**4,237.0493**	**4,237.0493**	**1.1452**		**4,265.6805**

3.4 Building Construction - 2018

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	0.1532	4.3626	1.0865	9.4200e-003	0.2304	0.0319	0.2623	0.0663	0.0305	0.0968		1,003.1689	1,003.1689	0.0683		1,004.8758
Worker	0.5011	0.3593	4.6663	0.0114	1.0395	8.2900e-003	1.0478	0.2757	7.6400e-003	0.2833		1,133.9970	1,133.9970	0.0387		1,134.9637
Total	**0.6543**	**4.7219**	**5.7528**	**0.0208**	**1.2699**	**0.0402**	**1.3101**	**0.3420**	**0.0381**	**0.3802**		**2,137.1660**	**2,137.1660**	**0.1070**		**2,139.8395**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949		4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**		**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

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	0.1388	4.1193	0.9958	9.3300e-003	0.2304	0.0273	0.2577	0.0663	0.0261	0.0924		994.3909	994.3909	0.0658		996.0358
Worker	0.4555	0.3170	4.1788	0.0110	1.0395	8.0900e-003	1.0476	0.2757	7.4500e-003	0.2831		1,098.3198	1,098.3198	0.0344		1,099.1786
Total	**0.5943**	**4.4362**	**5.1746**	**0.0204**	**1.2699**	**0.0354**	**1.3053**	**0.3420**	**0.0336**	**0.3756**		**2,092.7107**	**2,092.7107**	**0.1002**		**2,095.2144**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6389	39.6094	19.1231	0.0430		1.8139	1.8139		1.6949	1.6949	0.0000	4,181.0255	4,181.0255	1.1342		4,209.3809
Total	**3.6389**	**39.6094**	**19.1231**	**0.0430**		**1.8139**	**1.8139**		**1.6949**	**1.6949**	**0.0000**	**4,181.0255**	**4,181.0255**	**1.1342**		**4,209.3809**

3.4 Building Construction - 2019

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	0.1388	4.1193	0.9958	9.3300e-003	0.2304	0.0273	0.2577	0.0663	0.0261	0.0924		994.3909	994.3909	0.0658		996.0358
Worker	0.4555	0.3170	4.1788	0.0110	1.0395	8.0900e-003	1.0476	0.2757	7.4500e-003	0.2831		1,098.3198	1,098.3198	0.0344		1,099.1786
Total	**0.5943**	**4.4362**	**5.1746**	**0.0204**	**1.2699**	**0.0354**	**1.3053**	**0.3420**	**0.0336**	**0.3756**		**2,092.7107**	**2,092.7107**	**0.1002**		**2,095.2144**

3.5 Paving - 2019

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	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7688**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

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	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

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	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7688**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

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	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**28.2656**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.6 Architectural Coating - 2019

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	0.0931	0.0648	0.8537	2.2500e-003	0.2124	1.6500e-003	0.2140	0.0563	1.5200e-003	0.0579		224.3879	224.3879	7.0200e-003		224.5634
Total	**0.0931**	**0.0648**	**0.8537**	**2.2500e-003**	**0.2124**	**1.6500e-003**	**0.2140**	**0.0563**	**1.5200e-003**	**0.0579**		**224.3879**	**224.3879**	**7.0200e-003**		**224.5634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**28.2656**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.6 Architectural Coating - 2019

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	0.0931	0.0648	0.8537	2.2500e-003	0.2124	1.6500e-003	0.2140	0.0563	1.5200e-003	0.0579		224.3879	224.3879	7.0200e-003		224.5634
Total	**0.0931**	**0.0648**	**0.8537**	**2.2500e-003**	**0.2124**	**1.6500e-003**	**0.2140**	**0.0563**	**1.5200e-003**	**0.0579**		**224.3879**	**224.3879**	**7.0200e-003**		**224.5634**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479		375.2641	375.2641	0.0291		375.9904
Total	**28.2333**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**		**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0578	0.7768	2.1800e-003	0.2124	1.6100e-003	0.2140	0.0563	1.4800e-003	0.0578		217.4393	217.4393	6.2500e-003		217.5956
Total	**0.0860**	**0.0578**	**0.7768**	**2.1800e-003**	**0.2124**	**1.6100e-003**	**0.2140**	**0.0563**	**1.4800e-003**	**0.0578**		**217.4393**	**217.4393**	**6.2500e-003**		**217.5956**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	27.9104					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3229	2.2451	2.4419	3.9600e-003		0.1479	0.1479		0.1479	0.1479	0.0000	375.2641	375.2641	0.0291		375.9904
Total	**28.2333**	**2.2451**	**2.4419**	**3.9600e-003**		**0.1479**	**0.1479**		**0.1479**	**0.1479**	**0.0000**	**375.2641**	**375.2641**	**0.0291**		**375.9904**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0578	0.7768	2.1800e-003	0.2124	1.6100e-003	0.2140	0.0563	1.4800e-003	0.0578		217.4393	217.4393	6.2500e-003		217.5956
Total	**0.0860**	**0.0578**	**0.7768**	**2.1800e-003**	**0.2124**	**1.6100e-003**	**0.2140**	**0.0563**	**1.4800e-003**	**0.0578**		**217.4393**	**217.4393**	**6.2500e-003**		**217.5956**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	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	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

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**

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	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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.2:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS (PASSENGER CARS)

6th and Center Warehouse (Operations - Passenger Cars)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Operations Run Only.

Fleet Mix - Operations Run Only.

6th and Center Warehouse (Operations - Passenger Cars) - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	PhaseEndDate	12/21/2018	11/12/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblFleetMix	HHD	0.03	0.00
tblFleetMix	LDA	0.55	1.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.15
tblVehicleTrips	SU_TR	1.68	0.06
tblVehicleTrips	WD_TR	1.68	1.39

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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.2105	0.3768	4.5396	0.0170	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,700.7755	1,700.7755	0.0362		1,701.6804
Total	**2.8851**	**0.4410**	**4.6161**	**0.0174**	**2.0591**	**0.0183**	**2.0774**	**0.5458**	**0.0173**	**0.5631**		**1,777.5701**	**1,777.5701**	**0.0378**	**1.4100e-003**	**1,778.9344**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.2105	0.3768	4.5396	0.0170	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,700.7755	1,700.7755	0.0362		1,701.6804
Total	**2.8851**	**0.4410**	**4.6161**	**0.0174**	**2.0591**	**0.0183**	**2.0774**	**0.5458**	**0.0173**	**0.5631**		**1,777.5701**	**1,777.5701**	**0.0378**	**1.4100e-003**	**1,778.9344**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/12/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.4

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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 Site Preparation - 2018

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					0.0000	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**

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**

3.2 Site Preparation - 2018

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**

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					
Mitigated	0.2105	0.3768	4.5396	0.0170	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,700.7755	1,700.7755	0.0362		1,701.6804
Unmitigated	0.2105	0.3768	4.5396	0.0170	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,700.7755	1,700.7755	0.0362		1,701.6804

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	163.27	17.59	7.04	725,943	725,943
Total	163.27	17.59	7.04	725,943	725,943

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	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	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

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	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
NaturalGas Unmitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022

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	652.342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	0.652342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

6th and Center Warehouse (Operations - Passenger Cars)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Operations Run Only.

Fleet Mix - Operations Run Only.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	PhaseEndDate	12/21/2018	11/12/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblFleetMix	HHD	0.03	0.00
tblFleetMix	LDA	0.55	1.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.15
tblVehicleTrips	SU_TR	1.68	0.06
tblVehicleTrips	WD_TR	1.68	1.39

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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6th and Center Warehouse (Operations - Passenger Cars) - South Coast AQMD Air District, Summer

	ROG	NOx	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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.2293	0.3460	5.1126	0.0183	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,821.8266	1,821.8266	0.0390		1,822.8025
Total	**2.9038**	**0.4102**	**5.1891**	**0.0186**	**2.0591**	**0.0183**	**2.0774**	**0.5458**	**0.0173**	**0.5631**		**1,898.6213**	**1,898.6213**	**0.0406**	**1.4100e-003**	**1,900.0565**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.2293	0.3460	5.1126	0.0183	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,821.8266	1,821.8266	0.0390		1,822.8025
Total	**2.9038**	**0.4102**	**5.1891**	**0.0186**	**2.0591**	**0.0183**	**2.0774**	**0.5458**	**0.0173**	**0.5631**		**1,898.6213**	**1,898.6213**	**0.0406**	**1.4100e-003**	**1,900.0565**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/12/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.4

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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 Site Preparation - 2018

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					0.0000	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**

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**

3.2 Site Preparation - 2018

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**

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

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.2293	0.3460	5.1126	0.0183	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,821.8266	1,821.8266	0.0390		1,822.8025
Unmitigated	0.2293	0.3460	5.1126	0.0183	2.0591	0.0134	2.0724	0.5458	0.0123	0.5582		1,821.8266	1,821.8266	0.0390		1,822.8025

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	163.27	17.59	7.04	725,943	725,943
Total	163.27	17.59	7.04	725,943	725,943

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	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	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

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	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
NaturalGas Unmitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022

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	652.342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	0.652342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.3:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS (TRUCKS)

6th and Center Warehouse (Operations - Trucks)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Operations Run Only.

Fleet Mix - Operations Run Only.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	PhaseEndDate	12/21/2018	11/12/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblFleetMix	HHD	0.03	0.63
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.17
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.21
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	16.60	55.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.15
tblVehicleTrips	SU_TR	1.68	0.06

tblVehicleTrips	WD_TR	1.68	0.35

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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.6360	18.3844	4.9880	0.0654	1.9986	0.1158	2.1144	0.5616	0.1107	0.6723		6,990.7173	6,990.7173	0.3386		6,999.1833
Total	**3.3105**	**18.4485**	**5.0645**	**0.0657**	**1.9986**	**0.1207**	**2.1193**	**0.5616**	**0.1157**	**0.6773**		**7,067.5120**	**7,067.5120**	**0.3402**	**1.4100e-003**	**7,076.4373**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.6360	18.3844	4.9880	0.0654	1.9986	0.1158	2.1144	0.5616	0.1107	0.6723		6,990.7173	6,990.7173	0.3386		6,999.1833
Total	**3.3105**	**18.4485**	**5.0645**	**0.0657**	**1.9986**	**0.1207**	**2.1193**	**0.5616**	**0.1157**	**0.6773**		**7,067.5120**	**7,067.5120**	**0.3402**	**1.4100e-003**	**7,076.4373**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/12/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.4

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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 Site Preparation - 2018

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					0.0000	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**

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**

3.2 Site Preparation - 2018

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**

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

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.6360	18.3844	4.9880	0.0654	1.9986	0.1158	2.1144	0.5616	0.1107	0.6723		6,990.7173	6,990.7173	0.3386		6,999.1833
Unmitigated	0.6360	18.3844	4.9880	0.0654	1.9986	0.1158	2.1144	0.5616	0.1107	0.6723		6,990.7173	6,990.7173	0.3386		6,999.1833

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	40.82	17.59	7.04	654,143	654,143
Total	40.82	17.59	7.04	654,143	654,143

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	55.00	8.40	6.90	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.166700	0.000000	0.206900	0.626400	0.000000	0.000000	0.000000	0.000000	0.000000

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	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
NaturalGas Unmitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022

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	652.342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	0.652342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

6th and Center Warehouse (Operations - Trucks)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Operations Run Only.

Fleet Mix - Operations Run Only.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	PhaseEndDate	12/21/2018	11/12/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblFleetMix	HHD	0.03	0.63
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.17
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.21
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	16.60	55.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.15
tblVehicleTrips	SU_TR	1.68	0.06

tblVehicleTrips	WD_TR	1.68	0.35

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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.6304	17.8387	4.9021	0.0657	1.9986	0.1154	2.1140	0.5616	0.1104	0.6720		7,030.5440	7,030.5440	0.3328		7,038.8642
Total	**3.3049**	**17.9029**	**4.9786**	**0.0661**	**1.9986**	**0.1203**	**2.1190**	**0.5616**	**0.1153**	**0.6769**		**7,107.3387**	**7,107.3387**	**0.3344**	**1.4100e-003**	**7,116.1182**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Mobile	0.6304	17.8387	4.9021	0.0657	1.9986	0.1154	2.1140	0.5616	0.1104	0.6720		7,030.5440	7,030.5440	0.3328		7,038.8642
Total	**3.3049**	**17.9029**	**4.9786**	**0.0661**	**1.9986**	**0.1203**	**2.1190**	**0.5616**	**0.1153**	**0.6769**		**7,107.3387**	**7,107.3387**	**0.3344**	**1.4100e-003**	**7,116.1182**

	ROG	NOx	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	Site Preparation	Site Preparation	11/12/2018	11/12/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.4

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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 Site Preparation - 2018

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					0.0000	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**

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**

3.2 Site Preparation - 2018

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**

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					
Mitigated	0.6304	17.8387	4.9021	0.0657	1.9986	0.1154	2.1140	0.5616	0.1104	0.6720		7,030.5440	7,030.5440	0.3328		7,038.8642
Unmitigated	0.6304	17.8387	4.9021	0.0657	1.9986	0.1154	2.1140	0.5616	0.1104	0.6720		7,030.5440	7,030.5440	0.3328		7,038.8642

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	40.82	17.59	7.04	654,143	654,143
Total	40.82	17.59	7.04	654,143	654,143

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	55.00	8.40	6.90	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.166700	0.000000	0.206900	0.626400	0.000000	0.000000	0.000000	0.000000	0.000000

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	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
NaturalGas Unmitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022

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	652.342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	0.652342	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003		76.7461	76.7461	1.4700e-003	1.4100e-003	77.2022
Total		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**		**76.7461**	**76.7461**	**1.4700e-003**	**1.4100e-003**	**77.2022**

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	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Unmitigated	2.6675	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518

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	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1500e-003	2.1000e-004	0.0228	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0486	0.0486	1.3000e-004		0.0518
Total	**2.6675**	**2.1000e-004**	**0.0228**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0486**	**0.0486**	**1.3000e-004**		**0.0518**

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

6th and Center Warehouse

GREENHOUSE GAS ANALYSIS

CITY OF RANCHO CUCAMONGA

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DECEMBER 6, 2018

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APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
N_20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NO_x	Oxides of Nitrogen
PFC	Perfluorocarbons
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million

Project	6th and Center Warehouse
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Rancho Cucamonga has not adopted a numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. Within this GHGA, a screening threshold of 3,000 $MTCO_2e$ per year is employed to determine if additional analysis is required. This approach is a widely accepted small project screening threshold used by numerous lead agencies within the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required.

As shown on Table ES-1, the Project will result in approximately 1,480.52 $MTCO_2e$ per year; the proposed project would not exceed the SCAQMD/City's screening threshold of 3,000 $MTCO_2e$ per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

TABLE ES-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	24.97	0.01	--	25.10
Area	5.51E-03	1.00E-05	--	5.88E-03
Energy	112.57	4.37E-03	1.09E-03	113.01
Mobile Sources (Passenger Cars)	209.99	4.48E-03	--	210.10
Mobile Sources (Trucks)	925.90	0.04	934.74	927.00
Waste	22.38	1.32	--	55.44
Water Usage	121.13	0.89	0.02	149.85
Total CO_2E (All Sources)	**1,480.52**			
SCAQMD Threshold	**3,000**			
Significant?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{b}") and is followed by the value of the exponent

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The Project would be consistent with and would not conflict with implementation of the goals and objectives established by Assembly Bill 32 (AB 32) and Senate Bill 32 (SB 32) (or targets established by Executive Orders S-3-05 and B-30-15) as evaluated in Section 3.7 of this report. As such, the Project would result in a less than significant impact with respect to this threshold.

TABLE ES-2: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1	3.0	*Less Than Significant*	*n/a*
GHG Impact #2	3.0	*Less Than Significant*	*n/a*

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed 6th and Center Warehouse (referred to as “Project”).

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed 6th and Center Warehouse Project is located north of 6th Street and east of Center Avenue, in the City of Rancho Cucamonga, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is proposed to include the development of 117,293 square feet of general warehouse use, as shown on Exhibit 1-B. For the purposes of this GHGA, it is assumed that the Project will be developed in a single phase with an Opening Year of 2020.

1.3 REGULATORY REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of greenhouse gas emissions include:

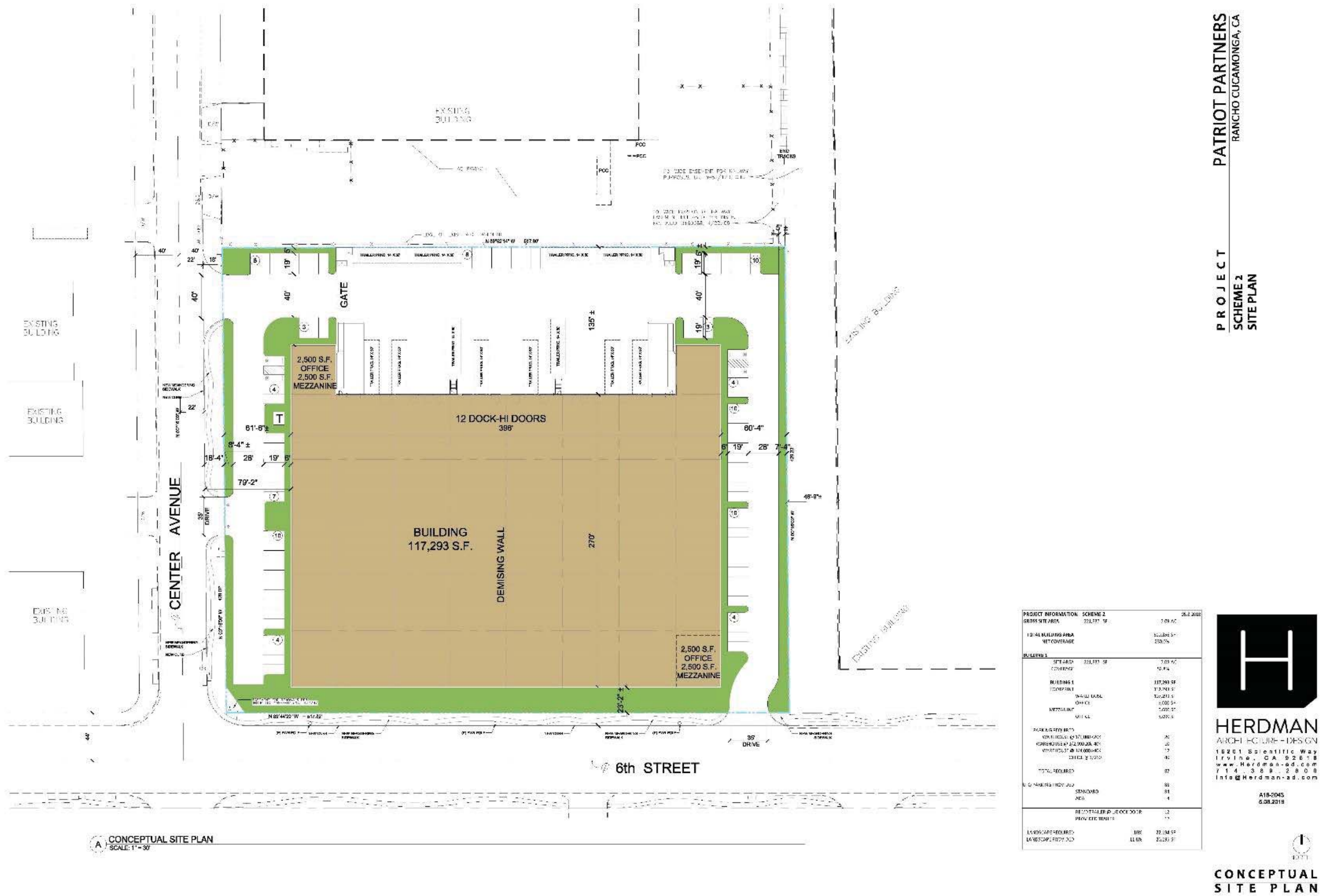
- Global Warming Solutions Act of 2006 (AB32) (1). AB 32 is applicable to the Project because, as a development Project, the 6th and Center Warehouse will need to meet 2020 GHG reduction goals set forth in AB 32. AB 32 requires the California Air Resources Board (CARB or ARB) to develop regulations and market mechanisms to reduce California's greenhouse gas emissions to 1990 levels by the year of 2020. Many of the GHG reduction measures outlined in AB 32 (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted over the last five years and implementation activities are ongoing.

  Pavley Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (2). AB 149(4)3 (Pavley) establishes fuel efficiency rating for model year 2009-2016 passenger cars and light trucks. AB 1493 is applicable to the Project because model year 2009-2016 passenger cars and light duty truck vehicles traveling to and from the Project site are required by the State of California to implement GHG emission reduction standards related to fuel efficiency. The CARB anticipates that implementation of the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 30 percent in 2016 compared to emissions that occurred prior to 2009 when AB 1492 was enacted.

  Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (3). The Title 24 energy standards address the energy efficiency of new (and altered) homes and commercial buildings. Because energy efficiency reduces energy costs, increases reliability and availability of electricity, improves building

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



occupant comfort, and reduces impacts to the environment, standards are important and necessary for California's energy future. Therefore, a new development such as the 6th and Center Warehouse is required to comply with Title 24 Code of Regulations and would therefore increase the Project's energy efficiency and reduce its environmental impact.

- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (4). Because the LCFS applies to any transportation fuel that is sold, supplied, or offered for sale in California, and to any person who, as a regulated party, is responsible for a transportation fuel in a calendar year, all vehicles accessing the site will be required to comply with LCFS. Implementation of such a standard will reduce greenhouse gas emissions by reducing the full fuel-cycle, carbon intensity of the transportation fuel pool used in California.
- California Water Conservation in Landscaping Act of 2006 (AB1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (5). As new development project within the State of California, the 6th and Center Warehouse is required to comply with the City of Rancho Cucamonga's adopted water efficient landscape requirements and would therefore be consistent with the requirements of AB1881 in order to help conserve California's water resources and to promote efficient water use.
- Senate Bill 32 (SB 32). Requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (6) (7).

1.4 CONSTRUCTION AND OPERATIONAL-SOURCE MITIGATION MEASURES

Project construction and operational-source emissions will be less than significant. Therefore, no mitigation measures are required.

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2 BACKGROUND

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gases combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2016. For the Year 2016, the sum of these emissions totaled approximately 28,747,554 Gg CO2e[1] (8) (9). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

1 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2016 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China were taken in 2012, while the most recent GHG emissions for India were taken in 2010.

United States

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2016. The primary greenhouse gas emitted by human activities in the United States was CO_2, representing approximately 81.6 percent of total greenhouse gas emissions. Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 93.5 percent of the GHG emissions (10).

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION [2]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,895,765
United States	6,511,302
European Union (28 member countries)	4,291,252
India	2,643,817
Russian Federation	2,100,850
Japan	1,304,568
Total	**28,747,554**

State of California

CARB compiles GHG inventories for the State of California. Based upon the 2018 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2016 greenhouse gas emissions inventory, California emitted 429.4 $MMTCO_2e$ including emissions resulting from imported electrical power in 2015 (11).

2.3 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2 (carbon dioxide), N_2O (nitrous oxide), CH_4 (methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in http://www.wri.org site to reference Non-Annex I countries such as China and India.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of CO_2e greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (12).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-4 later in this report) because these gasses are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

Water Vapor: Water vapor (H_20) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO_2) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (13).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (14).

Methane: Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. No health effects are known to occur from exposure to methane.

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (15).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (16). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential (GWP) of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Greenhouse gases have varying GWP values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report (SAR), the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the IPCC's 4th Assessment Report (AR4) range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	114	310	298
HFC-23	270	11,700	14,800
HFC-134a	14	1,300	1,430
HFC-152a	1.4	140	124
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range (3-5.5°F) to 75 to 85 percent under the medium warming range (5.5-8°F). In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario (8-10.5°F), there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate O_3 pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

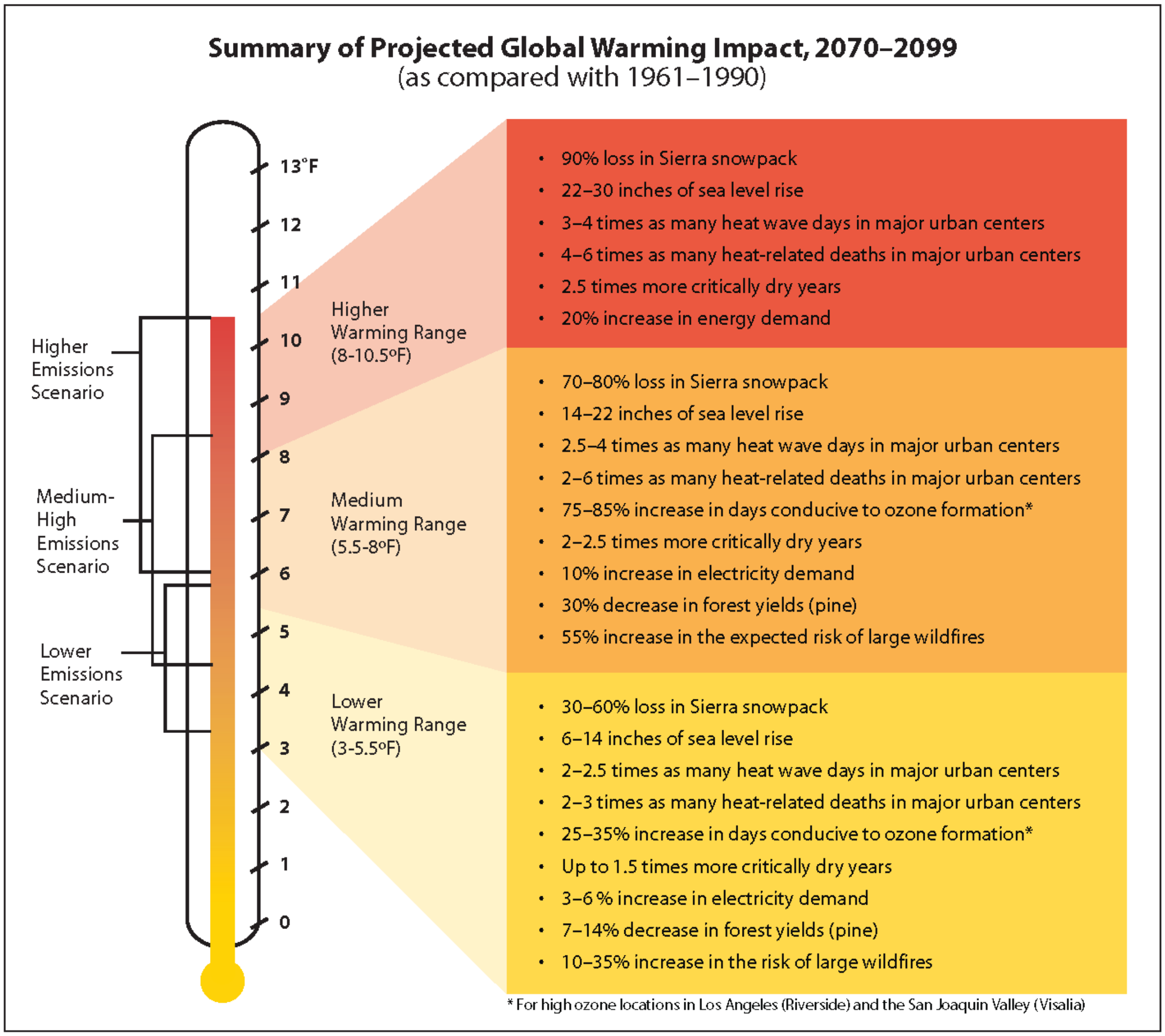
The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (17). Exhibit 2-A presents the potential impacts of global warming.

Specific health effects associated with directly emitted GHG emissions are as follows:

<u>Water Vapor</u>: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (18).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (19).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (19).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (18).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus aerosols can cause elevated respiratory and cardiovascular diseases as well as increased mortality (20).

2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties. The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of five percent against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.”

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (21).

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment. In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the Supreme Court found that four GHGs, including carbon dioxide, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (22).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012c). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO_2) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles by the 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions from the 2014 to 2018 model years.

Mandatory Reporting of GHGs. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S., and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule “tailors” the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from

Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016 the U.S. Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO2 standards.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the NO_x Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap and trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap and trade system January 1, 2014, and joint offset auctions took place in 2015 (C2ES 2015).

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (EPA 2014):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.

2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all heavy-duty trucks will have to comply with the ARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10 percent or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark Assembly Bill (AB 32) California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include carbon dioxide, methane, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (ARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

ARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (ARB 2008). At that level, a 28.4 percent reduction was required to achieve the 427 million $MTCO_2e$ 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million $MTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 (ARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 million $MTCO_2e$ (AB 32 2020 target)
- 2000: 463 million $MTCO_2e$ (an average 8 percent reduction needed to achieve 1990 base)
- 2010: 450 million $MTCO_2e$ (an average 5 percent reduction needed to achieve 1990 base)

ARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, ARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 million $MTCO_2e$ BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (ARB 2014).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. The ARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, ARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. ARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new

BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard. In addition, ARB factored into the 2020 BAU inventory emissions reductions associated with 33 percent Renewable Energy Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 $MMTCO_2e$ by 2020 requires a reduction of 80 $MMTCO_2e$, or a 16 percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 $MMTCO_2e$) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many climate action plans, the updated inventory without regulations was also included in the Supplemental FED. The ARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 $MMTCO_2e$. The updated ARB 2020 BAU projection in the Supplemental FED is 545 $MMTCO_2e$. Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, ARB estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4 percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008).

2017 Climate Change Scoping Plan Update

In November 2017, ARB released the final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes.

The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a climate action plan or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory and supported by ARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 $MTCO_2e$ per year, "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$ per year, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Though the research indicated that the emissions would not meet the State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (23) (24).

Senate Bill 32. On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that ARB is not only respond to the Governor, but also the Legislature (6) (7).

Cap and Trade Program. The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to ARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

ARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See 17 California Code of Regulations (CCR) §§ 95800 to 96023. The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$ per year must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, ARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" (30) for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus. the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with vehicle-miles traveled (VMT) are covered by the Cap-and-Trade Program (ARB 2015) (25).

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the Program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[3]

SB 375 - the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).

[3] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, ARB filed an appeal. On June 24, 2011, the Court of Appeal granted ARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, ARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The ARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— Clean Energy and Pollution Reduction Act of 2015. In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly-owned utilities.

- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against ARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing ARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that Low Carbon Fuel Standards adopted by ARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of ARB approving Low Carbon Fuel Standards (LCFS) regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to tits Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity (low-CI) fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing was held on September 24 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with Office of Administrative Law (OAL) on October 2, 2015. OAL had until November 16, 2015 to make a determination (ARB 2015d).

Executive Order S-13-08. Executive Order S-13-08 states that “climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California’s economy, to the health and welfare of its population and to its natural resources.” Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the “. . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States.” Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor’s executive order aligns California’s GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2 equivalent ($MMCO_2e$). The Order also requires the state’s climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California’s energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they establish a minimum 50 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).

- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
  - The installation of water-conserving fixtures (5.303.3) or
  - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2)..

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

ARB Refrigerant Management Program. ARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, California Code of Regulations. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation. The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers, or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards. ARB has adopted a new regulation for greenhouse gas (GHG) emissions from heavy-duty trucks and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the U.S. EPA rule for new trucks and engines nationally. Existing heavy-duty vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the U.S. EPA adopted their new rule for heavy-duty trucks and engines. The U.S. EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year (MY) 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) heavy-duty pickups and vans; b) vocational vehicles; and c) combination tractors. The U.S. EPA rule does not regulate trailers.

ARB staff has worked jointly with the U.S. Environmental Protection Agency (U.S. EPA) and the National Highway Traffic Safety Administration (NHTSA) on the next phase of federal greenhouse gas (GHG) emission standards for medium- and heavy-duty vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year heavy-duty vehicles, including trailers.

U.S. EPA and NHTSA issued a Notice of Proposed Rulemaking for Phase 2 in June 2015, and published the final rule in October 2016. ARB staff plans to bring a proposed California Phase 2 program before the Board in early 2018. ARB staff remains committed to a strong national program which will support California's GHG reduction commitments.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated GHG emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of GHG Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

REGIONAL

The project is within the Southern California Air Basin (SoCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

SCAQMD is the agency responsible for air quality planning and regulation in the SoCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SoCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 $MTCO_2e$ per year
    - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year
- Tier 4 has the following options:
    - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures

  - o Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
  - o Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

2.8 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

The City of Rancho Cucamonga has not adopted a numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. Within this GHGA, a screening threshold of 3,000 $MTCO_2e$ per year is employed to determine if additional analysis is required. This approach is a widely accepted small project screening threshold used by numerous lead agencies within the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required.

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE GHG EMISSIONS

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (27). 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 and 3.2. The CalEEMod model includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

3.3 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (28). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (29). Additionally, the science to calculate life cycle emissions is not yet established or well defined, therefore SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO_2 and CH_4 from construction activities. The report 6th and Center Warehouse Air Quality Impact Analysis Report, Urban Crossroads, Inc. (2018) contains detailed information regarding construction activity (30).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (31). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources:

- Building Energy Use (combustion emissions associated with natural gas and electricity)
- Water Supply, Treatment and Distribution
- Solid Waste
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

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.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building, the building energy use emissions do not include street lighting[4]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.5.3 MOBILE SOURCE EMISSIONS

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and customers.

[4] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

Vehicles

Project-related operational greenhouse gas impacts derive predominantly from mobile sources. In this regard, approximately 77 percent (by weight) of all Project operational-source emissions would be generated by mobile sources (vehicles). Neither the Project Applicant nor the City has any regulatory control over these tail pipe emissions. Rather, vehicle tail pipe source emissions are regulated by CARB and USEPA. As summarized previously herein, as the result of CARB and USEPA actions, Basin-wide vehicular-source emissions have been reduced dramatically over the past years and are expected to further decline as clean vehicle and fuel technologies improve.

The Project related operational greenhouse gas impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *6th and Center Warehouse Trip Generation Evaluation* (Urban Crossroads 2018) were utilized in this analysis (32).

Per the *6th and Center Warehouse Trip Generation Evaluation*, the Project is expected to generate a net total of approximately 204 trip-ends per day (actual vehicles) (32). The Project trip generation includes 41 truck trip-ends per day from the proposed Project site including 16.67% 2-axle trucks, 20.69% 3-axle trucks, and 62.64% 4+-axle trucks.

3.5.3.1 Trip Length

For passenger car trips, a one-way trip length of 16.6 miles was assumed as contained in the CalEEMod™ model defaults. For trucks, an average one-way trip length of 55.01 miles was derived from distances from the Project site to the far edges of the South Coast Air Basin (SCAB). Assuming 50% of trucks travel to the Port of Los Angles and Port of Long Beach and the remaining 50% of trucks travel to either the Cajon Pass, Desert Center, Santa Clarita and/or the San Diego County Line, a weighted truck trip length of 55.01 miles was determined. For purposes of analysis, and as a conservative measure, a truck trip length of 55 miles was used. It is appropriate to stop the VMT calculation at the boundary of the SCAB because any activity beyond that boundary would be speculative and occur in a different Air Basin; this approach is also consistent with professional industry practice. The approach for analysis purposes in this GHGA report represents a conservative estimate of emissions and almost certainly overstates the emissions impact from the Project.

- Project site to the Port of Los Angeles/Long Beach: 61 miles;
- Project site to Banning Pass: 59 miles;
- Project site to San Diego County Line: 67 miles:
- Project site to Cajon Pass: 28 miles;
- Project site to Downtown Los Angeles: 44 miles;

Average Weighted Truck Trip Length = 55.01 miles

3.5.4 WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod default parameters were used.

3.5.5 SOLID WASTE

Industrial land uses would result in the generation and disposal of solid waste. A large percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated using CalEEMod default parameters.

3.6 EMISSIONS SUMMARY

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 1,480.52 $MTCO_2e$ per year as summarized in Table 3-1. The Project net total GHG emissions would not exceed the SCAQMD/City's screening threshold of 3,000 $MTCO_2e$ per year (33). As shown, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	24.97	0.01	--	25.10
Area	5.51E-03	1.00E-05	--	5.88E-03
Energy	112.57	4.37E-03	1.09E-03	113.01
Mobile Sources (Passenger Cars)	209.99	4.48E-03	--	210.10
Mobile Sources (Trucks)	925.90	0.04	934.74	927.00
Waste	22.38	1.32	--	55.44
Water Usage	121.13	0.89	0.02	149.85
Total CO_2E (All Sources)	**1,480.52**			
SCAQMD Threshold	**3,000**			
Significant?	**NO**			

3.7 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Rancho Cucamonga has not adopted a numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. Within this GHGA, a screening threshold of 3,000 $MTCO_2e$ per year is employed to determine if additional analysis is required. This approach is a widely accepted small project screening threshold used by numerous lead agencies within the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required.

As shown on Table 3-1, the Project will result in approximately 1,480.52 $MTCO_2e$ per year; the proposed project would not exceed the SCAQMD/City's screening threshold of 3,000 $MTCO_2e$ per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

As shown above, the Project would be consistent with the City of Rialto's GHG Plan. Additionally, the Project's consistency with AB 32 and SB 32 are discussed below.

Scoping Plan

ARB's *Scoping Plan* identifies strategies to reduce California's greenhouse gas emissions in support of AB32 which requires the State to reduce its GHG emissions to 1990 levels by 2020. Many of the strategies identified in the Scoping Plan are not applicable at the project level, such as long-term technological improvements to reduce emissions from vehicles. Some measures are applicable and supported by the project, such as energy efficiency. Finally, while some measures are not directly applicable, the project would not conflict with their implementation. Reduction measures are grouped into 18 action categories, as follows:

1. **California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions.** Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California.[5] Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.

[5] California Air Resources Board. California GHG Emissions – Forecast (2002-2020). October 2010

2. **California Light-Duty Vehicle Greenhouse Gas Standards.** Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. **Energy Efficiency.** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. **Renewables Portfolio Standards.** Achieve 33 percent renewable energy mix statewide.
5. **Low Carbon Fuel Standard.** Develop and adopt the Low Carbon Fuel Standard.
6. **Regional Transportation-Related Greenhouse Gas Targets.** Develop regional greenhouse gas emissions reduction targets for passenger vehicles.
7. **Vehicle Efficiency Measures.** Implement light-duty vehicle efficiency measures.
8. **Goods Movement.** Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. **Million Solar Roofs Program.** Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. **Medium- and Heavy-Duty Vehicles.** Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010.[6] Future, yet to be determined improvements, includes hybridization of MD and HD trucks.
11. **Industrial Emissions.** Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. **High Speed Rail.** Support implementation of a high speed rail system.
13. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. **High Global Warming Potential Gases.** Adopt measures to reduce high warming global potential gases.
15. **Recycling and Waste.** Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. **Sustainable Forests.** Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million MTCO2E/YR.
17. **Water.** Continue efficiency programs and use cleaner energy sources to move and treat water.
18. **Agriculture.** In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

[6] California Air Resources Board. Scoping Plan Measures Implementation Timeline. October 2010

Table 3-2 summarizes the project's consistency with the State Scoping Plan. As summarized, the project will not conflict with any of the provisions of the Scoping Plan and in fact supports seven of the action categories through energy efficiency, water conservation, recycling, and landscaping.

TABLE 3-2: SCOPING PLAN CONSISTENCY SUMMARY

Action	Supporting Measures[7]	Consistency
Cap-and-Trade Program	--	Not Applicable. These programs involve capping emissions from electricity generation, industrial facilities, and broad scoped fuels. Caps do not directly affect manufacturing projects.
Light-Duty Vehicle Standards	T-1	Not Applicable. This is a statewide measure establishing vehicle emissions standards.
Energy Efficiency	E-1 E-2 CR-1 CR-2	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
Renewables Portfolio Standard	E-3	Not Applicable. Establishes the minimum statewide renewable energy mix.
Low Carbon Fuel Standard	T-2	Not Applicable. Establishes reduced carbon intensity of transportation fuels.
Regional Transportation-Related Greenhouse Gas Targets	T-3	Not Applicable. This is a statewide measure and is not within the purview of this Project.
Vehicle Efficiency Measures	T-4	Not Applicable. Identifies measures such as minimum tire-fuel efficiency, lower friction oil, and reduction in air conditioning use.
Goods Movement	T-5 T-6	Not applicable. Identifies measures to improve goods movement efficiencies such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories. While these measures are yet to be implemented and will be voluntary, the proposed Project would not interfere with their implementation.
Million Solar Roofs (MSR) Program	E-4	Consistent. The MSR program sets a goal for use of solar systems throughout the state as a whole. While the project currently does not include solar energy generation, the building roof structure will be designed to support solar panels in the future.

[7] Supporting measures can be found at the following link: http://www.arb.ca.gov/cc/scopingplan/2013_update/appendix_b.pdf

Action	Supporting Measures[7]	Consistency
Medium- & Heavy-Duty Vehicles	T-7 T-8	Not applicable. MD and HD trucks and trailers working from the proposed warehouses will be subject to aerodynamic and hybridization requirements as established by ARB; no feature of the project would interfere with implementation of these requirements and programs.
Industrial Emissions	I-1 I-2 I-3 I-4 I-5	Not Applicable. These measures are applicable to large industrial facilities (> 500,000 $MTCO_2E/YR$) and other intensive uses such as refineries.
High Speed Rail	T-9	Not Applicable. Supports increased mobility choice.
Green Building Strategy	GB-1	Consistent. The project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
High Global Warming Potential Gases	H-1 H-2 H-3 H-4 H-5 H-6 H-7	Not Applicable. The proposed warehouses are not substantial sources of high GWP emissions and will comply with any future changes in air conditioning, fire protection suppressant, and other requirements.
Recycling and Waste	RW-1 RW-2 RW-3	Consistent. The project will be required recycle a minimum of 50 percent from construction activities and warehouse operations per State and City requirements.
Sustainable Forests	F-1	Consistent. The project will increase carbon sequestration by increasing on-site trees per the project landscaping plan.
Water	W-1 W-2 W-3 W-4 W-5 W-6	Consistent. The project will include use of low-flow fixtures and efficient landscaping per State requirements.
Agriculture	A-1	Not Applicable. The project is not an agricultural use.

SB 32

At the state level, Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing GHG emissions. The goal of Executive Order S-3-05 is to reduce GHG emissions to 1990 levels by 2020 was codified by the Legislature as the 2006 Global Warming Solutions Act (AB 32). The Project, as analyzed above, is consistent with AB 32. Therefore, the Project does not conflict with this component of Executive Order S-3-05. The Executive Orders also establish goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. However, studies have shown that, in order to meet the 2030 and 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its Climate Change Scoping Plan, ARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update, however, ARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; largescale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately."

Unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively the 2050 target of Executive Order S-3-05 has not been codified. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

In 2017, the California Supreme Court examined the need to use the Executive Order S-3-05 2050 reduction target in Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 3 Cal.5th 497 (Cleveland National). The case arose from SANDAG's adoption of its 2050 Regional Transportation Plan, which included its Sustainable Communities Strategy, as required by SB 375 (discussed above). On review, the Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target.

As explained above, the 2050 reduction target of Executive Order S-3-05 has not been codified, unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

Further, the Project is much smaller in size and scope in comparison to the Regional Transportation Plan examined in Cleveland National. In that case, the California Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target. Accordingly, there is no information presently available to assess the Project's consistency with regard to the 2050 target of Executive Order S-3-05.

The 2017 Scoping Plan builds on the 2008 Scoping Plan in order to achieve the 40 percent reduction from 1990 levels by 2030. Major elements of the 2017 Scoping Plan framework that will achieve the GHG reductions include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks purchased by the project proponent could be eligible for incentives that expedite the Project's implementation of ZEVs.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030). When adopted, this measure would apply to all fuel purchased and used by the Project in the state.

- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030. When adopted, this measure would apply when electricity is provided to the Project by a utility company.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030. When adopted, the Project would be required to comply with this measure and reduce SLPS accordingly.
- Continued implementation of SB 375. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
- Post-2020 Cap-and-Trade Program that includes declining caps. When adopted, the Project would be required to comply with the Cap-and-Trade Program if it generates emissions from sectors covered by Cap-and-Trade.
- 20 percent reduction in GHG emissions from refineries by 2030. When adopted, the Project would be required to comply with this measure if it were to utilize any fuel from refineries.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. This is a statewide measure that would not apply to the Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030.

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5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed 6th and Center Warehouse Project. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

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

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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
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APPENDIX 3.1:

CALEEMOD ANNUAL EMISSIONS MODEL OUTPUTS (PASSENGER CARS)

6th and Center Warehouse (Operations - Passenger Cars)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	117.29	1000sqft	2.69	117,293.00	0
Parking Lot	104.64	1000sqft	2.40	104,644.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Lot Acreage is 5.09 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Operations Run Only.

Fleet Mix - Operations Run Only.

6th and Center Warehouse (Operations - Passenger Cars) - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	PhaseEndDate	12/21/2018	11/12/2018
tblConstructionPhase	PhaseStartDate	12/8/2018	11/12/2018
tblFleetMix	HHD	0.03	0.00
tblFleetMix	LDA	0.55	1.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.15
tblVehicleTrips	SU_TR	1.68	0.06
tblVehicleTrips	WD_TR	1.68	1.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4867	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	112.5739	112.5739	4.3700e-003	1.0900e-003	113.0067
Mobile	0.0278	0.0519	0.6267	2.3200e-003	0.2707	1.7900e-003	0.2725	0.0719	1.6500e-003	0.0735	0.0000	209.9912	209.9912	4.4800e-003	0.0000	210.1031
Waste						0.0000	0.0000		0.0000	0.0000	22.3798	0.0000	22.3798	1.3226	0.0000	55.4449
Water						0.0000	0.0000		0.0000	0.0000	8.6050	112.5284	121.1334	0.8885	0.0218	149.8502
Total	**0.5158**	**0.0636**	**0.6394**	**2.3900e-003**	**0.2707**	**2.6900e-003**	**0.2734**	**0.0719**	**2.5500e-003**	**0.0744**	**30.9847**	**435.0990**	**466.0837**	**2.2199**	**0.0229**	**528.4107**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4867	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	112.5739	112.5739	4.3700e-003	1.0900e-003	113.0067
Mobile	0.0278	0.0519	0.6267	2.3200e-003	0.2707	1.7900e-003	0.2725	0.0719	1.6500e-003	0.0735	0.0000	209.9912	209.9912	4.4800e-003	0.0000	210.1031
Waste						0.0000	0.0000		0.0000	0.0000	22.3798	0.0000	22.3798	1.3226	0.0000	55.4449
Water						0.0000	0.0000		0.0000	0.0000	8.6050	112.5284	121.1334	0.8885	0.0218	149.8502
Total	**0.5158**	**0.0636**	**0.6394**	**2.3900e-003**	**0.2707**	**2.6900e-003**	**0.2734**	**0.0719**	**2.5500e-003**	**0.0744**	**30.9847**	**435.0990**	**466.0837**	**2.2199**	**0.0229**	**528.4107**

	ROG	**NOx**	**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	Site Preparation	Site Preparation	11/12/2018	11/12/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.4

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	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	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**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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**

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	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	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 Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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**

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	tons/yr										MT/yr					
Mitigated	0.0278	0.0519	0.6267	2.3200e-003	0.2707	1.7900e-003	0.2725	0.0719	1.6500e-003	0.0735	0.0000	209.9912	209.9912	4.4800e-003	0.0000	210.1031
Unmitigated	0.0278	0.0519	0.6267	2.3200e-003	0.2707	1.7900e-003	0.2725	0.0719	1.6500e-003	0.0735	0.0000	209.9912	209.9912	4.4800e-003	0.0000	210.1031

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	163.27	17.59	7.04	725,943	725,943
Total	163.27	17.59	7.04	725,943	725,943

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	16.60	8.40	6.90	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	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

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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	99.8677	99.8677	4.1200e-003	8.5000e-004	100.2250
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	99.8677	99.8677	4.1200e-003	8.5000e-004	100.2250
NaturalGas Mitigated	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.7062	12.7062	2.4000e-004	2.3000e-004	12.7817
NaturalGas Unmitigated	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.7062	12.7062	2.4000e-004	2.3000e-004	12.7817

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	238105	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.7062	12.7062	2.4000e-004	2.3000e-004	12.7817
Total		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**	**0.0000**	**12.7062**	**12.7062**	**2.4000e-004**	**2.3000e-004**	**12.7817**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	238105	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.7062	12.7062	2.4000e-004	2.3000e-004	12.7817
Total		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**	**0.0000**	**12.7062**	**12.7062**	**2.4000e-004**	**2.3000e-004**	**12.7817**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	36625.4	11.6696	4.8000e-004	1.0000e-004	11.7114
Unrefrigerated Warehouse-No Rail	276811	88.1981	3.6400e-003	7.5000e-004	88.5136
Total		**99.8677**	**4.1200e-003**	**8.5000e-004**	**100.2250**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	36625.4	11.6696	4.8000e-004	1.0000e-004	11.7114
Unrefrigerated Warehouse-No Rail	276811	88.1981	3.6400e-003	7.5000e-004	88.5136
Total		**99.8677**	**4.1200e-003**	**8.5000e-004**	**100.2250**

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	tons/yr										MT/yr					
Mitigated	0.4867	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003
Unmitigated	0.4867	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003
Total	**0.4867**	**3.0000e-005**	**2.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.5100e-003**	**5.5100e-003**	**1.0000e-005**	**0.0000**	**5.8800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5100e-003	5.5100e-003	1.0000e-005	0.0000	5.8800e-003
Total	**0.4867**	**3.0000e-005**	**2.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.5100e-003**	**5.5100e-003**	**1.0000e-005**	**0.0000**	**5.8800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	121.1334	0.8885	0.0218	149.8502
Unmitigated	121.1334	0.8885	0.0218	149.8502

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	27.1233 / 0	121.1334	0.8885	0.0218	149.8502
Total		**121.1334**	**0.8885**	**0.0218**	**149.8502**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	27.1233 / 0	121.1334	0.8885	0.0218	149.8502
Total		**121.1334**	**0.8885**	**0.0218**	**149.8502**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.3798	1.3226	0.0000	55.4449
Unmitigated	22.3798	1.3226	0.0000	55.4449

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	110.25	22.3798	1.3226	0.0000	55.4449
Total		**22.3798**	**1.3226**	**0.0000**	**55.4449**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	110.25	22.3798	1.3226	0.0000	55.4449
Total		**22.3798**	**1.3226**	**0.0000**	**55.4449**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

6th and Center Warehouse

MOBILE SOURCE HEALTH RISK ASSESSMENT

CITY OF RANCHO CUCAMONGA

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JULY 25, 2018

11761-02 HRA Report

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APPENDICES

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	Atmospheric Dispersion Modeling System
APS	Auxiliary Power System
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard
PCE	Passenger Car Equivalent
PM10	Particulate Matter 10 microns in diameter or less
Project	6th and Center Warehouse
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluated the potential mobile source health risk impacts to sensitive receptors (residents and schools) and adjacent workers associated with the development of the proposed Project, more specifically, health risk impacts as a result of exposure to Toxic Air Contaminants (TACs) including diesel particulate matter (DPM) as a result of heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project mobile source health risks.

The results of the health risk assessment of lifetime cancer risk from Project-generated TAC emissions are provided in Table ES-1.

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is located more than ½ mile south of the Project site at the southwest corner of Fourth Street and Haven Avenue. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.11 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.00005, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to residences in the Project vicinity.

Worker Exposure Scenario:

The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located immediately adjacent east of the Project site an existing industrial use. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.10 in one million which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0003, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent workers.

School Child Exposure Scenario:

The school site land use with the greatest potential exposure to Project DPM source emissions is located at the Ontario Center School approximately 0.75-mile (3,960 feet) south of the Project site 835 N Center Avenue in the City of Ontario. At the maximally exposed individual school child (MEISC), the maximum incremental cancer risk impact at this location is 0.03 in one million which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.0004, which would not exceed the applicable threshold of 1.0. Any other schools near the Project would be exposed to less emissions and consequently less impacts than what is disclosed for the MEISC. As such, the Project will not cause a significant human health or cancer risk to adjacent school children.

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.11	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.10	10	NO
9 Year Exposure	Maximum Exposed School Child	0.03	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.00005	1.0	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.0003	1.0	NO
9 Year Exposure	Maximum Exposed School Child	0.0004	1.0	NO

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to sensitive receptors (residential, schools) and adjacent workers as a result of heavy-duty diesel trucks accessing the site.

The South Coast Air Quality Management District (SCAQMD) typically issues a comment letter on the Notice of Preparation of a CEQA Document. Per the SCAQMD's typical comment letter, if a proposed Project is expected to generate/attract diesel trucks, which emit diesel particulate matter (DPM), preparation of a HRA is necessary. This document serves to meet the SCAQMD's request for preparation of a HRA. The mobile source HRA has been prepared in accordance with the document Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1) and is comprised of all relevant and appropriate procedures presented by the U.S. EPA, California Environmental Protection Agency and SCAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to DPM exposure. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulative impact.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (2). In this report the AQMD clearly states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less-than-significant.

1.1 SITE LOCATION

The proposed 6th and Center Warehouse Project is located north of 6th Street and east of Center Avenue, in the City of Rancho Cucamonga, as shown on Exhibit 1-A.

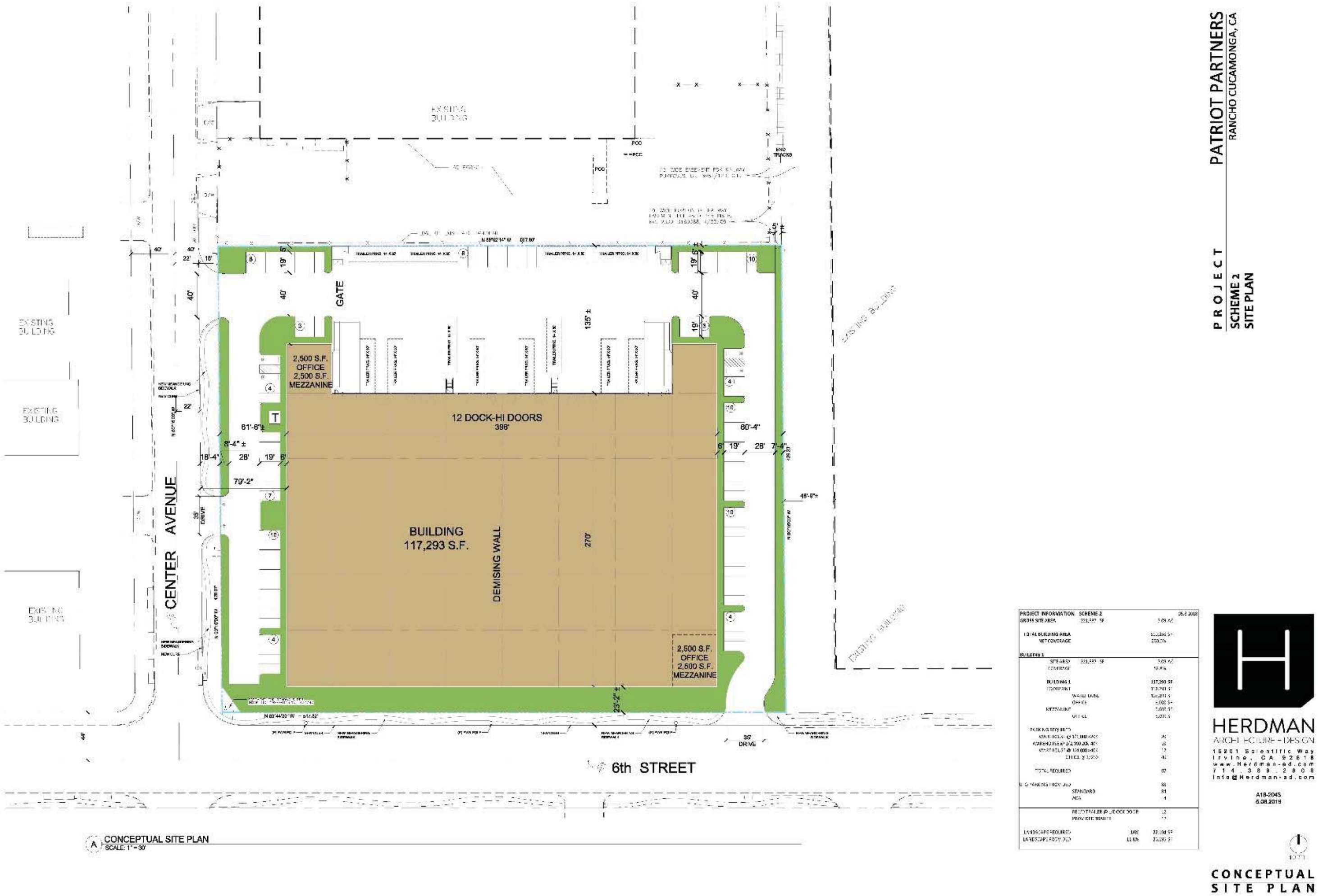
1.2 PROJECT DESCRIPTION

It is our understanding that the Project is proposed to include the development of 117,293 square feet of general warehouse use, as shown on Exhibit 1-B. For the purposes of this Health Risk Assessment (HRA), it is assumed that the Project will be developed in a single phase with an Opening Year of 2020.

Per the *6th and Center Warehouse Trip Generation Evaluation*, the Project is expected to generate a net total of approximately 204 trip-ends per day (actual vehicles) (3). The Project trip generation includes 41 truck trip-ends per day from the proposed Project site including 16.67% 2-axle trucks, 20.69% 3-axle trucks, and 62.64% 4+-axle trucks.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



2 BACKGROUND

2.1 REGULATORY SETTING

ARB estimates that the average Californian is exposed to 1.2-1.8 $\mu g/m^3$ of DPM annually, this exposure results in an average cancer risk of 360-540 in one million for the average Californian exposed to DPM (4).

As noted above, this HRA is based on SCAQMD guidelines to produce conservative estimates of risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per µg/m3 is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM.
- The risk estimates assume sensitive receptors will be subject to DPM for 24 hours a day, 350 days a year.
- The emissions derived assume that every truck accessing the project site will idle for 15 minutes under the unmitigated scenario, this is an overestimation of actual idling times and thus conservative.[1] It should be noted that ARB's anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 EMISSIONS ESTIMATION

2.2.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2014 version of the Emission FACtor model (EMFAC) developed by the ARB. EMFAC 2014 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (5). The most recent version of this model, EMFAC 2014, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2014. Emission factors calculated using EMFAC 2014 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and

[1] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2014 in EMFAC Mode for vehicles in the SCAQMD jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-1. As a conservative measure, a 2020 EMFAC 2014 run was conducted and a static 2020 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2020 emission factors would overstate potential impacts since this approach assumes that emission factors remain “static” and do not change over time due to fleet turnover or cleaner technology with lower emissions that would incorporated after 2020. Additionally, based on EMFAC2014, Light-Heavy-Duty Trucks comprise of 43.15% diesel, Medium-Heavy-Duty Trucks comprise of 87.2% diesel, and Heavy-Heavy-Duty Trucks comprise of 99.15% diesel trucks and have been accounted for accordingly in the emissions factor generation.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM10 emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (5):

> $Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day) / seconds per day

Where:

> $Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;
>
> $EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;
>
> Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (5):

$Emissions_{idle}$ (g/s) = EF_{idle} (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) *

60 minutes per hour / seconds per day

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle}(g/s): EMFAC idle exhaust PM_{10} emission factor.

TABLE 2-1: 2020 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.09378 (g/idle-hr)
5	0.04343 (g/s)
25	0.02435 (g/s)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix "2.1". The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-2. The modeled emission sources are illustrated on Exhibit 2-A. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for approximately 1.6 miles. This modeling domain is consistent with and more conservative than using only a ¼ mile modeling domain which is supported by substantial evidence since several studies have shown that the greatest potential risks occur within a ¼ mile of the primary source of emissions (in the case of the Project this is the on-site idling, and on-site travel).

On-site truck idling was estimated to occur as trucks enter and travel through the facility. Although the Project is required to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (6), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis estimated truck idling at 15 minutes, consistent with SCAQMD's recommendation.

Per the *6th and Center Warehouse Trip Generation Evaluation*, the Project is expected to generate a net total of approximately 204 trip-ends per day (actual vehicles) (3). The Project trip generation includes 41 truck trip-ends per day from the proposed Project site including 16.67% 2-axle trucks, 20.69% 3-axle trucks, and 62.64% 4+-axle trucks.

TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS

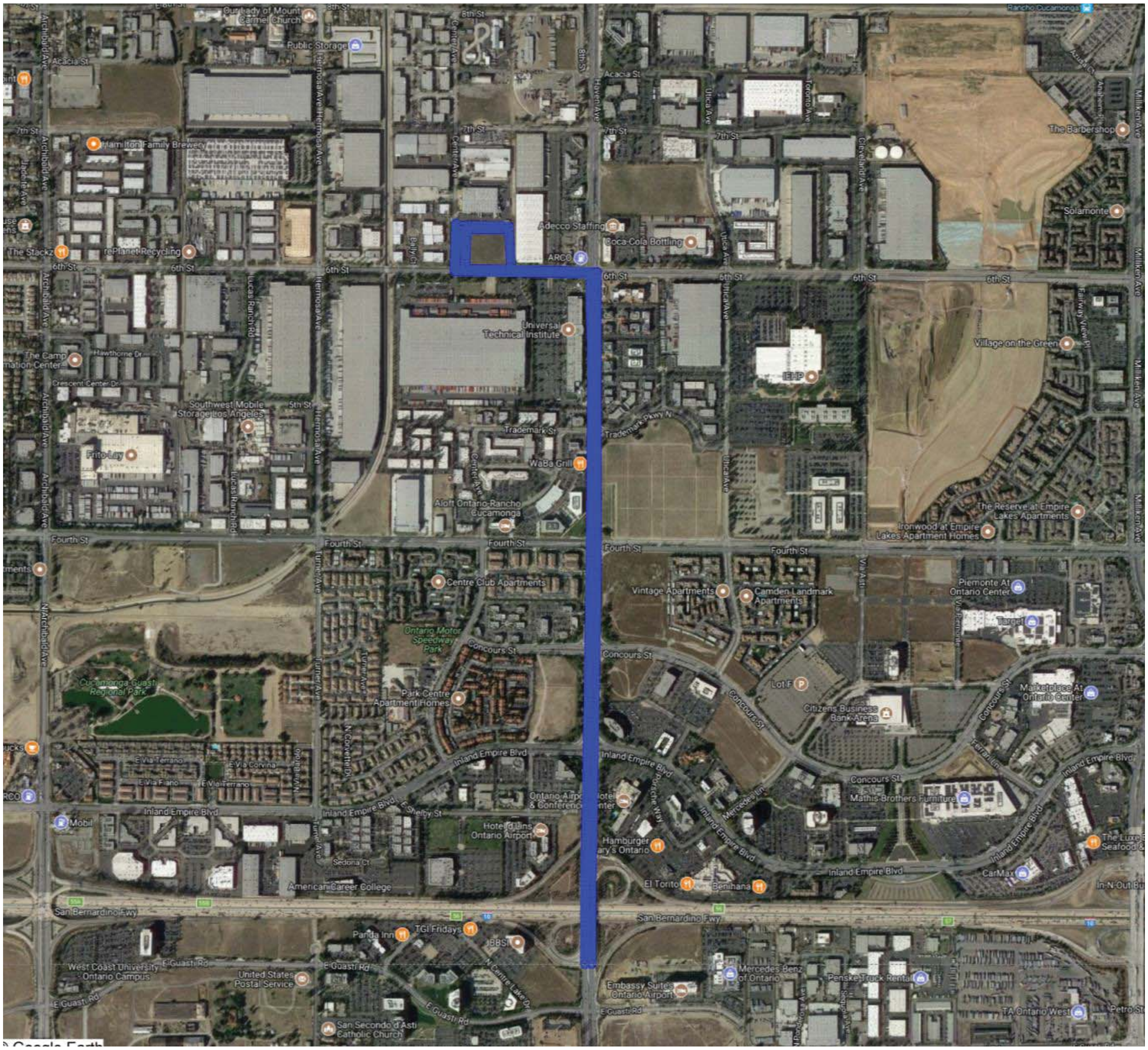
		Truck Emission Rates				
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	21			0.0938	0.48	5.563E-06
On-Site Travel	41	11.82	0.0434		0.51	5.944E-06
Off-Site Travel 100% Inbound from I-10	21	33.32	0.0243		0.81	9.389E-06
Off-Site Travel 100% Outbound to I-10	21	33.14	0.0243		0.81	9.340E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2014. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

EXHIBIT 2-A: MODELED EMISSION SOURCES



2.3 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the model was used to calculate annual average particulate concentrations associated with site operations.

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in AERMOD View has been utilized to determine the release height parameters. Based on the US EPA methodology, the Project's modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

SCAQMD required model parameters are presented in Table 2-3 (7). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Ontario Airport (SRA 33) was used to represent local weather conditions and prevailing winds (8).

TABLE 2-3: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban
Terrain (Flat/Elevated)	Elevated (Regulatory Default)
Averaging Time	1 year (5-year Meteorological Data Set)
Receptor Height	0 meters (Regulatory Default)

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the project boundaries, each volume source location, and receptor locations in the project vicinity. The AERMOD dispersion model summary output files for the proposed facility are presented in Appendix "2.1".

Modeled sensitive receptors were placed at residential and non-residential locations. Based on recommendations from SCAMD staff, a receptor grids with a maximum of 100 meters spacing were placed at residential, worker, and school locations to ensure that the maximum impacts are properly analyzed.

Receptors may be placed at applicable structure locations for residential and worker property and not the necessarily the boundaries of these uses. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residential and worker over a period of 30 or 25 years of exposure respectively. As such, even though it is unlikely to occur in practical terms (because the amount of time spent indoors), this study assumes that a resident or worker would be exposed over a long-period of time for 12 or 24-hours per day at the structure they reside or work.

Furthermore, worker receptors immediately adjacent to the Project site have been evaluated in the HRA. Any impacts to workers located at schools, or non-school workers located further away from the Project site than the modeled worker receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIW.

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Tables 2-4, 2-5, and 2-6 summarize the Exposure Parameters for Residents, School, and Offsite Worker scenarios based on 2015 OEHHA Guidelines. Appendix 2.2 includes the detailed risk calculation.

TABLE 2-4: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	273	10	0.25	0.85	350	24
0 to 2	758	10	2	0.85	350	24
2 to 16	572	3	14	0.72	350	24
16 to 30	261	1	14	0.73	350	24

TABLE 2-5: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure Time (hours/day)
16 to 41	271	1	25	250	12

TABLE 2-6: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (9 YEAR SCHOOL CHILD)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year) [a]	Exposure Time (hours/day)
4 to 13	572	3	9	180	12

[a] To represent the unique characteristics of the school-based population, the assessment employed the U.S. Environmental Protection Agency's guidance to develop viable dose estimates based on reasonable maximum exposures (RME). RME's are defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. As a result, lifetime risk values for the student population were adjusted to account for an exposure duration of 180 days per year for nine (9) years. The 9 year exposure duration is also consistent with OEHHA Recommendations and consistent with the exposure duration utilized in school-based risk assessments for various schools within the Los Angeles County Unified School District (LAUSD) that have been accepted by the SCAQMD.

2.4 CARCINOGENIC CHEMICAL RISK

The SCAQMD CEQA Air Quality Handbook (1993) states that emissions of toxic air contaminants (TACs) are considered significant if a HRA shows an increased risk of greater than 10 in one million. Based on guidance from the SCAQMD in the document Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1), for purposes of this analysis, 10 in one million is used as the cancer risk threshold for the proposed Project.

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. As an example, the risk of dying from accidental drowning is 1,000 in a million which is 100 times more than the SCAQMD's threshold of 10 in one million, the nearest comparison to 10 in one million is the 7 in one million lifetime chance that an individual would be struck by lightning.

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day)-1 to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1 x 10 -6 = conversion factors (ug to mg, L to m3)

$$RISKair = DOSEair \times CPF \times ED/AT$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

CPF = cancer potency factor

ED = number of years within particular age group

AT = averaging time

2.5 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 μg/m^3 (OEHHA Toxicity Criteria Database, http://www.oehha.org/risk/chemicaldb/index.asp).

The non-cancer hazard index was calculated (consistent with SCAQMD methodology) as follows:

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

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average DPM concentration (μg/m^3).

REL_{DPM} = Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

For purposes of this analysis the hazard index for the respiratory endpoint totaled less than one for all receptors in the project vicinity, and thus is less than significant.

2.6 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS[2]

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project DPM source emissions is located more than ½ mile south of the Project site at the southwest corner of Fourth Street and Haven Avenue. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 0.11 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.00005, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to residences in the Project vicinity. The nearest modeled receptors are illustrated on Exhibit 2-B.

Worker Exposure Scenario:

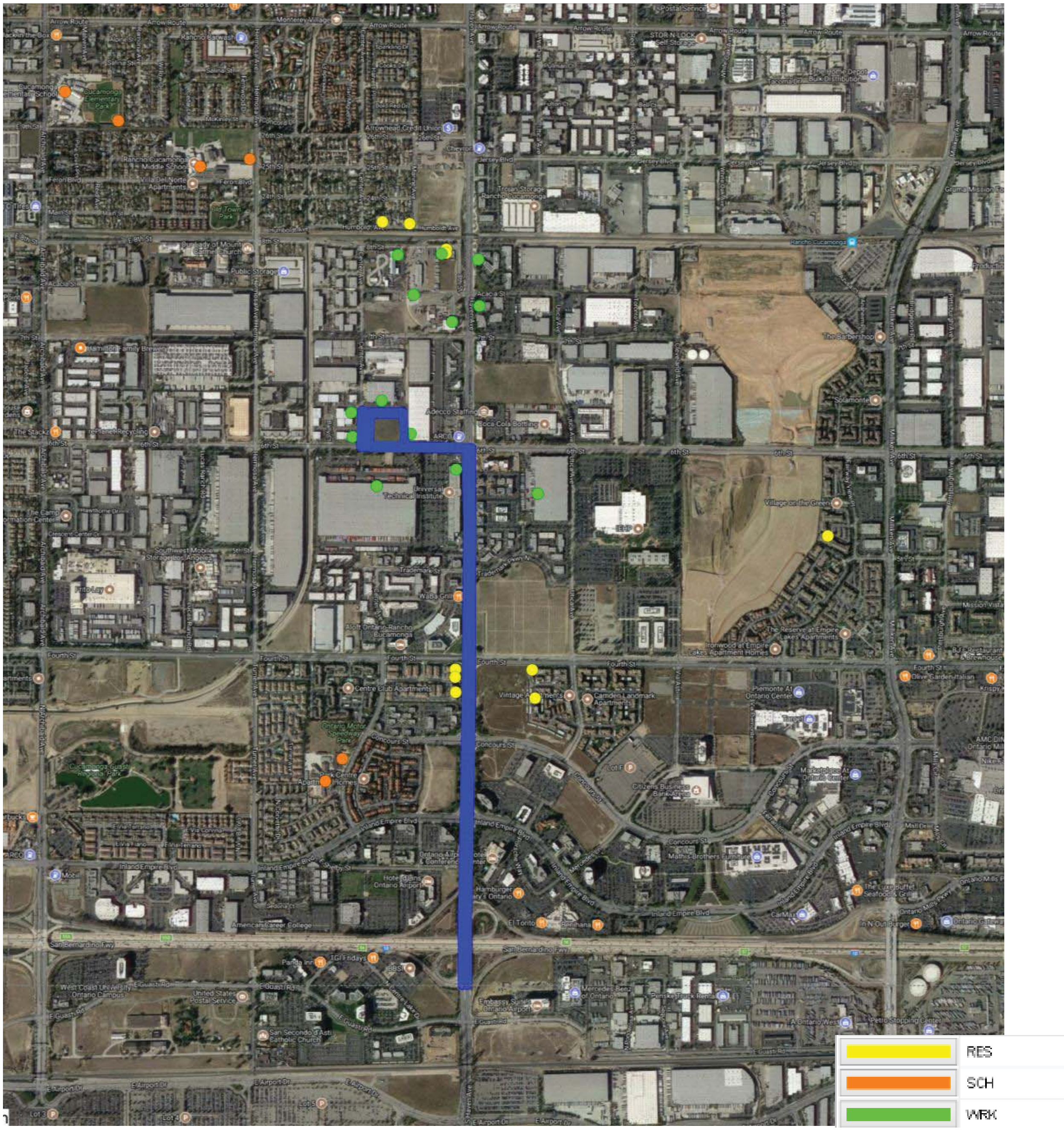
The worker receptor land use with the greatest potential exposure to Project DPM source emissions is located immediately adjacent east of the Project site an existing industrial use. At the maximally exposed individual worker (MEIW), the maximum incremental cancer risk impact at this location is 0.10 in one million which is less than the threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be 0.0003, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors are illustrated on Exhibit 2-B.

School Child Exposure Scenario:

The school site land use with the greatest potential exposure to Project DPM source emissions is located at the Ontario Center School approximately 0.75-mile (3,960 feet) south of the Project site 835 N Center Avenue in the City of Ontario. At the maximally exposed individual school child (MEISC), the maximum incremental cancer risk impact at this location is 0.03 in one million which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.0004, which would not exceed the applicable threshold of 1.0. Any other schools near the Project would be exposed to less emissions and consequently less impacts than what is disclosed for the MEISC. As such, the Project will not cause a significant human health or cancer risk to adjacent school children. The nearest modeled receptors are illustrated on Exhibit 2-B.

2 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

EXHIBIT 2-B: MODELED RECEPTORS



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3 REFERENCES

1. **South Coast Air Quality Managment District.** Mobile Source Toxics Analysis. [Online] 2003. http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html.
2. **Goss, Tracy A and Kroeger, Amy.** White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. [Online] South Coast Air Quality Management District, 2003. http://www.aqmd.gov/rules/ciwg/final_white_paper.pdf.
3. **Urban Crossroads, Inc.** *6th and Center Warehouse Trip Generation Evaluation.* Costa Mesa : s.n., 2018.
4. **South Coast Air Quality Management District.** RULE 403. Fugitive Dust. [Online] http://www.aqmd.gov/rules/reg/reg04/r403.pdf.
5. **California Department of Transportation.** EMFAC Software. [Online] http://www.dot.ca.gov/hq/env/air/pages/emfac.htm.
6. **Koizumi, James.** *Planning, Rule Development & Area Sources.* May 6, 2009.
7. **Environmental Protection Agency.** User's Guide for the AMS/EPA Regulatory Model - AERMOD. [Online] September 2004. http://www.epa.gov/scram001/7thconf/aermod/aermodugb.pdf.
8. **South Coast Air Quality Management District.** *Air Quality Reporting.* [pdf] Diamond Bar : Sierra Wade Associates, 1999.

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4 CERTIFICATION

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed 6th and Center Warehouse Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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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

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
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 2.1:

AERMOD MODEL INPUT/OUTPUT

```
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**
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**
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** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 7/27/2018
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** AERMOD CONTROL PATHWAY
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   AVERTIME ANNUAL
   URBANOPT 2035210
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "11761 RC 6TH ST.ERR"
CO FINISHED
**
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** AERMOD SOURCE PATHWAY
****************************************
**
**
SO STARTING
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   LOCATION L0021332     VOLUME   446581.202 3771702.680 326.68
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** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE4
** DESCRSRC 100% OUTBOUND
** PREFIX
** LENGTH OF SIDE = 8.59
** CONFIGURATION = ADJACENT
** EMISSION RATE = 9.34E-06
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** SZINIT = 3.25
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LOCATION	L0021602	VOLUME	446846.950	3771688.419	325.92
LOCATION	L0021603	VOLUME	446838.361	3771688.563	326.03
LOCATION	L0021604	VOLUME	446829.772	3771688.707	326.13
LOCATION	L0021605	VOLUME	446821.183	3771688.850	326.17
LOCATION	L0021606	VOLUME	446812.594	3771688.994	326.21
LOCATION	L0021607	VOLUME	446804.006	3771689.138	326.25
LOCATION	L0021608	VOLUME	446795.417	3771689.281	326.23
LOCATION	L0021609	VOLUME	446786.828	3771689.425	326.14
LOCATION	L0021610	VOLUME	446778.239	3771689.569	326.05
LOCATION	L0021611	VOLUME	446769.650	3771689.712	325.97
LOCATION	L0021612	VOLUME	446761.062	3771689.856	325.88
LOCATION	L0021613	VOLUME	446752.473	3771689.999	325.80
LOCATION	L0021614	VOLUME	446743.884	3771690.143	325.71
LOCATION	L0021615	VOLUME	446735.295	3771690.287	325.73
LOCATION	L0021616	VOLUME	446726.706	3771690.430	325.87
LOCATION	L0021617	VOLUME	446718.118	3771690.574	326.00
LOCATION	L0021618	VOLUME	446709.529	3771690.718	326.13
LOCATION	L0021619	VOLUME	446700.940	3771690.861	326.18
LOCATION	L0021620	VOLUME	446692.351	3771691.005	326.22
LOCATION	L0021621	VOLUME	446683.762	3771691.149	326.26
LOCATION	L0021622	VOLUME	446675.174	3771691.292	326.29
LOCATION	L0021623	VOLUME	446666.585	3771691.436	326.29
LOCATION	L0021624	VOLUME	446657.996	3771691.580	326.29
LOCATION	L0021625	VOLUME	446649.407	3771691.723	326.29
LOCATION	L0021626	VOLUME	446640.818	3771691.867	326.29
LOCATION	L0021627	VOLUME	446632.230	3771692.011	326.30
LOCATION	L0021628	VOLUME	446623.641	3771692.154	326.30
LOCATION	L0021629	VOLUME	446615.052	3771692.298	326.32
LOCATION	L0021630	VOLUME	446606.463	3771692.442	326.37
LOCATION	L0021631	VOLUME	446597.874	3771692.585	326.42
LOCATION	L0021632	VOLUME	446589.286	3771692.729	326.47
LOCATION	L0021633	VOLUME	446580.697	3771692.873	326.51
LOCATION	L0021634	VOLUME	446572.108	3771693.016	326.55
LOCATION	L0021635	VOLUME	446563.519	3771693.160	326.59
LOCATION	L0021636	VOLUME	446554.930	3771693.303	326.61
LOCATION	L0021637	VOLUME	446546.342	3771693.447	326.61
LOCATION	L0021638	VOLUME	446537.753	3771693.591	326.62
LOCATION	L0021639	VOLUME	446529.164	3771693.734	326.61
LOCATION	L0021640	VOLUME	446520.575	3771693.878	326.53
LOCATION	L0021641	VOLUME	446511.986	3771694.022	326.44

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   LOCATION L0021642     VOLUME   446503.398 3771694.165 326.36
   LOCATION L0021643     VOLUME   446494.809 3771694.309 326.27
   LOCATION L0021644     VOLUME   446486.220 3771694.453 326.19
   LOCATION L0021645     VOLUME   446477.631 3771694.596 326.10
   LOCATION L0021646     VOLUME   446469.042 3771694.740 326.01
   LOCATION L0021647     VOLUME   446466.211 3771700.359 326.04
   LOCATION L0021648     VOLUME   446466.498 3771708.944 326.13
   LOCATION L0021649     VOLUME   446466.786 3771717.529 326.22
   LOCATION L0021650     VOLUME   446467.074 3771726.114 326.31
   LOCATION L0021651     VOLUME   446467.361 3771734.699 326.40
   LOCATION L0021652     VOLUME   446467.649 3771743.285 326.56
   LOCATION L0021653     VOLUME   446467.937 3771751.870 326.74
   LOCATION L0021654     VOLUME   446468.224 3771760.455 326.92
   LOCATION L0021655     VOLUME   446468.512 3771769.040 327.10
   LOCATION L0021656     VOLUME   446468.800 3771777.625 327.28
   LOCATION L0021657     VOLUME   446469.087 3771786.211 327.45
   LOCATION L0021658     VOLUME   446469.375 3771794.796 327.63
   LOCATION L0021659     VOLUME   446469.662 3771803.381 327.88
   LOCATION L0021660     VOLUME   446469.950 3771811.966 328.14
   LOCATION L0021661     VOLUME   446470.238 3771820.551 328.40
   LOCATION L0021662     VOLUME   446470.525 3771829.137 328.63
   LOCATION L0021663     VOLUME   446470.813 3771837.722 328.81
** END OF LINE VOLUME SOURCE ID = SLINE4
** SOURCE PARAMETERS **
** LINE VOLUME SOURCE ID = SLINE1
   SRCPARAM L0020991     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020992     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020993     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020994     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020995     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020996     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020997     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020998     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0020999     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0021000     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0021001     0.0000004636      3.49      4.00      3.25
   SRCPARAM L0021002     0.0000004636      3.49      4.00      3.25
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** LINE VOLUME SOURCE ID = SLINE2
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   SRCPARAM L0021004     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021005     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021006     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021007     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021008     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021009     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021010     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021011     0.0000001101      3.49      4.00      3.25
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   SRCPARAM L0021012     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021013     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021014     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021015     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021016     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021017     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021018     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021019     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021020     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021021     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021022     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021023     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021024     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021025     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021026     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021027     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021028     0.0000001101      3.49      4.00      3.25
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   SRCPARAM L0021035     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021036     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021037     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021038     0.0000001101      3.49      4.00      3.25
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   SRCPARAM L0021041     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021042     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021043     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021044     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021045     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021046     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021047     0.0000001101      3.49      4.00      3.25
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   SRCPARAM L0021055     0.0000001101      3.49      4.00      3.25
   SRCPARAM L0021056     0.0000001101      3.49      4.00      3.25
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** LINE VOLUME SOURCE ID = SLINE3
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SRCPARAM L0021061	0.00000003088	3.49	4.00	3.25
SRCPARAM L0021062	0.00000003088	3.49	4.00	3.25
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SRCPARAM L0021070	0.00000003088	3.49	4.00	3.25
SRCPARAM L0021071	0.00000003088	3.49	4.00	3.25
SRCPARAM L0021072	0.00000003088	3.49	4.00	3.25
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SRCPARAM L0021076	0.00000003088	3.49	4.00	3.25
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SRCPARAM	L0021194	0.00000003088	3.49	4.00	3.25
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SRCPARAM	L0021201	0.00000003088	3.49	4.00	3.25

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SRCPARAM L0021202     0.00000003088      3.49      4.00      3.25
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SRCPARAM L0021525	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021530	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021531	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021532	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021533	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021534	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021535	0.00000003083	3.49	4.00	3.25

SRCPARAM L0021536	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021537	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021538	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021539	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021540	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021541	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021542	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021543	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021544	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021546	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021562	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021567	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021568	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021569	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021570	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021571	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021575	0.00000003083	3.49	4.00	3.25
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SRCPARAM L0021577	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021578	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021579	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021580	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021581	0.00000003083	3.49	4.00	3.25
SRCPARAM L0021582	0.00000003083	3.49	4.00	3.25
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SRCPARAM	L0021594	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021595	0.00000003083	3.49	4.00	3.25
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SRCPARAM	L0021598	0.00000003083	3.49	4.00	3.25
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SRCPARAM	L0021601	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021602	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021603	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021604	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021605	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021606	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021607	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021608	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021609	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021610	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021611	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021612	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021613	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021614	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021615	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021616	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021617	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021618	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021619	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021620	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021621	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021622	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021623	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021624	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021625	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021626	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021627	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021628	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021629	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021630	0.00000003083	3.49	4.00	3.25
SRCPARAM	L0021631	0.00000003083	3.49	4.00	3.25

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   SRCPARAM L0021633     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021635     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021640     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021641     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021642     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021643     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021645     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021647     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021648     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021650     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021652     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021653     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021654     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021655     0.00000003083      3.49      4.00      3.25
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   SRCPARAM L0021659     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021660     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021661     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021662     0.00000003083      3.49      4.00      3.25
   SRCPARAM L0021663     0.00000003083      3.49      4.00      3.25
** ------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD RECEPTOR PATHWAY
****************************************
**
**
RE STARTING
   INCLUDED "11761 RC 6TH ST.ROU"
RE FINISHED
**
****************************************
** AERMOD METEOROLOGY PATHWAY
```

```
**************************************
**
**
ME STARTING
   SURFFILE KONT_V9_ADJU\KONT_V9.SFC
   PROFFILE KONT_V9_ADJU\KONT_V9.PFL
   SURFDATA 3102 2012
   UAIRDATA 3190 2012
   PROFBASE 289.0 METERS
ME FINISHED
**
**************************************
** AERMOD OUTPUT PATHWAY
**************************************
**
**
OU STARTING
** AUTO-GENERATED PLOTFILES
   PLOTFILE   ANNUAL ALL "11761 RC 6TH ST.AD\AN00GALL.PLT" 31
   SUMMFILE "11761 RC 6TH ST.SUM"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186    1497       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
 ME W187    1497       MEOPEN: ADJ_U* Option for Low Winds used in AERMET


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses URBAN Dispersion Algorithm for the SBL for 673 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 2035210.0 ; Urban Roughness Length = 1.000 m

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
ADJ_U* - Use ADJ_U* BETA option for SBL in AERMET
CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: DPM

**Model Calculates ANNUAL Averages Only

**This Run Includes: 673 Source(s); 1 Source Group(s); and 29 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 673 VOLUME source(s)

```
                           11761 RC 6th St.ADO
               and:      0 AREA type source(s)
               and:      0 LINE source(s)
               and:      0 OPENPIT source(s)
               and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  16216

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing
Hours
                                                                 b for Both Calm
and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   289.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.8 MB of RAM.

 **Detailed Error/Message File:   11761 RC 6TH ST.ERR

 **File for Summary of Results:   11761 RC 6TH ST.SUM

↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                   *** VOLUME SOURCE DATA ***


               NUMBER EMISSION RATE                         BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
```

SOURCE ID	PART. CATS.	(GRAMS/SEC)	X (METERS)	Y (METERS)	ELEV. (METERS)	HEIGHT (METERS)	SY (METERS)	SZ (METERS)	SOURCE SCALAR VARY BY
L0020991	0	0.46360E-06	446517.2	3771820.2	328.4	3.49	4.00	3.25	YES
L0020992	0	0.46360E-06	446525.8	3771820.1	328.4	3.49	4.00	3.25	YES
L0020993	0	0.46360E-06	446534.4	3771820.0	328.4	3.49	4.00	3.25	YES
L0020994	0	0.46360E-06	446543.0	3771819.9	328.3	3.49	4.00	3.25	YES
L0020995	0	0.46360E-06	446551.6	3771819.8	328.3	3.49	4.00	3.25	YES
L0020996	0	0.46360E-06	446560.2	3771819.7	328.2	3.49	4.00	3.25	YES
L0020997	0	0.46360E-06	446568.8	3771819.7	328.2	3.49	4.00	3.25	YES
L0020998	0	0.46360E-06	446577.4	3771819.6	328.2	3.49	4.00	3.25	YES
L0020999	0	0.46360E-06	446586.0	3771819.5	328.2	3.49	4.00	3.25	YES
L0021000	0	0.46360E-06	446594.6	3771819.4	328.2	3.49	4.00	3.25	YES
L0021001	0	0.46360E-06	446603.1	3771819.3	328.1	3.49	4.00	3.25	YES
L0021002	0	0.46360E-06	446611.7	3771819.2	328.0	3.49	4.00	3.25	YES
L0021003	0	0.11010E-06	446633.8	3771719.8	326.7	3.49	4.00	3.25	YES
L0021004	0	0.11010E-06	446633.4	3771728.4	326.9	3.49	4.00	3.25	YES
L0021005	0	0.11010E-06	446633.0	3771737.0	327.1	3.49	4.00	3.25	YES
L0021006	0	0.11010E-06	446632.6	3771745.5	327.1	3.49	4.00	3.25	YES
L0021007	0	0.11010E-06	446632.1	3771754.1	327.2	3.49	4.00	3.25	YES
L0021008	0	0.11010E-06	446631.7	3771762.7	327.3	3.49	4.00	3.25	YES
L0021009	0	0.11010E-06	446631.3	3771771.3	327.4	3.49	4.00	3.25	YES
L0021010	0	0.11010E-06	446630.9	3771779.9	327.5	3.49	4.00	3.25	YES
L0021011	0	0.11010E-06	446630.5	3771788.4	327.6	3.49	4.00		

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3.25     YES
 L0021012         0   0.11010E-06  446630.0 3771797.0   327.7     3.49     4.00
3.25     YES
 L0021013         0   0.11010E-06  446629.6 3771805.6   327.8     3.49     4.00
3.25     YES
 L0021014         0   0.11010E-06  446629.2 3771814.2   327.8     3.49     4.00
3.25     YES
 L0021015         0   0.11010E-06  446628.8 3771822.8   327.9     3.49     4.00
3.25     YES
 L0021016         0   0.11010E-06  446628.3 3771831.3   328.1     3.49     4.00
3.25     YES
 L0021017         0   0.11010E-06  446619.8 3771831.4   328.1     3.49     4.00
3.25     YES
 L0021018         0   0.11010E-06  446611.2 3771831.4   328.1     3.49     4.00
3.25     YES
 L0021019         0   0.11010E-06  446602.6 3771831.5   328.2     3.49     4.00
3.25     YES
 L0021020         0   0.11010E-06  446594.1 3771831.5   328.3     3.49     4.00
3.25     YES
 L0021021         0   0.11010E-06  446585.5 3771831.5   328.3     3.49     4.00
3.25     YES
 L0021022         0   0.11010E-06  446576.9 3771831.5   328.3     3.49     4.00
3.25     YES
 L0021023         0   0.11010E-06  446568.3 3771831.5   328.3     3.49     4.00
3.25     YES
 L0021024         0   0.11010E-06  446559.7 3771831.5   328.3     3.49     4.00
3.25     YES
 L0021025         0   0.11010E-06  446551.1 3771831.5   328.4     3.49     4.00
3.25     YES
 L0021026         0   0.11010E-06  446542.5 3771831.6   328.5     3.49     4.00
3.25     YES
 L0021027         0   0.11010E-06  446533.9 3771831.6   328.6     3.49     4.00
3.25     YES
 L0021028         0   0.11010E-06  446525.3 3771831.6   328.6     3.49     4.00
3.25     YES
 L0021029         0   0.11010E-06  446516.7 3771831.6   328.7     3.49     4.00
3.25     YES
 L0021030         0   0.11010E-06  446508.2 3771831.6   328.7     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

                                  PAGE   3
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0021031	0	0.11010E-06	446504.5	3771826.5	328.6	3.49	4.00	3.25	YES	
L0021032	0	0.11010E-06	446504.1	3771817.9	328.4	3.49	4.00	3.25	YES	
L0021033	0	0.11010E-06	446503.7	3771809.3	328.2	3.49	4.00	3.25	YES	
L0021034	0	0.11010E-06	446503.4	3771800.7	328.1	3.49	4.00	3.25	YES	
L0021035	0	0.11010E-06	446503.0	3771792.2	327.9	3.49	4.00	3.25	YES	
L0021036	0	0.11010E-06	446502.6	3771783.6	327.7	3.49	4.00	3.25	YES	
L0021037	0	0.11010E-06	446502.3	3771775.0	327.5	3.49	4.00	3.25	YES	
L0021038	0	0.11010E-06	446501.9	3771766.4	327.4	3.49	4.00	3.25	YES	
L0021039	0	0.11010E-06	446501.5	3771757.8	327.2	3.49	4.00	3.25	YES	
L0021040	0	0.11010E-06	446501.1	3771749.3	327.0	3.49	4.00	3.25	YES	
L0021041	0	0.11010E-06	446500.8	3771740.7	326.8	3.49	4.00	3.25	YES	
L0021042	0	0.11010E-06	446500.4	3771732.1	326.7	3.49	4.00	3.25	YES	
L0021043	0	0.11010E-06	446500.0	3771723.5	326.6	3.49	4.00	3.25	YES	
L0021044	0	0.11010E-06	446499.5	3771730.7	326.7	3.49	4.00	3.25	YES	
L0021045	0	0.11010E-06	446498.9	3771739.2	326.8	3.49	4.00	3.25	YES	
L0021046	0	0.11010E-06	446498.3	3771747.8	327.0	3.49	4.00	3.25	YES	
L0021047	0	0.11010E-06	446497.7	3771756.4	327.1	3.49	4.00	3.25	YES	
L0021048	0	0.11010E-06	446497.2	3771764.9	327.3	3.49	4.00	3.25	YES	
L0021049	0	0.11010E-06	446496.6	3771773.5	327.5	3.49	4.00			

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3.25     YES
 L0021050         0   0.11010E-06  446496.0 3771782.1   327.6     3.49     4.00
3.25     YES
 L0021051         0   0.11010E-06  446495.5 3771790.7   327.8     3.49     4.00
3.25     YES
 L0021052         0   0.11010E-06  446494.9 3771799.2   328.0     3.49     4.00
3.25     YES
 L0021053         0   0.11010E-06  446494.3 3771807.8   328.2     3.49     4.00
3.25     YES
 L0021054         0   0.11010E-06  446493.8 3771816.4   328.4     3.49     4.00
3.25     YES
 L0021055         0   0.11010E-06  446494.1 3771825.0   328.5     3.49     4.00
3.25     YES
 L0021056         0   0.11010E-06  446494.5 3771833.5   328.7     3.49     4.00
3.25     YES
 L0021057         0   0.30880E-07  446874.3 3769641.9   301.3     3.49     4.00
3.25     YES
 L0021058         0   0.30880E-07  446874.4 3769650.4   301.4     3.49     4.00
3.25     YES
 L0021059         0   0.30880E-07  446874.4 3769659.0   301.4     3.49     4.00
3.25     YES
 L0021060         0   0.30880E-07  446874.5 3769667.6   301.4     3.49     4.00
3.25     YES
 L0021061         0   0.30880E-07  446874.5 3769676.2   301.2     3.49     4.00
3.25     YES
 L0021062         0   0.30880E-07  446874.6 3769684.8   301.0     3.49     4.00
3.25     YES
 L0021063         0   0.30880E-07  446874.7 3769693.4   300.8     3.49     4.00
3.25     YES
 L0021064         0   0.30880E-07  446874.7 3769702.0   300.8     3.49     4.00
3.25     YES
 L0021065         0   0.30880E-07  446874.8 3769710.6   301.1     3.49     4.00
3.25     YES
 L0021066         0   0.30880E-07  446874.9 3769719.2   301.3     3.49     4.00
3.25     YES
 L0021067         0   0.30880E-07  446874.9 3769727.8   301.5     3.49     4.00
3.25     YES
 L0021068         0   0.30880E-07  446875.0 3769736.3   301.7     3.49     4.00
3.25     YES
 L0021069         0   0.30880E-07  446875.0 3769744.9   301.9     3.49     4.00
3.25     YES
 L0021070         0   0.30880E-07  446875.1 3769753.5   302.0     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                         ***       09:40:20
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11761 RC 6th St.ADO
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0021071	0	0.30880E-07	446875.2	3769762.1	301.9	3.49	4.00	3.25	YES	
L0021072	0	0.30880E-07	446875.2	3769770.7	301.5	3.49	4.00	3.25	YES	
L0021073	0	0.30880E-07	446875.2	3769779.3	301.2	3.49	4.00	3.25	YES	
L0021074	0	0.30880E-07	446875.2	3769787.9	301.0	3.49	4.00	3.25	YES	
L0021075	0	0.30880E-07	446875.1	3769796.5	301.7	3.49	4.00	3.25	YES	
L0021076	0	0.30880E-07	446875.1	3769805.1	302.4	3.49	4.00	3.25	YES	
L0021077	0	0.30880E-07	446875.1	3769813.6	303.2	3.49	4.00	3.25	YES	
L0021078	0	0.30880E-07	446875.0	3769822.2	303.5	3.49	4.00	3.25	YES	
L0021079	0	0.30880E-07	446875.0	3769830.8	303.8	3.49	4.00	3.25	YES	
L0021080	0	0.30880E-07	446875.0	3769839.4	304.0	3.49	4.00	3.25	YES	
L0021081	0	0.30880E-07	446874.9	3769848.0	304.2	3.49	4.00	3.25	YES	
L0021082	0	0.30880E-07	446874.9	3769856.6	304.1	3.49	4.00	3.25	YES	
L0021083	0	0.30880E-07	446874.9	3769865.2	304.0	3.49	4.00	3.25	YES	
L0021084	0	0.30880E-07	446874.8	3769873.8	303.9	3.49	4.00	3.25	YES	
L0021085	0	0.30880E-07	446874.8	3769882.4	303.5	3.49	4.00	3.25	YES	
L0021086	0	0.30880E-07	446874.8	3769891.0	302.9	3.49	4.00	3.25	YES	
L0021087	0	0.30880E-07	446874.9	3769899.5	302.4	3.49	4.00			

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3.25     YES
 L0021088         0   0.30880E-07  446875.1 3769908.1   301.9     3.49     4.00
3.25     YES
 L0021089         0   0.30880E-07  446875.4 3769916.7   301.9     3.49     4.00
3.25     YES
 L0021090         0   0.30880E-07  446875.6 3769925.3   301.8     3.49     4.00
3.25     YES
 L0021091         0   0.30880E-07  446875.9 3769933.9   301.8     3.49     4.00
3.25     YES
 L0021092         0   0.30880E-07  446876.1 3769942.5   301.8     3.49     4.00
3.25     YES
 L0021093         0   0.30880E-07  446876.3 3769951.1   301.8     3.49     4.00
3.25     YES
 L0021094         0   0.30880E-07  446876.6 3769959.7   301.9     3.49     4.00
3.25     YES
 L0021095         0   0.30880E-07  446876.8 3769968.2   301.9     3.49     4.00
3.25     YES
 L0021096         0   0.30880E-07  446877.1 3769976.8   301.8     3.49     4.00
3.25     YES
 L0021097         0   0.30880E-07  446877.3 3769985.4   301.8     3.49     4.00
3.25     YES
 L0021098         0   0.30880E-07  446877.6 3769994.0   301.8     3.49     4.00
3.25     YES
 L0021099         0   0.30880E-07  446877.8 3770002.6   301.9     3.49     4.00
3.25     YES
 L0021100         0   0.30880E-07  446877.9 3770011.2   302.1     3.49     4.00
3.25     YES
 L0021101         0   0.30880E-07  446878.0 3770019.8   302.2     3.49     4.00
3.25     YES
 L0021102         0   0.30880E-07  446878.2 3770028.4   302.4     3.49     4.00
3.25     YES
 L0021103         0   0.30880E-07  446878.3 3770036.9   302.6     3.49     4.00
3.25     YES
 L0021104         0   0.30880E-07  446878.5 3770045.5   302.8     3.49     4.00
3.25     YES
 L0021105         0   0.30880E-07  446878.6 3770054.1   302.9     3.49     4.00
3.25     YES
 L0021106         0   0.30880E-07  446878.7 3770062.7   303.1     3.49     4.00
3.25     YES
 L0021107         0   0.30880E-07  446878.9 3770071.3   303.2     3.49     4.00
3.25     YES
 L0021108         0   0.30880E-07  446879.0 3770079.9   303.3     3.49     4.00
3.25     YES
 L0021109         0   0.30880E-07  446879.2 3770088.5   303.4     3.49     4.00
3.25     YES
 L0021110         0   0.30880E-07  446879.3 3770097.1   303.6     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
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RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0021111	0	0.30880E-07	446879.4	3770105.7	303.8	3.49	4.00	3.25	YES	
L0021112	0	0.30880E-07	446879.6	3770114.2	303.9	3.49	4.00	3.25	YES	
L0021113	0	0.30880E-07	446879.7	3770122.8	304.1	3.49	4.00	3.25	YES	
L0021114	0	0.30880E-07	446879.9	3770131.4	304.2	3.49	4.00	3.25	YES	
L0021115	0	0.30880E-07	446880.0	3770140.0	304.4	3.49	4.00	3.25	YES	
L0021116	0	0.30880E-07	446880.1	3770148.6	304.5	3.49	4.00	3.25	YES	
L0021117	0	0.30880E-07	446880.3	3770157.2	304.6	3.49	4.00	3.25	YES	
L0021118	0	0.30880E-07	446880.4	3770165.8	304.7	3.49	4.00	3.25	YES	
L0021119	0	0.30880E-07	446880.6	3770174.4	304.8	3.49	4.00	3.25	YES	
L0021120	0	0.30880E-07	446880.7	3770183.0	304.9	3.49	4.00	3.25	YES	
L0021121	0	0.30880E-07	446880.8	3770191.5	305.0	3.49	4.00	3.25	YES	
L0021122	0	0.30880E-07	446881.0	3770200.1	305.1	3.49	4.00	3.25	YES	
L0021123	0	0.30880E-07	446881.1	3770208.7	305.2	3.49	4.00	3.25	YES	
L0021124	0	0.30880E-07	446881.3	3770217.3	305.3	3.49	4.00	3.25	YES	
L0021125	0	0.30880E-07	446881.4	3770225.9	305.3	3.49	4.00			

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3.25     YES
 L0021126          0   0.30880E-07  446881.5 3770234.5   305.4     3.49     4.00
3.25     YES
 L0021127          0   0.30880E-07  446881.7 3770243.1   305.5     3.49     4.00
3.25     YES
 L0021128          0   0.30880E-07  446881.8 3770251.7   305.6     3.49     4.00
3.25     YES
 L0021129          0   0.30880E-07  446882.0 3770260.3   305.7     3.49     4.00
3.25     YES
 L0021130          0   0.30880E-07  446882.1 3770268.8   305.7     3.49     4.00
3.25     YES
 L0021131          0   0.30880E-07  446882.2 3770277.4   305.8     3.49     4.00
3.25     YES
 L0021132          0   0.30880E-07  446882.4 3770286.0   305.9     3.49     4.00
3.25     YES
 L0021133          0   0.30880E-07  446882.5 3770294.6   306.0     3.49     4.00
3.25     YES
 L0021134          0   0.30880E-07  446882.7 3770303.2   306.1     3.49     4.00
3.25     YES
 L0021135          0   0.30880E-07  446882.8 3770311.8   306.2     3.49     4.00
3.25     YES
 L0021136          0   0.30880E-07  446882.9 3770320.4   306.3     3.49     4.00
3.25     YES
 L0021137          0   0.30880E-07  446883.1 3770329.0   306.4     3.49     4.00
3.25     YES
 L0021138          0   0.30880E-07  446883.2 3770337.6   306.4     3.49     4.00
3.25     YES
 L0021139          0   0.30880E-07  446883.4 3770346.1   306.5     3.49     4.00
3.25     YES
 L0021140          0   0.30880E-07  446883.5 3770354.7   306.6     3.49     4.00
3.25     YES
 L0021141          0   0.30880E-07  446883.6 3770363.3   306.7     3.49     4.00
3.25     YES
 L0021142          0   0.30880E-07  446883.8 3770371.9   306.8     3.49     4.00
3.25     YES
 L0021143          0   0.30880E-07  446883.9 3770380.5   306.9     3.49     4.00
3.25     YES
 L0021144          0   0.30880E-07  446884.1 3770389.1   307.0     3.49     4.00
3.25     YES
 L0021145          0   0.30880E-07  446884.2 3770397.7   307.1     3.49     4.00
3.25     YES
 L0021146          0   0.30880E-07  446884.3 3770406.3   307.2     3.49     4.00
3.25     YES
 L0021147          0   0.30880E-07  446884.5 3770414.9   307.3     3.49     4.00
3.25     YES
 L0021148          0   0.30880E-07  446884.6 3770423.4   307.4     3.49     4.00
3.25     YES
 L0021149          0   0.30880E-07  446884.8 3770432.0   307.6     3.49     4.00
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3.25     YES
 L0021150         0   0.30880E-07  446884.9 3770440.6   307.7     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC          ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                   BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -


 L0021151         0   0.30880E-07  446885.0 3770449.2   307.9     3.49     4.00
3.25     YES
 L0021152         0   0.30880E-07  446885.2 3770457.8   308.0     3.49     4.00
3.25     YES
 L0021153         0   0.30880E-07  446885.3 3770466.4   308.1     3.49     4.00
3.25     YES
 L0021154         0   0.30880E-07  446885.5 3770475.0   308.2     3.49     4.00
3.25     YES
 L0021155         0   0.30880E-07  446885.6 3770483.6   308.3     3.49     4.00
3.25     YES
 L0021156         0   0.30880E-07  446885.7 3770492.2   308.4     3.49     4.00
3.25     YES
 L0021157         0   0.30880E-07  446885.9 3770500.7   308.4     3.49     4.00
3.25     YES
 L0021158         0   0.30880E-07  446886.0 3770509.3   308.6     3.49     4.00
3.25     YES
 L0021159         0   0.30880E-07  446886.1 3770517.9   308.7     3.49     4.00
3.25     YES
 L0021160         0   0.30880E-07  446886.3 3770526.5   308.9     3.49     4.00
3.25     YES
 L0021161         0   0.30880E-07  446886.4 3770535.1   309.0     3.49     4.00
3.25     YES
 L0021162         0   0.30880E-07  446886.6 3770543.7   309.2     3.49     4.00
3.25     YES
 L0021163         0   0.30880E-07  446886.7 3770552.3   309.2     3.49     4.00
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3.25     YES
 L0021164         0   0.30880E-07  446886.8 3770560.9   309.3      3.49     4.00
3.25     YES
 L0021165         0   0.30880E-07  446887.0 3770569.5   309.5      3.49     4.00
3.25     YES
 L0021166         0   0.30880E-07  446887.1 3770578.0   309.6      3.49     4.00
3.25     YES
 L0021167         0   0.30880E-07  446887.3 3770586.6   309.8      3.49     4.00
3.25     YES
 L0021168         0   0.30880E-07  446887.4 3770595.2   310.0      3.49     4.00
3.25     YES
 L0021169         0   0.30880E-07  446887.5 3770603.8   310.1      3.49     4.00
3.25     YES
 L0021170         0   0.30880E-07  446887.7 3770612.4   310.1      3.49     4.00
3.25     YES
 L0021171         0   0.30880E-07  446887.8 3770621.0   310.2      3.49     4.00
3.25     YES
 L0021172         0   0.30880E-07  446888.0 3770629.6   310.3      3.49     4.00
3.25     YES
 L0021173         0   0.30880E-07  446888.1 3770638.2   310.4      3.49     4.00
3.25     YES
 L0021174         0   0.30880E-07  446888.2 3770646.8   310.5      3.49     4.00
3.25     YES
 L0021175         0   0.30880E-07  446888.4 3770655.3   310.6      3.49     4.00
3.25     YES
 L0021176         0   0.30880E-07  446888.5 3770663.9   310.7      3.49     4.00
3.25     YES
 L0021177         0   0.30880E-07  446888.7 3770672.5   310.8      3.49     4.00
3.25     YES
 L0021178         0   0.30880E-07  446888.8 3770681.1   310.9      3.49     4.00
3.25     YES
 L0021179         0   0.30880E-07  446888.9 3770689.7   311.0      3.49     4.00
3.25     YES
 L0021180         0   0.30880E-07  446889.1 3770698.3   311.1      3.49     4.00
3.25     YES
 L0021181         0   0.30880E-07  446889.2 3770706.9   311.3      3.49     4.00
3.25     YES
 L0021182         0   0.30880E-07  446889.4 3770715.5   311.5      3.49     4.00
3.25     YES
 L0021183         0   0.30880E-07  446889.5 3770724.1   311.6      3.49     4.00
3.25     YES
 L0021184         0   0.30880E-07  446889.6 3770732.6   311.7      3.49     4.00
3.25     YES
 L0021185         0   0.30880E-07  446889.8 3770741.2   311.8      3.49     4.00
3.25     YES
 L0021186         0   0.30880E-07  446889.9 3770749.8   311.9      3.49     4.00
3.25     YES
 L0021187         0   0.30880E-07  446890.1 3770758.4   312.1      3.49     4.00
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3.25     YES
 L0021188         0   0.30880E-07  446890.1 3770767.0   312.2     3.49     4.00
3.25     YES
 L0021189         0   0.30880E-07  446890.1 3770775.6   312.4     3.49     4.00
3.25     YES
 L0021190         0   0.30880E-07  446890.2 3770784.2   312.5     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

                                   PAGE   7
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                      *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                         BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y       ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.                (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 L0021191         0   0.30880E-07  446890.2 3770792.8   312.6     3.49     4.00
3.25     YES
 L0021192         0   0.30880E-07  446890.2 3770801.4   312.7     3.49     4.00
3.25     YES
 L0021193         0   0.30880E-07  446890.2 3770809.9   312.8     3.49     4.00
3.25     YES
 L0021194         0   0.30880E-07  446890.2 3770818.5   312.9     3.49     4.00
3.25     YES
 L0021195         0   0.30880E-07  446890.2 3770827.1   312.9     3.49     4.00
3.25     YES
 L0021196         0   0.30880E-07  446890.2 3770835.7   313.0     3.49     4.00
3.25     YES
 L0021197         0   0.30880E-07  446890.2 3770844.3   313.1     3.49     4.00
3.25     YES
 L0021198         0   0.30880E-07  446890.2 3770852.9   313.2     3.49     4.00
3.25     YES
 L0021199         0   0.30880E-07  446890.2 3770861.5   313.3     3.49     4.00
3.25     YES
 L0021200         0   0.30880E-07  446890.3 3770870.1   313.4     3.49     4.00
3.25     YES
 L0021201         0   0.30880E-07  446890.3 3770878.7   313.5     3.49     4.00
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3.25     YES
 L0021202         0   0.30880E-07  446890.3 3770887.3   313.6     3.49     4.00
3.25     YES
 L0021203         0   0.30880E-07  446890.3 3770895.8   313.6     3.49     4.00
3.25     YES
 L0021204         0   0.30880E-07  446890.3 3770904.4   313.7     3.49     4.00
3.25     YES
 L0021205         0   0.30880E-07  446890.3 3770913.0   313.8     3.49     4.00
3.25     YES
 L0021206         0   0.30880E-07  446890.3 3770921.6   313.9     3.49     4.00
3.25     YES
 L0021207         0   0.30880E-07  446890.3 3770930.2   314.0     3.49     4.00
3.25     YES
 L0021208         0   0.30880E-07  446890.3 3770938.8   314.1     3.49     4.00
3.25     YES
 L0021209         0   0.30880E-07  446890.3 3770947.4   314.2     3.49     4.00
3.25     YES
 L0021210         0   0.30880E-07  446890.3 3770956.0   314.2     3.49     4.00
3.25     YES
 L0021211         0   0.30880E-07  446890.4 3770964.6   314.4     3.49     4.00
3.25     YES
 L0021212         0   0.30880E-07  446890.4 3770973.2   314.6     3.49     4.00
3.25     YES
 L0021213         0   0.30880E-07  446890.4 3770981.7   314.8     3.49     4.00
3.25     YES
 L0021214         0   0.30880E-07  446890.4 3770990.3   314.9     3.49     4.00
3.25     YES
 L0021215         0   0.30880E-07  446890.4 3770998.9   315.0     3.49     4.00
3.25     YES
 L0021216         0   0.30880E-07  446890.4 3771007.5   315.1     3.49     4.00
3.25     YES
 L0021217         0   0.30880E-07  446890.4 3771016.1   315.2     3.49     4.00
3.25     YES
 L0021218         0   0.30880E-07  446890.4 3771024.7   315.3     3.49     4.00
3.25     YES
 L0021219         0   0.30880E-07  446890.4 3771033.3   315.5     3.49     4.00
3.25     YES
 L0021220         0   0.30880E-07  446890.4 3771041.9   315.7     3.49     4.00
3.25     YES
 L0021221         0   0.30880E-07  446890.5 3771050.5   315.9     3.49     4.00
3.25     YES
 L0021222         0   0.30880E-07  446890.5 3771059.1   316.0     3.49     4.00
3.25     YES
 L0021223         0   0.30880E-07  446890.5 3771067.6   316.2     3.49     4.00
3.25     YES
 L0021224         0   0.30880E-07  446890.5 3771076.2   316.4     3.49     4.00
3.25     YES
 L0021225         0   0.30880E-07  446890.5 3771084.8   316.5     3.49     4.00
```

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3.25     YES
 L0021226         0   0.30880E-07  446890.5 3771093.4   316.6     3.49     4.00
3.25     YES
 L0021227         0   0.30880E-07  446890.5 3771102.0   316.6     3.49     4.00
3.25     YES
 L0021228         0   0.30880E-07  446890.5 3771110.6   316.7     3.49     4.00
3.25     YES
 L0021229         0   0.30880E-07  446890.5 3771119.2   316.8     3.49     4.00
3.25     YES
 L0021230         0   0.30880E-07  446890.5 3771127.8   316.9     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                       ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                           *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y       ELEV.   HEIGHT      SY
SZ      SOURCE  SCALAR VARY
     ID         CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0021231         0   0.30880E-07  446890.5 3771136.4   317.0     3.49     4.00
3.25     YES
 L0021232         0   0.30880E-07  446890.6 3771145.0   317.2     3.49     4.00
3.25     YES
 L0021233         0   0.30880E-07  446890.6 3771153.5   317.3     3.49     4.00
3.25     YES
 L0021234         0   0.30880E-07  446890.6 3771162.1   317.5     3.49     4.00
3.25     YES
 L0021235         0   0.30880E-07  446890.6 3771170.7   317.6     3.49     4.00
3.25     YES
 L0021236         0   0.30880E-07  446890.6 3771179.3   317.7     3.49     4.00
3.25     YES
 L0021237         0   0.30880E-07  446890.6 3771187.9   317.8     3.49     4.00
3.25     YES
 L0021238         0   0.30880E-07  446890.6 3771196.5   317.9     3.49     4.00
3.25     YES
 L0021239         0   0.30880E-07  446890.6 3771205.1   318.1     3.49     4.00
```

3.25 YES
L0021240 0 0.30880E-07 446890.6 3771213.7 318.2 3.49 4.00
3.25 YES
L0021241 0 0.30880E-07 446890.6 3771222.3 318.4 3.49 4.00
3.25 YES
L0021242 0 0.30880E-07 446890.7 3771230.9 318.6 3.49 4.00
3.25 YES
L0021243 0 0.30880E-07 446890.7 3771239.4 318.6 3.49 4.00
3.25 YES
L0021244 0 0.30880E-07 446890.7 3771248.0 318.7 3.49 4.00
3.25 YES
L0021245 0 0.30880E-07 446890.7 3771256.6 318.8 3.49 4.00
3.25 YES
L0021246 0 0.30880E-07 446890.7 3771265.2 319.0 3.49 4.00
3.25 YES
L0021247 0 0.30880E-07 446890.7 3771273.8 319.2 3.49 4.00
3.25 YES
L0021248 0 0.30880E-07 446890.7 3771282.4 319.4 3.49 4.00
3.25 YES
L0021249 0 0.30880E-07 446890.7 3771291.0 319.5 3.49 4.00
3.25 YES
L0021250 0 0.30880E-07 446890.7 3771299.6 319.7 3.49 4.00
3.25 YES
L0021251 0 0.30880E-07 446890.7 3771308.2 319.9 3.49 4.00
3.25 YES
L0021252 0 0.30880E-07 446890.7 3771316.8 320.0 3.49 4.00
3.25 YES
L0021253 0 0.30880E-07 446890.8 3771325.3 320.1 3.49 4.00
3.25 YES
L0021254 0 0.30880E-07 446890.8 3771333.9 320.2 3.49 4.00
3.25 YES
L0021255 0 0.30880E-07 446890.8 3771342.5 320.3 3.49 4.00
3.25 YES
L0021256 0 0.30880E-07 446890.8 3771351.1 320.4 3.49 4.00
3.25 YES
L0021257 0 0.30880E-07 446890.8 3771359.7 320.5 3.49 4.00
3.25 YES
L0021258 0 0.30880E-07 446890.8 3771368.3 320.6 3.49 4.00
3.25 YES
L0021259 0 0.30880E-07 446890.8 3771376.9 320.7 3.49 4.00
3.25 YES
L0021260 0 0.30880E-07 446890.8 3771385.5 320.8 3.49 4.00
3.25 YES
L0021261 0 0.30880E-07 446890.8 3771394.1 321.0 3.49 4.00
3.25 YES
L0021262 0 0.30880E-07 446890.8 3771402.7 321.2 3.49 4.00
3.25 YES
L0021263 0 0.30880E-07 446890.9 3771411.2 321.4 3.49 4.00

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3.25     YES
 L0021264         0   0.30880E-07  446890.8 3771419.8   321.5     3.49     4.00
3.25     YES
 L0021265         0   0.30880E-07  446890.8 3771428.4   321.7     3.49     4.00
3.25     YES
 L0021266         0   0.30880E-07  446890.8 3771437.0   321.9     3.49     4.00
3.25     YES
 L0021267         0   0.30880E-07  446890.7 3771445.6   322.1     3.49     4.00
3.25     YES
 L0021268         0   0.30880E-07  446890.7 3771454.2   322.2     3.49     4.00
3.25     YES
 L0021269         0   0.30880E-07  446890.7 3771462.8   322.4     3.49     4.00
3.25     YES
 L0021270         0   0.30880E-07  446890.6 3771471.4   322.6     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***        09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                          *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                        BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y       ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 L0021271         0   0.30880E-07  446890.6 3771480.0   322.8     3.49     4.00
3.25     YES
 L0021272         0   0.30880E-07  446890.6 3771488.6   322.9     3.49     4.00
3.25     YES
 L0021273         0   0.30880E-07  446890.6 3771497.1   323.1     3.49     4.00
3.25     YES
 L0021274         0   0.30880E-07  446890.5 3771505.7   323.2     3.49     4.00
3.25     YES
 L0021275         0   0.30880E-07  446890.5 3771514.3   323.3     3.49     4.00
3.25     YES
 L0021276         0   0.30880E-07  446890.5 3771522.9   323.4     3.49     4.00
3.25     YES
 L0021277         0   0.30880E-07  446890.4 3771531.5   323.4     3.49     4.00
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3.25      YES
 L0021278          0   0.30880E-07  446890.4 3771540.1   323.5     3.49     4.00
3.25      YES
 L0021279          0   0.30880E-07  446890.4 3771548.7   323.6     3.49     4.00
3.25      YES
 L0021280          0   0.30880E-07  446890.3 3771557.3   323.7     3.49     4.00
3.25      YES
 L0021281          0   0.30880E-07  446890.3 3771565.9   323.9     3.49     4.00
3.25      YES
 L0021282          0   0.30880E-07  446890.3 3771574.5   324.1     3.49     4.00
3.25      YES
 L0021283          0   0.30880E-07  446890.2 3771583.0   324.2     3.49     4.00
3.25      YES
 L0021284          0   0.30880E-07  446890.2 3771591.6   324.4     3.49     4.00
3.25      YES
 L0021285          0   0.30880E-07  446890.2 3771600.2   324.4     3.49     4.00
3.25      YES
 L0021286          0   0.30880E-07  446890.1 3771608.8   324.5     3.49     4.00
3.25      YES
 L0021287          0   0.30880E-07  446890.1 3771617.4   324.6     3.49     4.00
3.25      YES
 L0021288          0   0.30880E-07  446890.1 3771626.0   324.8     3.49     4.00
3.25      YES
 L0021289          0   0.30880E-07  446890.0 3771634.6   325.0     3.49     4.00
3.25      YES
 L0021290          0   0.30880E-07  446890.1 3771643.2   325.2     3.49     4.00
3.25      YES
 L0021291          0   0.30880E-07  446890.1 3771651.8   325.3     3.49     4.00
3.25      YES
 L0021292          0   0.30880E-07  446890.1 3771660.4   325.4     3.49     4.00
3.25      YES
 L0021293          0   0.30880E-07  446890.2 3771668.9   325.4     3.49     4.00
3.25      YES
 L0021294          0   0.30880E-07  446890.2 3771677.5   325.6     3.49     4.00
3.25      YES
 L0021295          0   0.30880E-07  446890.2 3771686.1   325.7     3.49     4.00
3.25      YES
 L0021296          0   0.30880E-07  446890.3 3771694.7   325.9     3.49     4.00
3.25      YES
 L0021297          0   0.30880E-07  446881.7 3771695.1   325.9     3.49     4.00
3.25      YES
 L0021298          0   0.30880E-07  446873.2 3771695.4   325.9     3.49     4.00
3.25      YES
 L0021299          0   0.30880E-07  446864.6 3771695.8   325.9     3.49     4.00
3.25      YES
 L0021300          0   0.30880E-07  446856.0 3771696.1   325.9     3.49     4.00
3.25      YES
 L0021301          0   0.30880E-07  446847.4 3771696.4   326.0     3.49     4.00
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3.25     YES
 L0021302         0   0.30880E-07  446838.8 3771696.7   326.1     3.49     4.00
3.25     YES
 L0021303         0   0.30880E-07  446830.2 3771697.1   326.1     3.49     4.00
3.25     YES
 L0021304         0   0.30880E-07  446821.7 3771697.4   326.2     3.49     4.00
3.25     YES
 L0021305         0   0.30880E-07  446813.1 3771697.7   326.2     3.49     4.00
3.25     YES
 L0021306         0   0.30880E-07  446804.5 3771698.1   326.3     3.49     4.00
3.25     YES
 L0021307         0   0.30880E-07  446795.9 3771698.4   326.3     3.49     4.00
3.25     YES
 L0021308         0   0.30880E-07  446787.3 3771698.7   326.2     3.49     4.00
3.25     YES
 L0021309         0   0.30880E-07  446778.7 3771698.8   326.2     3.49     4.00
3.25     YES
 L0021310         0   0.30880E-07  446770.1 3771699.0   326.1     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                 *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT       SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0021311         0   0.30880E-07  446761.6 3771699.2   326.0     3.49     4.00
3.25     YES
 L0021312         0   0.30880E-07  446753.0 3771699.3   325.9     3.49     4.00
3.25     YES
 L0021313         0   0.30880E-07  446744.4 3771699.5   325.8     3.49     4.00
3.25     YES
 L0021314         0   0.30880E-07  446735.8 3771699.7   325.8     3.49     4.00
3.25     YES
 L0021315         0   0.30880E-07  446727.2 3771699.8   325.9     3.49     4.00
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3.25 YES
L0021316 0 0.30880E-07 446718.6 3771700.0 326.0 3.49 4.00
3.25 YES
L0021317 0 0.30880E-07 446710.0 3771700.2 326.1 3.49 4.00
3.25 YES
L0021318 0 0.30880E-07 446701.4 3771700.3 326.2 3.49 4.00
3.25 YES
L0021319 0 0.30880E-07 446692.9 3771700.5 326.3 3.49 4.00
3.25 YES
L0021320 0 0.30880E-07 446684.3 3771700.7 326.3 3.49 4.00
3.25 YES
L0021321 0 0.30880E-07 446675.7 3771700.8 326.4 3.49 4.00
3.25 YES
L0021322 0 0.30880E-07 446667.1 3771701.0 326.4 3.49 4.00
3.25 YES
L0021323 0 0.30880E-07 446658.5 3771701.2 326.4 3.49 4.00
3.25 YES
L0021324 0 0.30880E-07 446649.9 3771701.3 326.4 3.49 4.00
3.25 YES
L0021325 0 0.30880E-07 446641.3 3771701.5 326.4 3.49 4.00
3.25 YES
L0021326 0 0.30880E-07 446632.7 3771701.7 326.4 3.49 4.00
3.25 YES
L0021327 0 0.30880E-07 446624.1 3771701.8 326.4 3.49 4.00
3.25 YES
L0021328 0 0.30880E-07 446615.6 3771702.0 326.4 3.49 4.00
3.25 YES
L0021329 0 0.30880E-07 446607.0 3771702.2 326.5 3.49 4.00
3.25 YES
L0021330 0 0.30880E-07 446598.4 3771702.3 326.6 3.49 4.00
3.25 YES
L0021331 0 0.30880E-07 446589.8 3771702.5 326.7 3.49 4.00
3.25 YES
L0021332 0 0.30880E-07 446581.2 3771702.7 326.7 3.49 4.00
3.25 YES
L0021333 0 0.30880E-07 446572.6 3771702.8 326.7 3.49 4.00
3.25 YES
L0021334 0 0.30880E-07 446564.0 3771703.0 326.7 3.49 4.00
3.25 YES
L0021335 0 0.30880E-07 446555.4 3771703.2 326.7 3.49 4.00
3.25 YES
L0021336 0 0.30880E-07 446546.8 3771703.3 326.7 3.49 4.00
3.25 YES
L0021337 0 0.30880E-07 446538.3 3771703.5 326.7 3.49 4.00
3.25 YES
L0021338 0 0.30880E-07 446529.7 3771703.7 326.7 3.49 4.00
3.25 YES
L0021339 0 0.30880E-07 446521.1 3771703.8 326.6 3.49 4.00

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3.25      YES
 L0021340         0   0.30880E-07  446512.5 3771704.0   326.6     3.49     4.00
3.25      YES
 L0021341         0   0.30880E-07  446503.9 3771704.2   326.5     3.49     4.00
3.25      YES
 L0021342         0   0.30880E-07  446495.3 3771704.3   326.4     3.49     4.00
3.25      YES
 L0021343         0   0.30880E-07  446486.7 3771704.5   326.3     3.49     4.00
3.25      YES
 L0021344         0   0.30880E-07  446478.1 3771704.7   326.2     3.49     4.00
3.25      YES
 L0021345         0   0.30880E-07  446469.6 3771704.9   326.1     3.49     4.00
3.25      YES
 L0021346         0   0.30880E-07  446469.7 3771713.4   326.2     3.49     4.00
3.25      YES
 L0021347         0   0.30880E-07  446469.9 3771722.0   326.3     3.49     4.00
3.25      YES
 L0021348         0   0.30880E-07  446470.0 3771730.6   326.4     3.49     4.00
3.25      YES
 L0021349         0   0.30880E-07  446470.2 3771739.1   326.5     3.49     4.00
3.25      YES
 L0021350         0   0.30880E-07  446470.4 3771747.7   326.7     3.49     4.00
3.25      YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                 *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                     BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X         Y       ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0021351         0   0.30880E-07  446470.6 3771756.3   326.9     3.49     4.00
3.25      YES
 L0021352         0   0.30880E-07  446470.8 3771764.9   327.0     3.49     4.00
3.25      YES
 L0021353         0   0.30880E-07  446471.0 3771773.5   327.2     3.49     4.00
```

3.25 YES

L0021354	0	0.30880E-07	446471.2	3771782.1	327.4	3.49	4.00	
3.25	YES							
L0021355	0	0.30880E-07	446471.4	3771790.7	327.6	3.49	4.00	
3.25	YES							
L0021356	0	0.30880E-07	446471.5	3771799.3	327.8	3.49	4.00	
3.25	YES							
L0021357	0	0.30880E-07	446471.7	3771807.8	328.0	3.49	4.00	
3.25	YES							
L0021358	0	0.30880E-07	446471.9	3771816.4	328.3	3.49	4.00	
3.25	YES							
L0021359	0	0.30880E-07	446472.1	3771825.0	328.5	3.49	4.00	
3.25	YES							
L0021360	0	0.30880E-07	446472.3	3771833.6	328.7	3.49	4.00	
3.25	YES							
L0021361	0	0.30830E-07	446853.8	3769641.9	301.3	3.49	4.00	
3.25	YES							
L0021362	0	0.30830E-07	446853.8	3769650.4	301.3	3.49	4.00	
3.25	YES							
L0021363	0	0.30830E-07	446853.9	3769659.0	301.3	3.49	4.00	
3.25	YES							
L0021364	0	0.30830E-07	446854.0	3769667.6	301.4	3.49	4.00	
3.25	YES							
L0021365	0	0.30830E-07	446854.0	3769676.2	301.2	3.49	4.00	
3.25	YES							
L0021366	0	0.30830E-07	446854.1	3769684.8	301.1	3.49	4.00	
3.25	YES							
L0021367	0	0.30830E-07	446854.2	3769693.4	301.0	3.49	4.00	
3.25	YES							
L0021368	0	0.30830E-07	446854.2	3769702.0	301.6	3.49	4.00	
3.25	YES							
L0021369	0	0.30830E-07	446854.3	3769710.6	302.6	3.49	4.00	
3.25	YES							
L0021370	0	0.30830E-07	446854.4	3769719.2	303.5	3.49	4.00	
3.25	YES							
L0021371	0	0.30830E-07	446854.4	3769727.8	304.3	3.49	4.00	
3.25	YES							
L0021372	0	0.30830E-07	446854.5	3769736.3	304.4	3.49	4.00	
3.25	YES							
L0021373	0	0.30830E-07	446854.5	3769744.9	304.4	3.49	4.00	
3.25	YES							
L0021374	0	0.30830E-07	446854.6	3769753.5	304.4	3.49	4.00	
3.25	YES							
L0021375	0	0.30830E-07	446854.7	3769762.1	303.5	3.49	4.00	
3.25	YES							
L0021376	0	0.30830E-07	446854.7	3769770.7	302.1	3.49	4.00	
3.25	YES							
L0021377	0	0.30830E-07	446854.7	3769779.3	300.7	3.49	4.00	

```
3.25     YES
 L0021378         0   0.30830E-07  446854.7 3769787.9   299.8     3.49     4.00
3.25     YES
 L0021379         0   0.30830E-07  446854.6 3769796.5   301.3     3.49     4.00
3.25     YES
 L0021380         0   0.30830E-07  446854.6 3769805.1   302.8     3.49     4.00
3.25     YES
 L0021381         0   0.30830E-07  446854.6 3769813.6   304.2     3.49     4.00
3.25     YES
 L0021382         0   0.30830E-07  446854.5 3769822.2   304.7     3.49     4.00
3.25     YES
 L0021383         0   0.30830E-07  446854.5 3769830.8   304.7     3.49     4.00
3.25     YES
 L0021384         0   0.30830E-07  446854.5 3769839.4   304.7     3.49     4.00
3.25     YES
 L0021385         0   0.30830E-07  446854.4 3769848.0   304.7     3.49     4.00
3.25     YES
 L0021386         0   0.30830E-07  446854.4 3769856.6   304.7     3.49     4.00
3.25     YES
 L0021387         0   0.30830E-07  446854.4 3769865.2   304.6     3.49     4.00
3.25     YES
 L0021388         0   0.30830E-07  446854.3 3769873.8   304.5     3.49     4.00
3.25     YES
 L0021389         0   0.30830E-07  446854.3 3769882.4   303.9     3.49     4.00
3.25     YES
 L0021390         0   0.30830E-07  446854.3 3769891.0   303.2     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                       ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                *** VOLUME SOURCE DATA ***


               NUMBER EMISSION RATE                     BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.              (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 L0021391         0   0.30830E-07  446854.4 3769899.5   302.4     3.49     4.00
```

3.25 YES
L0021392 0 0.30830E-07 446854.6 3769908.1 301.8 3.49 4.00
3.25 YES
L0021393 0 0.30830E-07 446854.9 3769916.7 301.8 3.49 4.00
3.25 YES
L0021394 0 0.30830E-07 446855.1 3769925.3 301.8 3.49 4.00
3.25 YES
L0021395 0 0.30830E-07 446855.3 3769933.9 301.8 3.49 4.00
3.25 YES
L0021396 0 0.30830E-07 446855.6 3769942.5 301.8 3.49 4.00
3.25 YES
L0021397 0 0.30830E-07 446855.8 3769951.1 301.9 3.49 4.00
3.25 YES
L0021398 0 0.30830E-07 446856.1 3769959.7 302.0 3.49 4.00
3.25 YES
L0021399 0 0.30830E-07 446856.3 3769968.2 302.0 3.49 4.00
3.25 YES
L0021400 0 0.30830E-07 446856.6 3769976.8 301.9 3.49 4.00
3.25 YES
L0021401 0 0.30830E-07 446856.8 3769985.4 301.9 3.49 4.00
3.25 YES
L0021402 0 0.30830E-07 446857.0 3769994.0 301.8 3.49 4.00
3.25 YES
L0021403 0 0.30830E-07 446857.3 3770002.6 301.9 3.49 4.00
3.25 YES
L0021404 0 0.30830E-07 446857.4 3770011.2 302.1 3.49 4.00
3.25 YES
L0021405 0 0.30830E-07 446857.5 3770019.8 302.2 3.49 4.00
3.25 YES
L0021406 0 0.30830E-07 446857.7 3770028.4 302.4 3.49 4.00
3.25 YES
L0021407 0 0.30830E-07 446857.8 3770036.9 302.6 3.49 4.00
3.25 YES
L0021408 0 0.30830E-07 446858.0 3770045.5 302.8 3.49 4.00
3.25 YES
L0021409 0 0.30830E-07 446858.1 3770054.1 302.9 3.49 4.00
3.25 YES
L0021410 0 0.30830E-07 446858.2 3770062.7 303.1 3.49 4.00
3.25 YES
L0021411 0 0.30830E-07 446858.4 3770071.3 303.3 3.49 4.00
3.25 YES
L0021412 0 0.30830E-07 446858.5 3770079.9 303.4 3.49 4.00
3.25 YES
L0021413 0 0.30830E-07 446858.7 3770088.5 303.6 3.49 4.00
3.25 YES
L0021414 0 0.30830E-07 446858.8 3770097.1 303.8 3.49 4.00
3.25 YES
L0021415 0 0.30830E-07 446858.9 3770105.7 304.0 3.49 4.00

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3.25     YES
 L0021416         0   0.30830E-07  446859.1 3770114.2   304.2     3.49     4.00
3.25     YES
 L0021417         0   0.30830E-07  446859.2 3770122.8   304.3     3.49     4.00
3.25     YES
 L0021418         0   0.30830E-07  446859.4 3770131.4   304.3     3.49     4.00
3.25     YES
 L0021419         0   0.30830E-07  446859.5 3770140.0   304.4     3.49     4.00
3.25     YES
 L0021420         0   0.30830E-07  446859.6 3770148.6   304.5     3.49     4.00
3.25     YES
 L0021421         0   0.30830E-07  446859.8 3770157.2   304.6     3.49     4.00
3.25     YES
 L0021422         0   0.30830E-07  446859.9 3770165.8   304.7     3.49     4.00
3.25     YES
 L0021423         0   0.30830E-07  446860.1 3770174.4   304.8     3.49     4.00
3.25     YES
 L0021424         0   0.30830E-07  446860.2 3770183.0   304.9     3.49     4.00
3.25     YES
 L0021425         0   0.30830E-07  446860.3 3770191.5   305.1     3.49     4.00
3.25     YES
 L0021426         0   0.30830E-07  446860.5 3770200.1   305.3     3.49     4.00
3.25     YES
 L0021427         0   0.30830E-07  446860.6 3770208.7   305.4     3.49     4.00
3.25     YES
 L0021428         0   0.30830E-07  446860.8 3770217.3   305.4     3.49     4.00
3.25     YES
 L0021429         0   0.30830E-07  446860.9 3770225.9   305.4     3.49     4.00
3.25     YES
 L0021430         0   0.30830E-07  446861.0 3770234.5   305.4     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***


               NUMBER EMISSION RATE                        BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
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L0021431	0	0.30830E-07	446861.2	3770243.1	305.5	3.49	4.00	3.25	YES
L0021432	0	0.30830E-07	446861.3	3770251.7	305.6	3.49	4.00	3.25	YES
L0021433	0	0.30830E-07	446861.5	3770260.3	305.7	3.49	4.00	3.25	YES
L0021434	0	0.30830E-07	446861.6	3770268.8	305.7	3.49	4.00	3.25	YES
L0021435	0	0.30830E-07	446861.7	3770277.4	305.8	3.49	4.00	3.25	YES
L0021436	0	0.30830E-07	446861.9	3770286.0	305.9	3.49	4.00	3.25	YES
L0021437	0	0.30830E-07	446862.0	3770294.6	306.0	3.49	4.00	3.25	YES
L0021438	0	0.30830E-07	446862.1	3770303.2	306.1	3.49	4.00	3.25	YES
L0021439	0	0.30830E-07	446862.3	3770311.8	306.2	3.49	4.00	3.25	YES
L0021440	0	0.30830E-07	446862.4	3770320.4	306.3	3.49	4.00	3.25	YES
L0021441	0	0.30830E-07	446862.6	3770329.0	306.4	3.49	4.00	3.25	YES
L0021442	0	0.30830E-07	446862.7	3770337.6	306.4	3.49	4.00	3.25	YES
L0021443	0	0.30830E-07	446862.8	3770346.1	306.5	3.49	4.00	3.25	YES
L0021444	0	0.30830E-07	446863.0	3770354.7	306.6	3.49	4.00	3.25	YES
L0021445	0	0.30830E-07	446863.1	3770363.3	306.8	3.49	4.00	3.25	YES
L0021446	0	0.30830E-07	446863.3	3770371.9	306.9	3.49	4.00	3.25	YES
L0021447	0	0.30830E-07	446863.4	3770380.5	307.1	3.49	4.00	3.25	YES
L0021448	0	0.30830E-07	446863.5	3770389.1	307.2	3.49	4.00	3.25	YES
L0021449	0	0.30830E-07	446863.7	3770397.7	307.3	3.49	4.00	3.25	YES
L0021450	0	0.30830E-07	446863.8	3770406.3	307.4	3.49	4.00	3.25	YES
L0021451	0	0.30830E-07	446864.0	3770414.9	307.5	3.49	4.00	3.25	YES
L0021452	0	0.30830E-07	446864.1	3770423.4	307.6	3.49	4.00	3.25	YES
L0021453	0	0.30830E-07	446864.2	3770432.0	307.7	3.49	4.00		

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3.25     YES
 L0021454         0   0.30830E-07  446864.4 3770440.6   307.8     3.49     4.00
3.25     YES
 L0021455         0   0.30830E-07  446864.5 3770449.2   307.9     3.49     4.00
3.25     YES
 L0021456         0   0.30830E-07  446864.7 3770457.8   308.1     3.49     4.00
3.25     YES
 L0021457         0   0.30830E-07  446864.8 3770466.4   308.2     3.49     4.00
3.25     YES
 L0021458         0   0.30830E-07  446864.9 3770475.0   308.4     3.49     4.00
3.25     YES
 L0021459         0   0.30830E-07  446865.1 3770483.6   308.5     3.49     4.00
3.25     YES
 L0021460         0   0.30830E-07  446865.2 3770492.2   308.6     3.49     4.00
3.25     YES
 L0021461         0   0.30830E-07  446865.4 3770500.7   308.7     3.49     4.00
3.25     YES
 L0021462         0   0.30830E-07  446865.5 3770509.3   308.7     3.49     4.00
3.25     YES
 L0021463         0   0.30830E-07  446865.6 3770517.9   308.8     3.49     4.00
3.25     YES
 L0021464         0   0.30830E-07  446865.8 3770526.5   308.9     3.49     4.00
3.25     YES
 L0021465         0   0.30830E-07  446865.9 3770535.1   309.1     3.49     4.00
3.25     YES
 L0021466         0   0.30830E-07  446866.1 3770543.7   309.2     3.49     4.00
3.25     YES
 L0021467         0   0.30830E-07  446866.2 3770552.3   309.4     3.49     4.00
3.25     YES
 L0021468         0   0.30830E-07  446866.3 3770560.9   309.5     3.49     4.00
3.25     YES
 L0021469         0   0.30830E-07  446866.5 3770569.5   309.6     3.49     4.00
3.25     YES
 L0021470         0   0.30830E-07  446866.6 3770578.0   309.8     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***        09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                  *** VOLUME SOURCE DATA ***


               NUMBER EMISSION RATE                     BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
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SOURCE ID	PART. CATS.	(GRAMS/SEC)	X (METERS)	Y (METERS)	ELEV. (METERS)	HEIGHT (METERS)	SY (METERS)	SZ (METERS)	SOURCE SCALAR VARY BY
L0021471	0	0.30830E-07	446866.8	3770586.6	309.9	3.49	4.00	3.25	YES
L0021472	0	0.30830E-07	446866.9	3770595.2	310.0	3.49	4.00	3.25	YES
L0021473	0	0.30830E-07	446867.0	3770603.8	310.1	3.49	4.00	3.25	YES
L0021474	0	0.30830E-07	446867.2	3770612.4	310.1	3.49	4.00	3.25	YES
L0021475	0	0.30830E-07	446867.3	3770621.0	310.2	3.49	4.00	3.25	YES
L0021476	0	0.30830E-07	446867.5	3770629.6	310.3	3.49	4.00	3.25	YES
L0021477	0	0.30830E-07	446867.6	3770638.2	310.4	3.49	4.00	3.25	YES
L0021478	0	0.30830E-07	446867.7	3770646.8	310.5	3.49	4.00	3.25	YES
L0021479	0	0.30830E-07	446867.9	3770655.3	310.6	3.49	4.00	3.25	YES
L0021480	0	0.30830E-07	446868.0	3770663.9	310.7	3.49	4.00	3.25	YES
L0021481	0	0.30830E-07	446868.2	3770672.5	310.9	3.49	4.00	3.25	YES
L0021482	0	0.30830E-07	446868.3	3770681.1	311.0	3.49	4.00	3.25	YES
L0021483	0	0.30830E-07	446868.4	3770689.7	311.2	3.49	4.00	3.25	YES
L0021484	0	0.30830E-07	446868.6	3770698.3	311.3	3.49	4.00	3.25	YES
L0021485	0	0.30830E-07	446868.7	3770706.9	311.4	3.49	4.00	3.25	YES
L0021486	0	0.30830E-07	446868.9	3770715.5	311.5	3.49	4.00	3.25	YES
L0021487	0	0.30830E-07	446869.0	3770724.1	311.6	3.49	4.00	3.25	YES
L0021488	0	0.30830E-07	446869.1	3770732.6	311.8	3.49	4.00	3.25	YES
L0021489	0	0.30830E-07	446869.3	3770741.2	311.9	3.49	4.00	3.25	YES
L0021490	0	0.30830E-07	446869.4	3770749.8	312.1	3.49	4.00	3.25	YES
L0021491	0	0.30830E-07	446869.6	3770758.4	312.2	3.49	4.00		

3.25 YES
L0021492 0 0.30830E-07 446869.7 3770767.0 312.3 3.49 4.00
3.25 YES
L0021493 0 0.30830E-07 446869.7 3770775.6 312.4 3.49 4.00
3.25 YES
L0021494 0 0.30830E-07 446869.8 3770784.2 312.5 3.49 4.00
3.25 YES
L0021495 0 0.30830E-07 446869.9 3770792.8 312.6 3.49 4.00
3.25 YES
L0021496 0 0.30830E-07 446869.9 3770801.4 312.7 3.49 4.00
3.25 YES
L0021497 0 0.30830E-07 446870.0 3770809.9 312.8 3.49 4.00
3.25 YES
L0021498 0 0.30830E-07 446870.1 3770818.5 312.9 3.49 4.00
3.25 YES
L0021499 0 0.30830E-07 446870.2 3770827.1 312.9 3.49 4.00
3.25 YES
L0021500 0 0.30830E-07 446870.2 3770835.7 313.0 3.49 4.00
3.25 YES
L0021501 0 0.30830E-07 446870.3 3770844.3 313.1 3.49 4.00
3.25 YES
L0021502 0 0.30830E-07 446870.4 3770852.9 313.2 3.49 4.00
3.25 YES
L0021503 0 0.30830E-07 446870.4 3770861.5 313.3 3.49 4.00
3.25 YES
L0021504 0 0.30830E-07 446870.5 3770870.1 313.4 3.49 4.00
3.25 YES
L0021505 0 0.30830E-07 446870.6 3770878.7 313.5 3.49 4.00
3.25 YES
L0021506 0 0.30830E-07 446870.6 3770887.3 313.6 3.49 4.00
3.25 YES
L0021507 0 0.30830E-07 446870.7 3770895.8 313.6 3.49 4.00
3.25 YES
L0021508 0 0.30830E-07 446870.8 3770904.4 313.7 3.49 4.00
3.25 YES
L0021509 0 0.30830E-07 446870.9 3770913.0 313.8 3.49 4.00
3.25 YES
L0021510 0 0.30830E-07 446870.9 3770921.6 313.9 3.49 4.00
3.25 YES
↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
- -										
L0021511	0	0.30830E-07	446871.0	3770930.2	314.0	3.49	4.00	3.25	YES	
L0021512	0	0.30830E-07	446871.1	3770938.8	314.2	3.49	4.00	3.25	YES	
L0021513	0	0.30830E-07	446871.1	3770947.4	314.3	3.49	4.00	3.25	YES	
L0021514	0	0.30830E-07	446871.2	3770956.0	314.4	3.49	4.00	3.25	YES	
L0021515	0	0.30830E-07	446871.3	3770964.6	314.6	3.49	4.00	3.25	YES	
L0021516	0	0.30830E-07	446871.3	3770973.1	314.7	3.49	4.00	3.25	YES	
L0021517	0	0.30830E-07	446871.4	3770981.7	314.8	3.49	4.00	3.25	YES	
L0021518	0	0.30830E-07	446871.5	3770990.3	314.9	3.49	4.00	3.25	YES	
L0021519	0	0.30830E-07	446871.5	3770998.9	315.1	3.49	4.00	3.25	YES	
L0021520	0	0.30830E-07	446871.6	3771007.5	315.2	3.49	4.00	3.25	YES	
L0021521	0	0.30830E-07	446871.7	3771016.1	315.3	3.49	4.00	3.25	YES	
L0021522	0	0.30830E-07	446871.8	3771024.7	315.5	3.49	4.00	3.25	YES	
L0021523	0	0.30830E-07	446871.8	3771033.3	315.6	3.49	4.00	3.25	YES	
L0021524	0	0.30830E-07	446871.9	3771041.9	315.7	3.49	4.00	3.25	YES	
L0021525	0	0.30830E-07	446872.0	3771050.5	315.9	3.49	4.00	3.25	YES	
L0021526	0	0.30830E-07	446872.0	3771059.0	316.0	3.49	4.00	3.25	YES	
L0021527	0	0.30830E-07	446872.1	3771067.6	316.2	3.49	4.00	3.25	YES	
L0021528	0	0.30830E-07	446872.2	3771076.2	316.4	3.49	4.00	3.25	YES	
L0021529	0	0.30830E-07	446872.2	3771084.8	316.5	3.49	4.00			

3.25   YES
 L0021530   0   0.30830E-07 446872.3 3771093.4   316.6   3.49   4.00
3.25   YES
 L0021531   0   0.30830E-07 446872.4 3771102.0   316.6   3.49   4.00
3.25   YES
 L0021532   0   0.30830E-07 446872.5 3771110.6   316.8   3.49   4.00
3.25   YES
 L0021533   0   0.30830E-07 446872.5 3771119.2   316.9   3.49   4.00
3.25   YES
 L0021534   0   0.30830E-07 446872.6 3771127.8   317.0   3.49   4.00
3.25   YES
 L0021535   0   0.30830E-07 446872.7 3771136.4   317.2   3.49   4.00
3.25   YES
 L0021536   0   0.30830E-07 446872.7 3771144.9   317.3   3.49   4.00
3.25   YES
 L0021537   0   0.30830E-07 446872.8 3771153.5   317.4   3.49   4.00
3.25   YES
 L0021538   0   0.30830E-07 446872.9 3771162.1   317.5   3.49   4.00
3.25   YES
 L0021539   0   0.30830E-07 446872.9 3771170.7   317.7   3.49   4.00
3.25   YES
 L0021540   0   0.30830E-07 446873.0 3771179.3   317.7   3.49   4.00
3.25   YES
 L0021541   0   0.30830E-07 446873.1 3771187.9   317.8   3.49   4.00
3.25   YES
 L0021542   0   0.30830E-07 446873.2 3771196.5   317.9   3.49   4.00
3.25   YES
 L0021543   0   0.30830E-07 446873.2 3771205.1   318.1   3.49   4.00
3.25   YES
 L0021544   0   0.30830E-07 446873.3 3771213.7   318.3   3.49   4.00
3.25   YES
 L0021545   0   0.30830E-07 446873.4 3771222.2   318.4   3.49   4.00
3.25   YES
 L0021546   0   0.30830E-07 446873.4 3771230.8   318.6   3.49   4.00
3.25   YES
 L0021547   0   0.30830E-07 446873.5 3771239.4   318.7   3.49   4.00
3.25   YES
 L0021548   0   0.30830E-07 446873.6 3771248.0   318.9   3.49   4.00
3.25   YES
 L0021549   0   0.30830E-07 446873.6 3771256.6   319.0   3.49   4.00
3.25   YES
 L0021550   0   0.30830E-07 446873.7 3771265.2   319.1   3.49   4.00
3.25   YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC   ***   07/27/18
 *** AERMET - VERSION 16216 ***   ***
                        ***   09:40:20

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0021551	0	0.30830E-07	446873.8	3771273.8	319.2	3.49	4.00	3.25	YES	
L0021552	0	0.30830E-07	446873.9	3771282.4	319.4	3.49	4.00	3.25	YES	
L0021553	0	0.30830E-07	446873.9	3771291.0	319.5	3.49	4.00	3.25	YES	
L0021554	0	0.30830E-07	446874.0	3771299.6	319.7	3.49	4.00	3.25	YES	
L0021555	0	0.30830E-07	446874.1	3771308.1	319.9	3.49	4.00	3.25	YES	
L0021556	0	0.30830E-07	446874.1	3771316.7	320.0	3.49	4.00	3.25	YES	
L0021557	0	0.30830E-07	446874.2	3771325.3	320.1	3.49	4.00	3.25	YES	
L0021558	0	0.30830E-07	446874.3	3771333.9	320.2	3.49	4.00	3.25	YES	
L0021559	0	0.30830E-07	446874.3	3771342.5	320.3	3.49	4.00	3.25	YES	
L0021560	0	0.30830E-07	446874.4	3771351.1	320.4	3.49	4.00	3.25	YES	
L0021561	0	0.30830E-07	446874.5	3771359.7	320.6	3.49	4.00	3.25	YES	
L0021562	0	0.30830E-07	446874.6	3771368.3	320.7	3.49	4.00	3.25	YES	
L0021563	0	0.30830E-07	446874.6	3771376.9	320.8	3.49	4.00	3.25	YES	
L0021564	0	0.30830E-07	446874.7	3771385.5	320.9	3.49	4.00	3.25	YES	
L0021565	0	0.30830E-07	446874.8	3771394.0	321.1	3.49	4.00	3.25	YES	
L0021566	0	0.30830E-07	446874.8	3771402.6	321.2	3.49	4.00	3.25	YES	
L0021567	0	0.30830E-07	446874.9	3771411.2	321.4	3.49	4.00			

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3.25      YES
 L0021568         0   0.30830E-07  446874.8 3771419.8   321.5     3.49     4.00
3.25      YES
 L0021569         0   0.30830E-07  446874.6 3771428.4   321.7     3.49     4.00
3.25      YES
 L0021570         0   0.30830E-07  446874.3 3771437.0   321.9     3.49     4.00
3.25      YES
 L0021571         0   0.30830E-07  446874.1 3771445.6   322.1     3.49     4.00
3.25      YES
 L0021572         0   0.30830E-07  446873.9 3771454.2   322.2     3.49     4.00
3.25      YES
 L0021573         0   0.30830E-07  446873.7 3771462.7   322.4     3.49     4.00
3.25      YES
 L0021574         0   0.30830E-07  446873.5 3771471.3   322.6     3.49     4.00
3.25      YES
 L0021575         0   0.30830E-07  446873.3 3771479.9   322.8     3.49     4.00
3.25      YES
 L0021576         0   0.30830E-07  446873.1 3771488.5   322.9     3.49     4.00
3.25      YES
 L0021577         0   0.30830E-07  446872.9 3771497.1   323.1     3.49     4.00
3.25      YES
 L0021578         0   0.30830E-07  446872.7 3771505.7   323.2     3.49     4.00
3.25      YES
 L0021579         0   0.30830E-07  446872.5 3771514.3   323.3     3.49     4.00
3.25      YES
 L0021580         0   0.30830E-07  446872.3 3771522.9   323.4     3.49     4.00
3.25      YES
 L0021581         0   0.30830E-07  446872.1 3771531.4   323.4     3.49     4.00
3.25      YES
 L0021582         0   0.30830E-07  446871.8 3771540.0   323.5     3.49     4.00
3.25      YES
 L0021583         0   0.30830E-07  446871.6 3771548.6   323.6     3.49     4.00
3.25      YES
 L0021584         0   0.30830E-07  446871.4 3771557.2   323.7     3.49     4.00
3.25      YES
 L0021585         0   0.30830E-07  446871.2 3771565.8   323.9     3.49     4.00
3.25      YES
 L0021586         0   0.30830E-07  446871.0 3771574.4   324.1     3.49     4.00
3.25      YES
 L0021587         0   0.30830E-07  446870.8 3771583.0   324.2     3.49     4.00
3.25      YES
 L0021588         0   0.30830E-07  446870.6 3771591.6   324.4     3.49     4.00
3.25      YES
 L0021589         0   0.30830E-07  446870.4 3771600.1   324.5     3.49     4.00
3.25      YES
 L0021590         0   0.30830E-07  446870.2 3771608.7   324.7     3.49     4.00
3.25      YES
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0021591	0	0.30830E-07	446870.0	3771617.3	324.8	3.49	4.00	3.25	YES	
L0021592	0	0.30830E-07	446869.8	3771625.9	324.9	3.49	4.00	3.25	YES	
L0021593	0	0.30830E-07	446869.6	3771634.5	325.1	3.49	4.00	3.25	YES	
L0021594	0	0.30830E-07	446870.0	3771643.1	325.2	3.49	4.00	3.25	YES	
L0021595	0	0.30830E-07	446870.6	3771651.6	325.3	3.49	4.00	3.25	YES	
L0021596	0	0.30830E-07	446871.2	3771660.2	325.4	3.49	4.00	3.25	YES	
L0021597	0	0.30830E-07	446871.8	3771668.8	325.4	3.49	4.00	3.25	YES	
L0021598	0	0.30830E-07	446872.4	3771677.3	325.6	3.49	4.00	3.25	YES	
L0021599	0	0.30830E-07	446872.3	3771685.4	325.7	3.49	4.00	3.25	YES	
L0021600	0	0.30830E-07	446864.1	3771688.1	325.8	3.49	4.00	3.25	YES	
L0021601	0	0.30830E-07	446855.5	3771688.3	325.8	3.49	4.00	3.25	YES	
L0021602	0	0.30830E-07	446847.0	3771688.4	325.9	3.49	4.00	3.25	YES	
L0021603	0	0.30830E-07	446838.4	3771688.6	326.0	3.49	4.00	3.25	YES	
L0021604	0	0.30830E-07	446829.8	3771688.7	326.1	3.49	4.00	3.25	YES	
L0021605	0	0.30830E-07	446821.2	3771688.8	326.2	3.49	4.00			

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3.25     YES
 L0021606         0   0.30830E-07  446812.6 3771689.0   326.2     3.49     4.00
3.25     YES
 L0021607         0   0.30830E-07  446804.0 3771689.1   326.2     3.49     4.00
3.25     YES
 L0021608         0   0.30830E-07  446795.4 3771689.3   326.2     3.49     4.00
3.25     YES
 L0021609         0   0.30830E-07  446786.8 3771689.4   326.1     3.49     4.00
3.25     YES
 L0021610         0   0.30830E-07  446778.2 3771689.6   326.1     3.49     4.00
3.25     YES
 L0021611         0   0.30830E-07  446769.6 3771689.7   326.0     3.49     4.00
3.25     YES
 L0021612         0   0.30830E-07  446761.1 3771689.9   325.9     3.49     4.00
3.25     YES
 L0021613         0   0.30830E-07  446752.5 3771690.0   325.8     3.49     4.00
3.25     YES
 L0021614         0   0.30830E-07  446743.9 3771690.1   325.7     3.49     4.00
3.25     YES
 L0021615         0   0.30830E-07  446735.3 3771690.3   325.7     3.49     4.00
3.25     YES
 L0021616         0   0.30830E-07  446726.7 3771690.4   325.9     3.49     4.00
3.25     YES
 L0021617         0   0.30830E-07  446718.1 3771690.6   326.0     3.49     4.00
3.25     YES
 L0021618         0   0.30830E-07  446709.5 3771690.7   326.1     3.49     4.00
3.25     YES
 L0021619         0   0.30830E-07  446700.9 3771690.9   326.2     3.49     4.00
3.25     YES
 L0021620         0   0.30830E-07  446692.4 3771691.0   326.2     3.49     4.00
3.25     YES
 L0021621         0   0.30830E-07  446683.8 3771691.1   326.3     3.49     4.00
3.25     YES
 L0021622         0   0.30830E-07  446675.2 3771691.3   326.3     3.49     4.00
3.25     YES
 L0021623         0   0.30830E-07  446666.6 3771691.4   326.3     3.49     4.00
3.25     YES
 L0021624         0   0.30830E-07  446658.0 3771691.6   326.3     3.49     4.00
3.25     YES
 L0021625         0   0.30830E-07  446649.4 3771691.7   326.3     3.49     4.00
3.25     YES
 L0021626         0   0.30830E-07  446640.8 3771691.9   326.3     3.49     4.00
3.25     YES
 L0021627         0   0.30830E-07  446632.2 3771692.0   326.3     3.49     4.00
3.25     YES
 L0021628         0   0.30830E-07  446623.6 3771692.2   326.3     3.49     4.00
3.25     YES
 L0021629         0   0.30830E-07  446615.1 3771692.3   326.3     3.49     4.00
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3.25     YES
 L0021630         0   0.30830E-07  446606.5 3771692.4   326.4     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC           ***       07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                      *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                   BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.                (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0021631         0   0.30830E-07  446597.9 3771692.6   326.4     3.49     4.00
3.25     YES
 L0021632         0   0.30830E-07  446589.3 3771692.7   326.5     3.49     4.00
3.25     YES
 L0021633         0   0.30830E-07  446580.7 3771692.9   326.5     3.49     4.00
3.25     YES
 L0021634         0   0.30830E-07  446572.1 3771693.0   326.6     3.49     4.00
3.25     YES
 L0021635         0   0.30830E-07  446563.5 3771693.2   326.6     3.49     4.00
3.25     YES
 L0021636         0   0.30830E-07  446554.9 3771693.3   326.6     3.49     4.00
3.25     YES
 L0021637         0   0.30830E-07  446546.3 3771693.4   326.6     3.49     4.00
3.25     YES
 L0021638         0   0.30830E-07  446537.8 3771693.6   326.6     3.49     4.00
3.25     YES
 L0021639         0   0.30830E-07  446529.2 3771693.7   326.6     3.49     4.00
3.25     YES
 L0021640         0   0.30830E-07  446520.6 3771693.9   326.5     3.49     4.00
3.25     YES
 L0021641         0   0.30830E-07  446512.0 3771694.0   326.4     3.49     4.00
3.25     YES
 L0021642         0   0.30830E-07  446503.4 3771694.2   326.4     3.49     4.00
3.25     YES
 L0021643         0   0.30830E-07  446494.8 3771694.3   326.3     3.49     4.00
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3.25      YES
 L0021644         0   0.30830E-07  446486.2 3771694.5   326.2     3.49     4.00
3.25      YES
 L0021645         0   0.30830E-07  446477.6 3771694.6   326.1     3.49     4.00
3.25      YES
 L0021646         0   0.30830E-07  446469.0 3771694.7   326.0     3.49     4.00
3.25      YES
 L0021647         0   0.30830E-07  446466.2 3771700.4   326.0     3.49     4.00
3.25      YES
 L0021648         0   0.30830E-07  446466.5 3771708.9   326.1     3.49     4.00
3.25      YES
 L0021649         0   0.30830E-07  446466.8 3771717.5   326.2     3.49     4.00
3.25      YES
 L0021650         0   0.30830E-07  446467.1 3771726.1   326.3     3.49     4.00
3.25      YES
 L0021651         0   0.30830E-07  446467.4 3771734.7   326.4     3.49     4.00
3.25      YES
 L0021652         0   0.30830E-07  446467.6 3771743.3   326.6     3.49     4.00
3.25      YES
 L0021653         0   0.30830E-07  446467.9 3771751.9   326.7     3.49     4.00
3.25      YES
 L0021654         0   0.30830E-07  446468.2 3771760.5   326.9     3.49     4.00
3.25      YES
 L0021655         0   0.30830E-07  446468.5 3771769.0   327.1     3.49     4.00
3.25      YES
 L0021656         0   0.30830E-07  446468.8 3771777.6   327.3     3.49     4.00
3.25      YES
 L0021657         0   0.30830E-07  446469.1 3771786.2   327.4     3.49     4.00
3.25      YES
 L0021658         0   0.30830E-07  446469.4 3771794.8   327.6     3.49     4.00
3.25      YES
 L0021659         0   0.30830E-07  446469.7 3771803.4   327.9     3.49     4.00
3.25      YES
 L0021660         0   0.30830E-07  446470.0 3771812.0   328.1     3.49     4.00
3.25      YES
 L0021661         0   0.30830E-07  446470.2 3771820.6   328.4     3.49     4.00
3.25      YES
 L0021662         0   0.30830E-07  446470.5 3771829.1   328.6     3.49     4.00
3.25      YES
 L0021663         0   0.30830E-07  446470.8 3771837.7   328.8     3.49     4.00
3.25      YES
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*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID   SOURCE IDs
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ALL   L0020991   , L0020992   , L0020993   , L0020994   , L0020995   ,
L0020996   , L0020997   , L0020998   ,

L0020999   , L0021000   , L0021001   , L0021002   , L0021003   ,
L0021004   , L0021005   , L0021006   ,

L0021007   , L0021008   , L0021009   , L0021010   , L0021011   ,
L0021012   , L0021013   , L0021014   ,

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↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs
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L0021191 , L0021192 , L0021193 , L0021194 , L0021195 ,
L0021196 , L0021197 , L0021198 ,

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↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs
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L0021372 , L0021373 , L0021374 ,

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L0021391 , L0021392 , L0021393 , L0021394 , L0021395 ,
L0021396 , L0021397 , L0021398 ,

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L0021407 , L0021408 , L0021409 , L0021410 , L0021411 ,
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L0021460 , L0021461 , L0021462 ,

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L0021468 , L0021469 , L0021470 ,

↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** *** *** 09:40:20

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs
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L0021471 , L0021472 , L0021473 , L0021474 , L0021475 ,
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L0021484 , L0021485 , L0021486 ,

L0021487 , L0021488 , L0021489 , L0021490 , L0021491 ,
L0021492 , L0021493 , L0021494 ,

L0021495 , L0021496 , L0021497 , L0021498 , L0021499 ,
L0021500 , L0021501 , L0021502 ,

L0021503 , L0021504 , L0021505 , L0021506 , L0021507 ,
L0021508 , L0021509 , L0021510 ,

L0021511 , L0021512 , L0021513 , L0021514 , L0021515 ,
L0021516 , L0021517 , L0021518 ,

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L0021524 , L0021525 , L0021526 ,

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L0021532 , L0021533 , L0021534 ,

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L0021540 , L0021541 , L0021542 ,

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L0021564 , L0021565 , L0021566 ,

L0021567 , L0021568 , L0021569 , L0021570 , L0021571 ,
L0021572 , L0021573 , L0021574 ,

L0021575 , L0021576 , L0021577 , L0021578 , L0021579 ,
L0021580 , L0021581 , L0021582 ,

L0021583 , L0021584 , L0021585 , L0021586 , L0021587 ,
L0021588 , L0021589 , L0021590 ,

L0021591 , L0021592 , L0021593 , L0021594 , L0021595 ,
L0021596 , L0021597 , L0021598 ,

L0021599 , L0021600 , L0021601 , L0021602 , L0021603 ,
L0021604 , L0021605 , L0021606 ,

L0021607 , L0021608 , L0021609 , L0021610 , L0021611 ,
L0021612 , L0021613 , L0021614 ,

L0021615 , L0021616 , L0021617 , L0021618 , L0021619 ,
L0021620 , L0021621 , L0021622 ,

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↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

PAGE 23
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs
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L0021631 , L0021632 , L0021633 , L0021634 , L0021635 ,
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L0021644 , L0021645 , L0021646 ,

L0021647 , L0021648 , L0021649 , L0021650 , L0021651 ,
L0021652 , L0021653 , L0021654 ,

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L0021663 ,
↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

PAGE 24
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID URBAN POP SOURCE IDs
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2035210. L0020991 , L0020992 , L0020993 , L0020994 ,
L0020995 , L0020996 , L0020997 ,
L0020998 ,

L0020999 , L0021000 , L0021001 , L0021002 , L0021003 ,
L0021004 , L0021005 , L0021006 ,

L0021007 , L0021008 , L0021009 , L0021010 , L0021011 ,
L0021012 , L0021013 , L0021014 ,

L0021015 , L0021016 , L0021017 , L0021018 , L0021019 ,
L0021020 , L0021021 , L0021022 ,

L0021023 , L0021024 , L0021025 , L0021026 , L0021027 ,
L0021028 , L0021029 , L0021030 ,

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L0021092 , L0021093 , L0021094 ,

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↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
*** 09:40:20

PAGE 25
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID URBAN POP SOURCE IDs
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*** SOURCE IDs DEFINED AS URBAN SOURCES
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URBAN ID   URBAN POP   SOURCE IDs
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             L0021463    , L0021464    , L0021465    , L0021466    , L0021467    ,
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↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC           ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                          ***       09:40:20

                                    PAGE  27
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINED AS URBAN SOURCES
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  URBAN ID   URBAN POP                                    SOURCE IDs
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             L0021479    , L0021480    , L0021481    , L0021482    , L0021483    ,
L0021484    , L0021485    , L0021486    ,

             L0021487    , L0021488    , L0021489    , L0021490    , L0021491    ,
L0021492    , L0021493    , L0021494    ,

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L0021580 , L0021581 , L0021582 ,

L0021583 , L0021584 , L0021585 , L0021586 , L0021587 ,
L0021588 , L0021589 , L0021590 ,

L0021591 , L0021592 , L0021593 , L0021594 , L0021595 ,
L0021596 , L0021597 , L0021598 ,

L0021599 , L0021600 , L0021601 , L0021602 , L0021603 ,
L0021604 , L0021605 , L0021606 ,

L0021607 , L0021608 , L0021609 , L0021610 , L0021611 ,
L0021612 , L0021613 , L0021614 ,

L0021615 , L0021616 , L0021617 , L0021618 , L0021619 ,
L0021620 , L0021621 , L0021622 ,

L0021623 , L0021624 , L0021625 , L0021626 , L0021627 ,
L0021628 , L0021629 , L0021630 ,
↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761

RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID URBAN POP SOURCE IDs
-------- --------- ----------

L0021631 , L0021632 , L0021633 , L0021634 , L0021635 ,
L0021636 , L0021637 , L0021638 ,

L0021639 , L0021640 , L0021641 , L0021642 , L0021643 ,
L0021644 , L0021645 , L0021646 ,

L0021647 , L0021648 , L0021649 , L0021650 , L0021651 ,
L0021652 , L0021653 , L0021654 ,

L0021655 , L0021656 , L0021657 , L0021658 , L0021659 ,
L0021660 , L0021661 , L0021662 ,

L0021663 ,
↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(446792.9, 3772451.9, 338.6, 338.6, 0.0); (446792.8,
3772438.1, 338.3, 338.3, 0.0);
(446653.7, 3772549.7, 340.6, 340.6, 0.0); (446548.8,
3772557.1, 340.5, 340.5, 0.0);
(446828.6, 3770846.7, 313.4, 313.4, 0.0); (446827.6,
3770817.0, 313.1, 313.1, 0.0);
(446829.6, 3770759.6, 312.2, 312.2, 0.0); (447133.0,
3770736.5, 312.0, 312.0, 0.0);

```
     ( 448252.6, 3771356.4,     322.6,     322.6,       0.0);          ( 446775.5,
3772434.7,     338.4,     338.4,       0.0);
     ( 446608.4, 3772430.6,     338.4,     338.4,       0.0);          ( 446668.3,
3772278.4,     335.3,     335.3,       0.0);
     ( 446916.4, 3772413.8,     337.6,     337.6,       0.0);          ( 446816.3,
3772175.2,     333.9,     333.9,       0.0);
     ( 446920.5, 3772235.9,     334.6,     334.6,       0.0);          ( 445851.9,
3772769.1,     341.9,     341.9,       0.0);
     ( 446042.0, 3772796.6,     342.6,     342.6,       0.0);          ( 445538.7,
3772942.8,     343.9,     343.9,       0.0);
     ( 445335.7, 3773054.9,     345.6,     345.6,       0.0);          ( 447121.9,
3770845.0,     313.7,     313.7,       0.0);
     ( 446330.8, 3770419.9,     307.3,     307.3,       0.0);          ( 446395.7,
3770505.1,     308.4,     308.4,       0.0);
     ( 446657.3, 3771747.0,     327.1,     327.1,       0.0);          ( 446545.9,
3771873.2,     329.1,     329.1,       0.0);
     ( 446429.9, 3771827.7,     328.5,     328.5,       0.0);          ( 446435.4,
3771735.8,     326.1,     326.1,       0.0);
     ( 446831.8, 3771610.5,     324.8,     324.8,       0.0);          ( 446527.3,
3771546.5,     323.0,     323.0,       0.0);
     ( 447143.2, 3771518.2,     322.7,     322.7,       0.0);
```


 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

```
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1
1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
```

11761 RC 6th St.ADO
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: KONT_V9_ADJU\KONT_V9.SFC
Met Version: 16216
Profile file: KONT_V9_ADJU\KONT_V9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 3102 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN

Year: 2012 Year: 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
12	01	01	1	01	-16.4	0.171	-9.000	-9.000	-999.	170.	32.3	0.09	1.12	1.00	2.03	43.	7.9	285.9	2.0
12	01	01	1	02	-18.8	0.194	-9.000	-9.000	-999.	205.	41.3	0.09	1.12	1.00	2.28	34.	7.9	285.4	2.0
12	01	01	1	03	-17.8	0.182	-9.000	-9.000	-999.	187.	36.5	0.09	1.12	1.00	2.15	24.	7.9	282.0	2.0

```
 12 01 01   1 04   -9.4  0.128 -9.000 -9.000 -999.  110.     19.6  0.09   1.12
1.00    1.55   41.    7.9  283.1    2.0
 12 01 01   1 05  -16.9  0.173 -9.000 -9.000 -999.  173.     33.0  0.09   1.12
1.00    2.05   39.    7.9  280.4    2.0
 12 01 01   1 06   -8.0  0.117 -9.000 -9.000 -999.   97.     17.8  0.09   1.12
1.00    1.43   21.    7.9  282.0    2.0
 12 01 01   1 07   -7.6  0.115 -9.000 -9.000 -999.   93.     17.4  0.09   1.12
1.00    1.40   31.    7.9  282.5    2.0
 12 01 01   1 08  -13.6  0.184 -9.000 -9.000 -999.  190.     40.5  0.09   1.12
0.54    2.16   34.    7.9  284.2    2.0
 12 01 01   1 09   28.4  0.126  0.300  0.011   33.  108.     -6.2  0.09   1.12
0.32    1.03   29.    7.9  289.2    2.0
 12 01 01   1 10   79.8  0.133  0.607  0.010   99.  116.     -2.6  0.09   1.12
0.25    0.94  173.    7.9  292.5    2.0
 12 01 01   1 11  115.8  0.137  0.932  0.006  246.  121.     -2.0  0.09   1.12
0.22    0.92  172.    7.9  295.4    2.0
 12 01 01   1 12  133.7  0.139  1.197  0.005  453.  125.     -1.8  0.09   1.12
0.21    0.92  146.    7.9  297.5    2.0
 12 01 01   1 13  133.2  0.160  1.354  0.005  657.  153.     -2.7  0.09   1.12
0.21    1.14  117.    7.9  299.9    2.0
 12 01 01   1 14  113.5  0.159  1.454  0.005  955.  151.     -3.1  0.09   1.12
0.23    1.16  285.    7.9  300.9    2.0
 12 01 01   1 15   76.2  0.166  1.350  0.005 1138.  163.     -5.3  0.09   1.12
0.26    1.33   72.    7.9  302.0    2.0
 12 01 01   1 16   23.5  0.175  0.925  0.005 1183.  175.    -19.9  0.09   1.12
0.35    1.65  107.    7.9  301.4    2.0
 12 01 01   1 17   -6.1  0.107 -9.000 -9.000 -999.   86.     18.0  0.09   1.12
0.63    1.31  107.    7.9  298.1    2.0
 12 01 01   1 18  -11.1  0.141 -9.000 -9.000 -999.  127.     22.1  0.09   1.12
1.00    1.69   86.    7.9  293.1    2.0
 12 01 01   1 19   -3.2  0.076 -9.000 -9.000 -999.   51.     11.8  0.09   1.12
1.00    0.91   64.    7.9  292.0    2.0
 12 01 01   1 20   -2.3  0.066 -9.000 -9.000 -999.   41.     11.2  0.09   1.12
1.00    0.74   73.    7.9  288.8    2.0
 12 01 01   1 21  -10.0  0.133 -9.000 -9.000 -999.  116.     20.5  0.09   1.12
1.00    1.60   14.    7.9  288.1    2.0
 12 01 01   1 22  -19.4  0.201 -9.000 -9.000 -999.  216.     44.5  0.09   1.12
1.00    2.36   22.    7.9  287.5    2.0
 12 01 01   1 23  -23.7  0.246 -9.000 -9.000 -999.  293.     66.5  0.09   1.12
1.00    2.86   40.    7.9  287.0    2.0
 12 01 01   1 24  -12.3  0.147 -9.000 -9.000 -999.  139.     23.8  0.09   1.12
1.00    1.76   40.    7.9  283.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01    7.9 1   43.    2.03   286.0   99.0  -99.00  -99.00
```

F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION 16216r *** *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761 RC 6TH ST.ISC *** 07/27/18
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0020991 , L0020992 , L0020993 , L0020994 , L0020995 ,
L0020996 , L0020997 , L0020998 , L0020999 , L0021000 , L0021001 , L0021002 , L0021003 ,
L0021004 , L0021005 , L0021006 , L0021007 , L0021008 , L0021009 , L0021010 , L0021011 ,
L0021012 , L0021013 , L0021014 , L0021015 , L0021016 , L0021017 , L0021018 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
446792.87	3772451.86	0.00003	446792.75	3772438.11	0.00003
446653.69	3772549.72	0.00002	446548.83	3772557.07	0.00002
446828.59	3770846.72	0.00023	446827.56	3770816.99	0.00023
446829.61	3770759.58	0.00023	447132.97	3770736.50	0.00010
448252.65	3771356.45	0.00003	446775.50	3772434.73	0.00003
446608.38	3772430.64	0.00003	446668.30	3772278.45	0.00004
446916.42	3772413.84	0.00003	446816.26	3772175.23	0.00007
446920.49	3772235.90	0.00006	445851.90	3772769.14	0.00001
446042.04	3772796.61	0.00001	445538.66	3772942.79	0.00001

```
        445335.66    3773054.87        0.00000                            447121.93
3770845.00        0.00011
        446330.77    3770419.91        0.00004                            446395.72
3770505.06        0.00004
        446657.28    3771746.99        0.00128                            446545.90
3771873.22        0.00125
        446429.87    3771827.74        0.00057                            446435.44
3771735.85        0.00071
        446831.77    3771610.55        0.00035                            446527.33
3771546.50        0.00021
        447143.21    3771518.16        0.00012

↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                  *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***


                                   ** CONC OF DPM      IN MICROGRAMS/M**3
                **



                         NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR  (XR, YR,
ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS       0.00128 AT (  446657.28,  3771746.99,
327.11,   327.11,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00125 AT (  446545.90,  3771873.22,
329.05,   329.05,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00071 AT (  446435.44,  3771735.85,
326.09,   326.09,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00057 AT (  446429.87,  3771827.74,
328.51,   328.51,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00035 AT (  446831.77,  3771610.55,
324.80,   324.80,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00023 AT (  446829.61,  3770759.58,
312.25,   312.25,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00023 AT (  446828.59,  3770846.72,
313.45,   313.45,    0.00)  DC
```

```
                                11761 RC 6th St.ADO
         8TH HIGHEST VALUE IS       0.00023 AT (  446827.56,  3770816.99,
313.14,   313.14,    0.00)  DC
         9TH HIGHEST VALUE IS       0.00021 AT (  446527.33,  3771546.50,
322.99,   322.99,    0.00)  DC
        10TH HIGHEST VALUE IS       0.00012 AT (  447143.21,  3771518.16,
322.70,   322.70,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION 16216r ***   *** C:\LAKES\AERMOD VIEW\11761 RC 6TH ST\11761
RC 6TH ST.ISC             ***        07/27/18
 *** AERMET - VERSION  16216 ***   ***
                        ***       09:40:20

                                  PAGE  34
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of           0 Fatal Error Message(s)
 A Total of           2 Warning Message(s)
 A Total of        1628 Informational Message(s)

 A Total of       43848 Hours Were Processed

 A Total of        1278 Calm Hours Identified

 A Total of         350 Missing Hours Identified (  0.80 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186    1497       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187    1497       MEOPEN: ADJ_U* Option for Low Winds used in AERMET


    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
```

AVERAGE EMISSION FACTOR
SCAQMD 2020

Speed	LHD1	MHD	HHD
0	0.33638	0.114169	0.02232
5	0.043455	0.049996	0.04126
25	0.01480	0.034737	0.02346

Speed	Weighted Average Emissions
0	**0.09378**
5	**0.04343**
25	**0.02435**

Emission Rates - 2020 Emission Factors

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)**	**Modeled Emission Rates (g/second)**
On-Site Idling	21			0.0938	0.48	5.563E-06
On-Site Travel	41	11.82	0.0434		0.51	5.944E-06
Off-Site Travel 100% Inbound from I-10	21	33.32	0.0243		0.81	9.389E-06
Off-Site Travel 100% Outbound to I-10	21	33.14	0.0243		0.81	9.340E-06

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APPENDIX 2.2:

RISK CALCULATIONS

Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
-0.25 to 0 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00023	2.30E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	6.0E-08	1.9E-09	5.0E+00	1.4E-03	4.6E-05							
TOTAL								1.9E-09			4.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	0.25
inhalation rate (L/kg-day))	273
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (age third trimester	10

Table 2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00023	2.30E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.7E-07	4.3E-08	5.0E+00	1.4E-03	4.6E-05							
TOTAL								4.3E-08			4.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	2
inhalation rate (L/kg-day))	758
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00023	2.30E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.3E-07	5.7E-08	5.0E+00	1.4E-03	4.6E-05							
TOTAL								5.7E-08			4.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
			Fraction		URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00023	2.30E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	5.8E-08	8.8E-09	5.0E+00	1.4E-03	4.6E-05							
TOTAL								8.8E-09			4.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
								0.01										

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) **0.11**

Table 5
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
25-Year Worker Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	1.28E-03	1.28E-06	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.3E-07	8.6E-08	5.0E+00	1.4E-03	2.6E-04							
	TOTAL								9.8E-08 0.10			2.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	240
exposure duration (years)	25
inhalation rate (L/kg-day))	271
inhalation absorption factor	1
averaging time (years)	70

Table 6
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
9-Year School Child Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	4.00E-05	4.00E-08	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.1E-08	4.6E-09	5.0E+00	1.4E-03	8.0E-06							
	TOTAL								2.5E-08			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
									0.03										

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	180
exposure duration (years)	9
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
age sensitivity factor (ages 4-13)	3

APPENDIX D

Biological Resources

ECOLOGICAL SCIENCES, inc.

April 3, 2018

Sixth and Center, LLC
Phillip A. Homme, Manager
1360 Reynolds Ave., Ste 112
Irvine, CA 92614

SUBJECT: ***Results of a Habitat Suitability Evaluation, ±5.27-acre Site, City of Rancho Cucamonga, San Bernardino County, California***

Dear Philip:

This letter report presents findings of a reconnaissance-level survey conducted to generally evaluate the suitability of a ±5.27-acre site to support sensitive biological resources in support of the environmental review process.

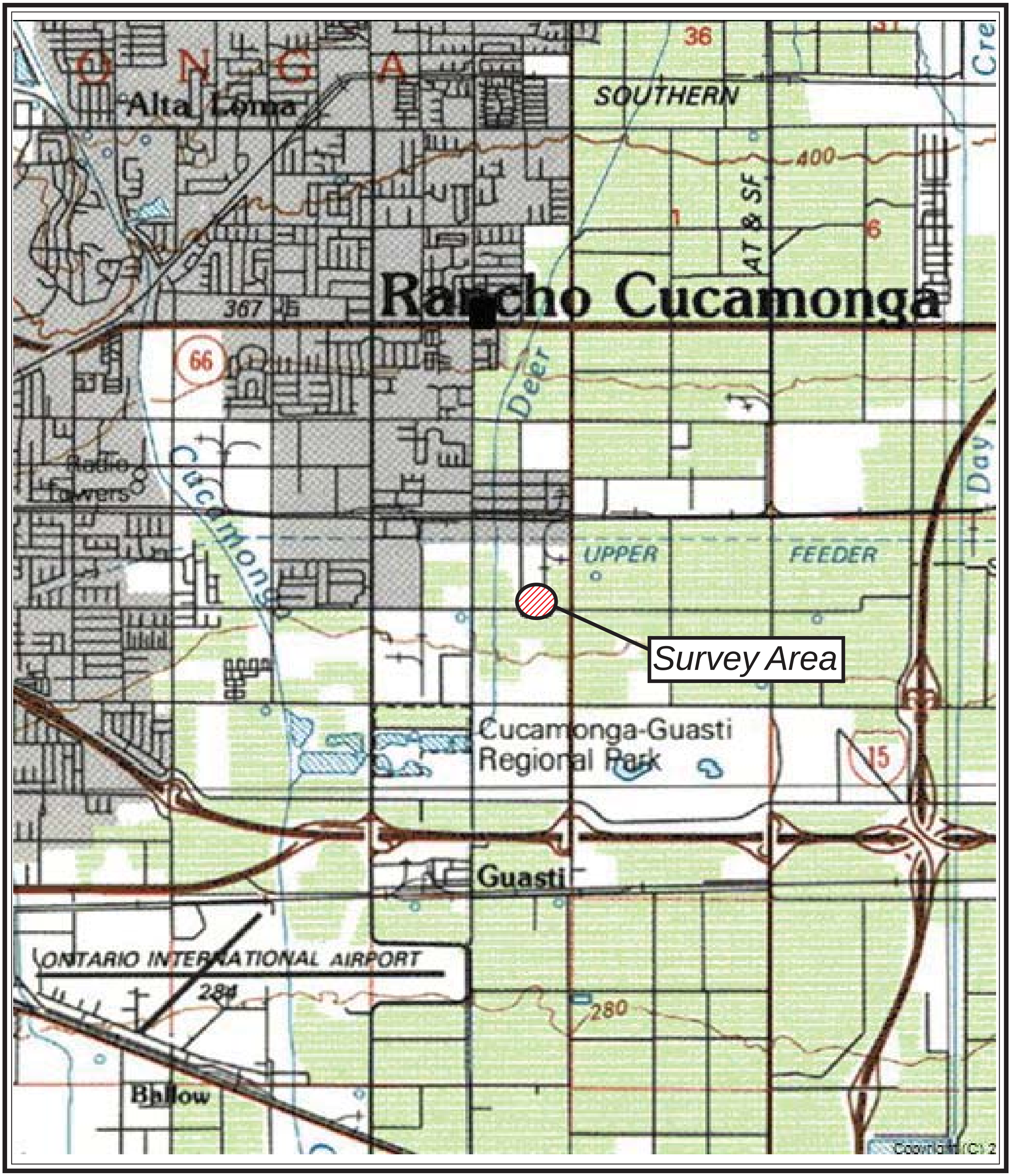
Introduction

The subject ±5.27-acre site is regionally located in the City of Rancho Cucamonga, San Bernardino County, California (***Plate 1***). More specifically, the site is located at the northeast intersection of Center Avenue and 6th Street, Township 1 South, Range 7 West, Section 14 on the "Guasti" USGS 7.5-minute quadrangle map (***Plate 2***). Projects proposed in the area that contain potentially suitable habitat to support sensitive biological resources must demonstrate to reviewing agencies that potential project-related impacts to sensitive biological resources are adequately addressed and mitigated pursuant to the California Environmental Quality Act (CEQA) and the federal Endangered Species Act (Act) of 1973, as amended. Accordingly, results of this habitat suitability evaluation are intended to provide the applicant and resource agencies with preliminary biological information required for planning and permitting decisions concerning the proposed project. Due to the inherent limitations of unseasonal or habitat-based data, definitive conclusions regarding the actual presence or absence of certain sensitive biological resources cannot necessarily be made in this report. Therefore, conclusions relative to potential presence or absence of selected sensitive biological resources are based solely on the nature of habitat present.

Regulatory Setting

Biological resources within the project site may fall under the jurisdiction of several federal and state agencies, including, but not necessarily limited to, California Department of Fish and Wildlife (CDFW/CDFG), U.S. Fish and Wildlife Service (FWS), County of San Bernardino (County), City of Rancho Cucamonga (City), Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers (USACE).

Potential constraints posed by biological resources upon the project site were generally evaluated by ranking the following sensitive biological issues, listed in descending order of significance: (1) a federally or state-listed endangered or threatened species of plant or animal; (2) streambeds, wetlands, and their associated vegetation; (3) habitats suitable to support a federally or state-listed endangered or threatened species of plant or wildlife; (4) species designated as candidates for federal listing; (5) habitat, other than wetlands, considered sensitive by regulatory agencies or resource conservation organizations; and (6) other species or issues of special concern to agencies, resource conservation organizations, or other



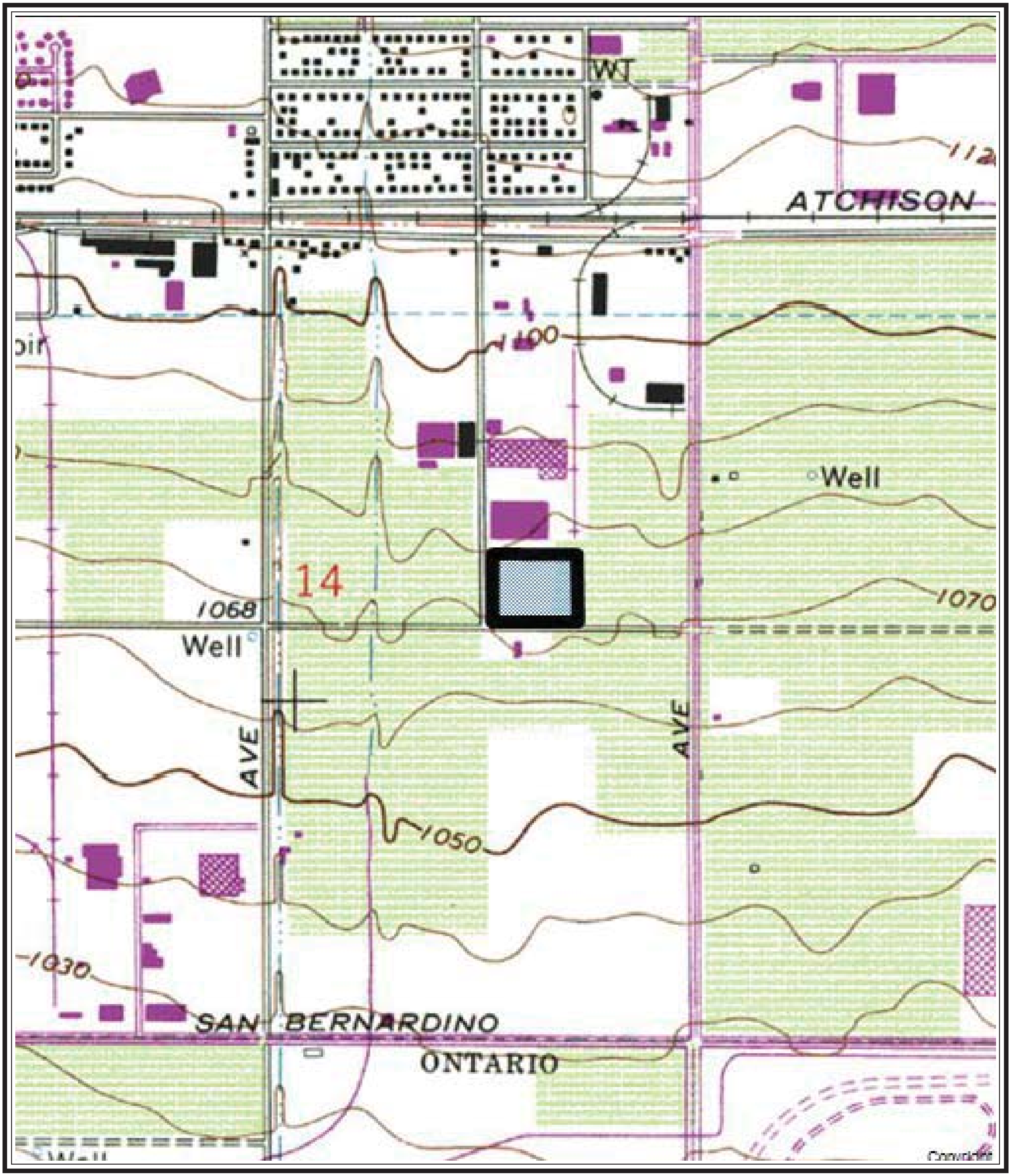
ECOLOGICAL SCIENCES inc.

March 2018

plate 1

Regional Site Location

6th and Center, LLC



= Study Area Boundary

plate 2

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March 2018

USGS Topographic Vicinity Map

6th and Center, LLC

interest groups. This analysis of biological resources is based on information compiled through field reconnaissance, extensive literature review, and by applicable reference materials. Methods used in this study are outlined below.

Methodology

Literature Search

Documentation pertinent to the biological resources in the vicinity of the site was reviewed and analyzed. Primary data sources reviewed to evaluate the occurrence potential of special-status resources on the subject site, included, but were not necessarily limited to: (1) California Natural Diversity Data Base (CNDDB 2018) and (2) California Native Plant Society (CNPS) online inventory for the "Guasti" and surrounding USGS 7.5-minute quadrangle maps, (3) available literature pertaining to habitat requirements of special-status species potentially occurring in the project site; and (4) distribution data contained in Hall (1981); Grinnell and Miller (1944); Garrett and Dunn (1981); Holland (1986); Stebbins (1985); Hickman (1993); and CNPS (2001).

Field Survey

Ecological Sciences biologists conducted a reconnaissance-level field survey to characterize on-site habitats and to generally evaluate their potential to support sensitive species on March 26, 2018. Plant species and vegetation communities were primarily identified by walking meandering transects over the site. All direct observations of wildlife were recorded, as was wildlife sign. In addition to species actually detected, expected use of the site by other wildlife was evaluated from habitat analysis of the site, combined with known habitat preferences of locally occurring wildlife species. The site was also evaluated for the potential presence of plant, animal, or habitat considered rare, threatened, sensitive, endangered, or otherwise unique by regulatory or resource agencies. Weather conditions during the survey included 1-3 m.p.h. breeze, clear skies, and air temperatures of approximately 66-68° Fahrenheit.

Existing Site Conditions

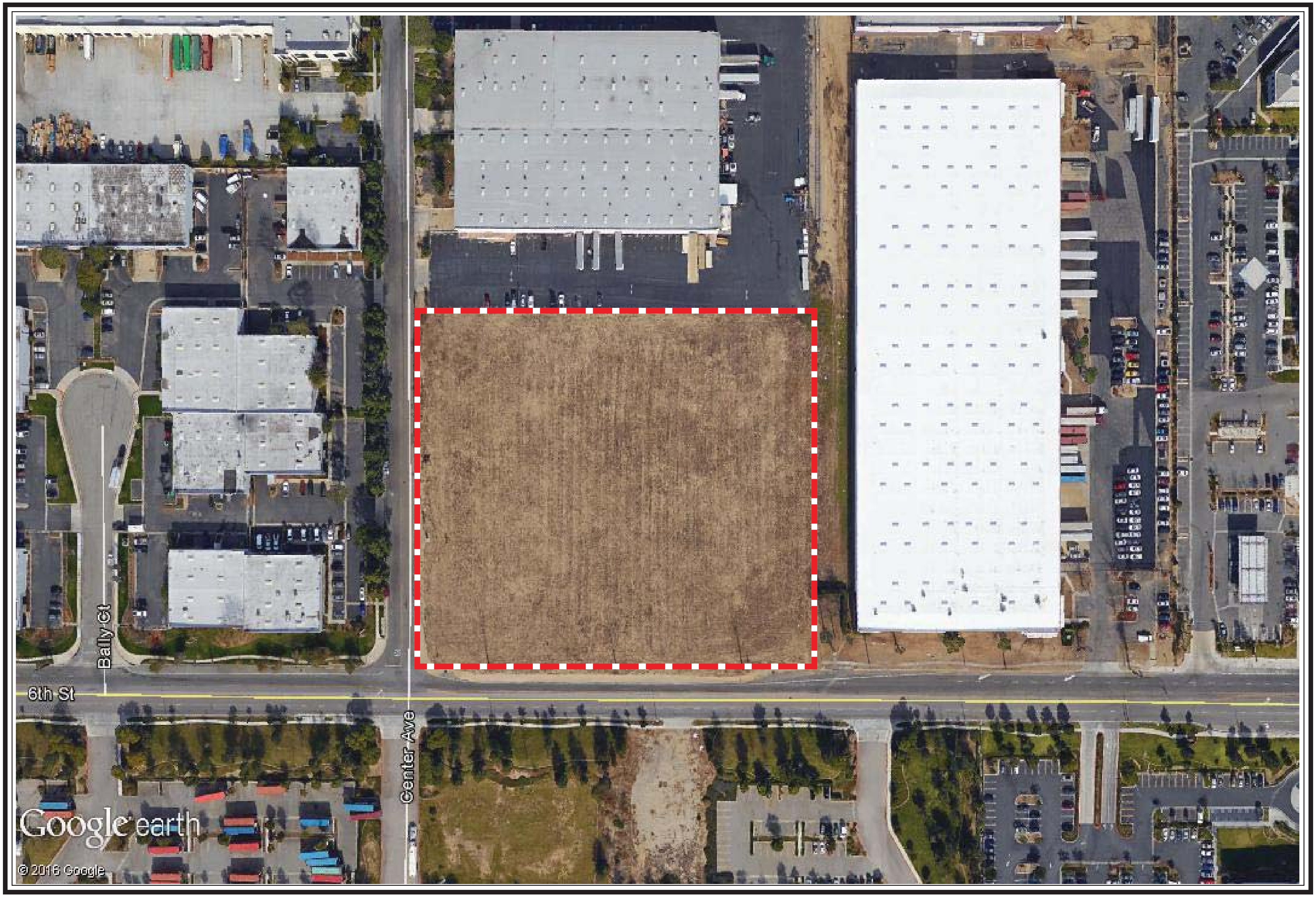
The study area is characterized as a degraded and disturbed vacant site dominated by non-native ruderal plant species (grasses and forbs). The site appears to have been historically exposed to various anthropogenic disturbances such as mowing and/or discing. Vegetative coverage is about 95%. Existing development surrounds the site. ***Plate 3*** provides an aerial view of the site and vicinity. ***Plate's 4a-4b*** illustrate existing site conditions at the time of the survey.

Vegetation

Introduced (non-native) plant species recorded on site included foxtail chess (*Bromus madritensis* ssp. *rubens*), ripgut grass (*Bromus diandrus*), Mediterranean grass (*Schismus* sp.), filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), and short podded mustard (*Hirschfeldia incana*). Native species present on site included scattered telegraph weed (*Heterotheca grandiflora*), annual bur-sage (*Ambrosia acanthicarpa*), common fiddleneck (*Amsinckia intermedia*), and common sunflower (*Helianthus annuus*).

Wildlife

Common bird species observed during the survey included northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*).



= Study Area

ECOLOGICAL SCIENCES, inc.

March 2018

plate 3

Aerial Photograph

6th and Center, LLC

View to north

View to east

ECOLOGICAL SCIENCES, inc.

March 2018

plate 4a

Site Photographs

6th and Center, LLC

View to south

View to west

ECOLOGICAL SCIENCES, inc.

March 2016

plate 4b

Site Photographs

6th and Center, LLC

General Soils Analysis / Soil Conservation Map Review

A review of soil maps prepared for the area by the Natural Resource Conservation Service (NRCS 2016) indicate that the subject site is entirely located within an area mapped as Tujunga loamy sand (TuB). Substrate included both friable and compacted areas mixed with loams and gravels throughout the site.

Sensitive Biological Resources Evaluation

Discussed in this section are plant and wildlife species potentially present in the study area that have been afforded special recognition by federal or state agencies. The focus of this discussion is on those species that would potentially pose considerable constraints on the proposed project because of their high sensitivity status (listed or proposed for listing as rare, threatened, or endangered) with state and/or federal resource agencies. In addition, plants included on Lists 1, 2, 3, or 4 of the CNPS inventory are also considered of special-status. Vegetation communities that are unique, of relatively limited distribution, or of particular value to wildlife and considered sensitive by state and/or federal resource agencies are also generally discussed.

In general, those species presented in ***Tables 1 and 2*** that are "not expected" or that have a "low occurrence potential" generally correspond to "less than significant" under CEQA. The occurrence potential of special-status plant and wildlife species is primarily based on habitat types present, occurrence records of sensitive species from the site vicinity, and results of the on-site reconnaissance survey. No focused botanical or zoological surveys were conducted.

Special-Status Plant Species

No special-status plant species were detected on site during the reconnaissance survey and none are expected due to lack of suitable habitat. Special-status plant species known from the region that potentially occur within the project site are summarized below in ***Table 1***.

Table 1

Special-Status Plant Species Known to Occur in the Site Vicinity[1]

Common Name *Scientific Name*	**Status**			**Habitat Requirements**	**Occurrence Potential**
	Federal	**State**	**CNPS**		
Coulter's saltbush *Atriplex coulteri*	--	--	1B	Coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland; sometimes associated with alkaline low places and clay soil.	**Not Expected:** suitable habitat not present
Plummer's mariposa lily *Calochortus plummerae*	FSC	--	1B	Chaparral, cismontane woodlands, coastal scrub, Lower coniferous forests, and grasslands; associated with granitic soils.	**Not Expected**: suitable habitat not present on site
Intermediate mariposa lily *Calochortus weedii* var. *intermedius*	FSC	--	1B	Chaparral, coastal scrub, grasslands; often associated with dry, rocky, open slopes.	**Not Expected:** suitable habitat not present on site
Parry's spineflower *Chorizanthe parryi* ssp. *parryi*	FSC	--	3	Chaparral and coastal scrub; associated with sandy or rocky openings.	**Not Expected:** suitable habitat not present
Many-stemmed dudleya *Dudleya multicaulis*	FSC	--	1B	Chaparral, coastal scrub, and grasslands; often associated with clay soils.	**Not Expected:** suitable habitat not present
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	FE	CE	1B	Coastal scrub, chaparral, and alluvial scrub; associated with sandy soil in river floodplains or terraced fluvial deposits.	**Not Expected:** suitable habitat not present
Pious daisy *Erigeron breweri* var. *bisanctus*	--	--	1B	Chaparral and lower montane coniferous forest.	**Not Expected:** suitable habitat not present

Table 1-continued

Special-Status Plant Species Known to Occur in the Site Vicinity[1]

Common Name *Scientific Name*	**Status**			**Habitat Requirements**	**Occurrence Potential**
	Federal	**State**	**CNPS**		
Smooth tarplant *Hemizonia pungens* ssp. *laevis*	FSC	--	1B	Chenopod scrub, meadows, playas, riparian woodland, and valley and foothill grasslands; associated with alkaline areas.	**Not Expected:** suitable habitat not present
Robinson's pepper-grass *Lepidium virginicum* var. *robinsonii*	--	--	1B	Chaparral and coastal scrub; associated with dry soils; known to occur on roadsides.	**Not Expected:** suitable habitat not present
California muhly *Muhlenbergia californica*	--	--	1B	Chaparral, coastal scrub, lower montane coniferous forest, and meadows; associated with moist soils, seeps, and streambanks.	**Not Expected:** suitable habitat not present
Salt spring checkerbloom *Sidalcea neomexicana*	--	--	2	Chaparral, coastal scrub, lower montane coniferous forest, Mohavean desert scrub, coastal brackish marsh, and alkali playas, seeps, and marshes; associated with moist, alkaline soils.	**Not Expected:** suitable habitat not present

KEY: [1]Based primarily on review of 2016 CNDDB and CNPS online databases

Federal
FE: Federally Endangered
FT: Federally Threatened Species
FPE: Federally Proposed Endangered
FPT: Federally Proposed Threatened
FC: Federal Candidate Species

State
CE: State Endangered
CT: State Threatened
CR: State Rare

CNPS
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and elsewhere
List 2: Plants rare and endangered in California, but more common elsewhere
List 3: Taxa about which more information is needed
List 4: Plants of limited distribution

Special-Status Wildlife Species

No special-status wildlife species were directly observed on site, and none have a high occurrence potential. Sensitive wildlife species known from the site vicinity are summarized below in ***Table 2***.

Table 2

Special-Status Wildlife Species Known from the Site Vicinity[1]

Common Name *Scientific Name*	**Status**		**Habitat Requirements**	**Occurrence Potential**
	Federal	**State**		
INVERTEBRATES				
Delhi Sands flower-loving fly *Rhaphiomidas terminatus abdominalis*	FE	--	Open, sandy (Delhi) dune areas commonly supporting buckwheat, croton, telegraph weed, *Camissonia* and *Oenothera*.	**Not Expected:** habitat present not suitable; no mapped Delhi soils
REPTILES				
San Diego horned lizard *Phrynosoma coronatum blainvillii*	FSC	CSC	Relatively open grasslands, scrublands, and woodlands with fine, loose soil.	**Low Potential:** marginally suitable habitat present
Silvery legless lizard *Anniella pulchra pulchra*	FSC	CSC	Stabilized dunes, beaches, dry washes, pine, oak, and riparian woodlands, and chaparral; sparse vegetation with sandy or loose, loamy soils.	**Not Expected:** no suitable habitat present

Table 2-continued

Special-Status Wildlife Species Known from the Site Vicinity[1]

Common Name *Scientific Name*	Status		Habitat Requirements	Occurrence Potential
	Federal	State		
San Bernardino ringneck snake *Diadophis punctatus modestus*	FSC	--	Woodlands, grassland, chaparral, and scrub habitats; often found in mesic areas under rocks, logs, and debris.	**Not Expected:** no suitable habitat present
BIRDS				
White-tailed kite (nesting) *Elanus leucurus*	MNBMC	CFP	Open vegetation and uses dense woodlands for cover.	**Not Expected:** no suitable habitat present
Northern harrier (nesting) *Circus cyaneus*	--	CSC	Coastal salt marsh, freshwater marsh, grasslands, and agricultural fields.	**Not Expected:** no suitable habitat present
Sharp-shinned hawk (nesting) *Accipiter striatus*	--	CSC	Woodlands and forages over dense chaparral and scrublands.	**Not Expected:** no suitable habitat present
Cooper's hawk (nesting) *Accipiter cooperi*	--	CSC	Dense stands of live oaks and riparian woodlands.	**Low Potential:** no suitable nesting habitat present
Ferruginous hawk (wintering) *Buteo regalis*	FSC, MNBMC	CSC	Grasslands, agricultural fields, and open scrublands.	**Not Expected:** no suitable habitat present
Golden eagle (nesting & wintering) *Aquila chrysaetos*	--	CSC, CFP	Mountains, deserts, and open country.	**Not Expected:** no suitable habitat present
Prairie falcon (nesting) *Falco mexicanus*	--	CSC	Grasslands, savannas, rangeland, agricultural fields, and desert scrub; requires sheltered cliff faces for shelter.	**Not Expected:** no suitable habitat present
Western burrowing owl (burrow sites) *Athene cunicularia hypugea*	FSC, MNBMC	CSC	Grasslands and open scrub.	**Low Potential:** marginally suitable habitat present; not observed during site survey in 2016 and 2018
California horned lark *Eremophila alpestris actia*	--	CSC	Grasslands, disturbed areas, agriculture fields, and beach areas.	**Moderate Potential:** suitable foraging habitat present
Loggerhead shrike *Lanius ludovicianus*	FSC, MNBMC	CSC	Grasslands with scattered shrubs, trees, fences or other perches.	**Low Potential:** marginally suitable habitat present
California coastal gnatcatcher *Polioptila californica californica*	FT	CSC	Coastal sage scrub in areas of flat or gently sloping terrain	**Not Expected:** suitable habitat not present
Mountain plover *Charadrius montanus*	FPT	CSC	Agricultural areas, fallow fields, grasslands, prairies	**Low Potential:** marginally suitable habitat present
MAMMALS				
San Diego desert woodrat *Neotoma lepida intermedia*	--	CSC	Moderate to dense sage scrub; rocky outcrops	**Not Expected:** no suitable habitat present
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	FSC	CSC	Chaparral, coastal scrub, grasslands	**Low Potential:** marginally suitable habitat present
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	FSC	CSC	Grasslands and coastal sage scrub; prefers lower elevational areas with open ground and sandy soils.	**Not Expected:** suitable habitat not present
San Bernardino kangaroo rat *Dipodomys merriami parvus*	FE	CSC	Coastal sage scrub; prefers lower elevational areas with open ground and sandy soils.	**Not Expected:** suitable habitat not present

KEY: [1]Based primarily on review of 2018 CNDDB; (nesting) = For most taxa the CNDDB is interested in sightings for the presence of resident populations. For some species (primarily birds), the CNDDB only tracks certain parts of the species range or life history (e.g., nesting locations). The area or life stage is indicated in parenthesis after the common name.

Table 2-continued

Special-Status Wildlife Species Known from the Site Vicinity[1]

Status:

Federal—U.S. Fish and Wildlife Service		State—California Department of Fish and Game	
FE:	Federally Endangered	CE:	California Endangered
FT:	Federally Threatened	CT:	California Threatened
FPE:	Federally Proposed Endangered	CCE:	California Candidate (Endangered)
FPT:	Federally Proposed Threatened	CCT:	California Candidate (Threatened)
FC:	Federal Candidate for listing as threatened or endangered	CFP:	California Fully Protected
		CP:	California Fully Protected
FSC:	Federal Species of Concern- no formal protection is granted to this designation	CSC:	California Species of Special Concern
MNBMC:	Migratory Nongame Birds of Management Concern		

Special-Status Habitats

Special-status habitat types are vegetation communities that support concentrations of sensitive plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife. Although sensitive habitats are not necessarily afforded legal protection unless they support protected species, potential impacts to them may increase concerns and mitigation suggestions by resources agencies. No native or special-status habitats were recorded on the subject site due to long-standing site disturbances associated with industrial activities.

Wildlife Movement Corridors

The proposed project site is surrounded by existing development, and therefore, the subject site does not occupy an important location relative to regional wildlife movement. As such, development of the site would not be expected to have any substantial effect on local or regional wildlife movement.

Discussion

The level of constraint that a sensitive biological resource would pose to potential development typically depends on the following criteria: (1) the relative value of that resource; (2) the amount or degree of impact to the resource; (3) whether or not impacts to the resource would be in violation of state and/or federal regulations or laws; (4) whether or not impacts to the resource would require permitting by resource agencies; and (5) the degree to which impacts on the resource would otherwise be considered "significant" under CEQA. On-site habitats have been assigned a low biological constraint rating based on the degree in which expected impacts to on-site resources would meet the criteria discussed above. This designation is primarily due to the high level of site disturbances (associated with existing development and/or other anthropogenic disturbances) resulting in low biological diversity (i.e., replacement and exclusion of most native species with just a few non-native species) and an low potential for special-status species to utilize or reside within areas proposed for development due to absence of suitable habitat.

No ***special-status plant species*** are expected on site due to the absence of suitable habitat. The intent of the botanical survey was to generally evaluate the potential of the site to support sensitive plant species based on existing site conditions and habitat types present. Long-standing use of the site for commercial purposes and other anthropogenic disturbances have altered soil chemistry and other substrate characteristics such that on-site soils are not capable of supporting any sensitive plant species known from the site vicinity. Site development would not eliminate significant amounts of habitat for potentially occurring special-status plant species, nor reduce population size of sensitive plant species below self-sustaining levels on a local or regional basis (if present). No CEQA significant impacts are expected.

No ***special-status wildlife species*** were directly recorded on site, however, the California horned lark has a moderate occurrence potential to forage (does not breed in area). However, this species was deemed by the FWS to be too widespread and common to warrant listing as threatened or endangered, and as such, were removed from formal sensitive species status. Impacts to isolated, non-native grassland or disturbed habitats (non-sensitive habitat types in general) could amount to an incremental reduction of potential foraging habitat that could be considered locally adverse. Site development would not eliminate significant amounts of habitat for this species, nor reduce population size below self-sustaining levels on a local or regional basis. No CEQA significant impacts to this species would be expected.

No direct observations or ***burrowing owl (BUOW)*** sign (feathers, pellets, fecal material, prey remains, etc.) were recorded during the reconnaissance-level survey. Despite that fact that the site has been exposed to long-standing disturbances, the BUOW (moderate occurrence potential) often occur in less than optimal and/or disturbed conditions. While this species is not protected by state or federal endangered species acts, burrowing owls (and other native avian species) are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) and CDFG Code sections 3503, 3503.5, and 3800 which prohibits take, possession, or destruction of birds, their nests or eggs (in particular raptor species such as BUOW). If it were later determined that active nests of BUOW (or other native species) would be lost as a result of site-preparation, it could result in CEQA significant adverse impacts and would be in conflict with these regulations.

Specific burrowing owl survey protocol and mitigation guidelines were developed and described in the 2012 CDFG Staff Report on Burrowing Owl Mitigation in order to reduce project-related impacts to burrowing owls. If site preparation activities occur within potential BUOW habitat, a ***pre-construction burrowing owl / Initial Take Avoidance Survey*** conducted no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the 2012 Staff Report is required by CDFG to determine if active nests of species protected by the MBTA and/or CDFW codes are present in the construction zone for CEQA compliance and to subsequently evaluate appropriate measures that may reduce potential adverse project-related impacts.

Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities would occur. The development of avoidance and minimization approaches would be developed by monitoring the burrowing owls. Burrowing owls may re-colonize a site after only a few days. Time lapses (i.e. construction delays) between project activities would trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance (CDFG 2012). Should eggs or fledglings be discovered in any owl burrow or native nest, these resources cannot be disturbed (pursuant to CDFG guidelines) until the young have hatched and fledged (matured to a stage that they can leave the nest on their own). Take of active nests should always be avoided. If owls must be moved away from the disturbance area, *passive* relocation techniques (where applicable outside of the breeding season before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance) should be used rather than trapping (2012 CDFG Staff Report). If burrow exclusion and/or burrow closure is implemented, BUOWs should not be excluded from burrows unless or until: (1) a Burrowing Owl Exclusion Plan is developed and approved by the applicable local CDFG office; and (2) permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the Mitigating Impacts (CDFG 2012).

Compliance with the MBTA and CDFW codes would be necessary prior to development; however no special permit or approval is typically required in most instances. Development activities performed outside of the avian breeding season would generally eliminate the need to conduct pre-activity nesting surveys for most common native species known from the site vicinity, and likely ensure that there were no constraints to construction relative to the MBTA/CDFW code.

Existing conditions at the site are not consistent with those known or expected to support extant ***Delhi Sands flower-loving fly (DSFF)*** populations in the region. No areas of the site contain a native Delhi soils plant community or exposed natural or semi-natural open areas with unconsolidated wind-worked granitic soils or dunes most commonly associated with potential DSFF habitat. Long-standing and recurring exposure to various anthropogenic substrate disturbances has substantial negative effects on potential DSFF habitat and may prevent suitable DSFF microhabitat soil conditions from developing. The underlying soil environment appears to be the most definitive factor of whether an area could potentially support DSFF. Moreover, the subject site would not be considered an important or viable property for preservation or restoration due to absence of suitable habitat, geographic location relative to known or potential occupied or sites, and surrounding commercial land uses that have long since fragmented habitats in the area. In view of the highly degraded site conditions and analyses of correlative habitat information from a wide range (e.g., relatively disturbed to more natural habitats) of occupied DSFF habitats in the region, the site does not contain habitat suitable to support or sustain DSFF.

Conclusion

Results of the habitat suitability evaluation conducted in March 2018 indicate that habitats located within the ±5.27-acre site represent low biological resource values based on the degree in which expected impacts to on-site resources would meet the criteria discussed above (1-5) and the context in which they occur (e.g., highly disturbed site conditions present in a predominantly degraded and isolated environment). The existing degraded condition of the site is the direct consequence of long-standing discing activities resulting in low biological diversity (e.g., dominance of non-native species), absence of special-status plant communities, and low potential for special-status species to utilize or reside on site. Construction activities would not be expected to directly impact federal- or state-listed threatened or endangered species, jeopardize the continued existence of listed species (or special-status species), nor directly impact designated critical habitat. Site development would also not be expected to substantially alter the diversity of plants or wildlife in the area because of current degraded site conditions. The loss of these habitats would not be expected to substantially affect special-status resources or cause a population of plant or wildlife species to drop below self-sustaining levels.

Although no native habitat types are present, and no listed species (currently protected by state or federal endangered species acts) are expected to occur due to absence of suitable habitat, the potential presence of native nesting birds may impose some degree of constraint to development depending upon the nature of both direct and indirect impacts on these resources (if present), as well as on the particular species and seasonal timing of construction activities. During permitting procedures, certain measures (generally described in Discussion section) to avoid or further reduce potential project-related impacts to sensitive biological resources may be necessary pursuant to CEQA.

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I hereby certify that the statements and exhibits furnished herein present the data and information required for this biological survey, and that the facts, statements, and information presented herein are true and correct to the best of my knowledge and belief. If you have any questions regarding the results presented in this report, please don't hesitate to call.

Sincerely,

Ecological Sciences, Inc.

Scott D. Cameron
Principal Biologist

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APPENDIX E

Cultural Resources

A PHASE I CULTURAL RESOURCES ASSESSMENT FOR THE SIXTH AND CENTER PROJECT

CITY OF RANCHO CUCAMONGA, SAN BERNARDINO COUNTY, CALIFORNIA

APN 209-262-25

Project Site Location: Section 14, Township 1 South,
Range 7 West of the *Guasti* USGS Quadrangle Topographic Map

Prepared on Behalf of:

Sixth and Center, LLC
1360 Reynolds Avenue, Suite 112
Irvine, California 92614

Prepared for:

City of Rancho Cucamonga
10500 Civic Center Drive
Rancho Cucamonga, California 91730

Prepared by:

Brian F. Smith, Principal Investigator,
and Tracy A. Stropes, M.A., RPA
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

April 21, 2016

Fieldwork Performed: February 22, 2016
Key Words: Survey of approximately 5.4 acres; negative; no cultural resources identified.

Archaeological Report Summary Information

Author(s):	Brian F. Smith, Principal Investigator, and Tracy A. Stropes, M.A., RPA
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	April 21, 2016
Report Title:	A Phase I Cultural Resources Assessment for the Sixth and Center Project, City of Rancho Cucamonga, San Bernardino County, California
Prepared on Behalf of:	Sixth and Center, LLC 1360 Reynolds Avenue, Suite 112 Irvine, California 92614
Prepared for:	City of Rancho Cucamonga 10500 Civic Center Drive Rancho Cucamonga, California 91730
Assessor's Parcel Number(s):	209-262-25
USGS Quadrangle:	Section 14, Township 1 South, Range 7 West of the *Guasti* USGS topographic quadrangle map
Study Area:	Approximately 5.4 acres
Key Words:	Archaeological survey program; negative; City of Rancho Cucamonga; project area is approximately 5.4 acres; *Guasti* USGS topographic quadrangle; no cultural resources identified.

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Appendices

**Deleted for public review and bound separately in the Confidential Appendix*

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1.0 MANAGEMENT SUMMARY/ABSTRACT

The following report describes the results of the cultural resources survey conducted by Brian F. Smith and Associates, Inc. (BFSA) for the Sixth and Center Project. The survey included approximately 5.4 acres located in the city of Rancho Cucamonga, San Bernardino County, California. The project, as proposed by Sixth and Center, LLC, is the planned construction of three industrial buildings totaling 86,772 square feet. The southwest corner of the project area is located at the northeast corner of the intersection of Center Avenue and Sixth Street in the city of Rancho Cucamonga. Specifically, this project may be found in Section 14 of the USGS 7.5-minute *Guasti, California* topographic quadrangle map, Township 1 South, Range 7 West. The project area includes Assessor's Parcel Number (APN) 209-262-25. This study by BFSA was conducted in compliance with the California Environmental Quality Act (CEQA) and the environmental guidelines of the City of Rancho Cucamonga to locate and record any cultural resources present within the project.

The property consists of one mostly flat parcel that is currently vacant and has been previously graded and disked. Vegetation within the project boundaries consists of heavy grass and weed growth. The entire property has been affected by modern grading, disking, and fire hazard/weed abatement activities. BFSA conducted the assessment to locate and record any cultural resources identified within the project area in compliance with CEQA and following City of Rancho Cucamonga cultural resource guidelines. During the survey, no artifacts or cultural resources were discovered, and therefore, no further archaeological study is required to complete the archaeological assessment of the Sixth and Center Project. A copy of this report will be permanently filed with the South Central Coastal Information Center (SCCIC) at California State University, Fullerton (CSU Fullerton). All notes, photographs, and other materials related to this project will be curated at the archaeological laboratory of BFSA in Poway, California.

1.1 Purpose of Investigation

The purpose of this investigation was to complete a records search of previously recorded archaeological sites on or near the property, survey the project acreage, identify any archaeological resources within the project, and test and evaluate any cultural resources that may be impacted by the proposed development. The project site plan (see Figure 2.0–3) shows the configuration of the industrial buildings proposed on APN 209-262-25.

1.2 Recommendation Summary

The Sixth and Center Project will not result in direct impacts to recorded cultural resources and no mitigation measures will be recommended as a condition of approval.

2.0 INTRODUCTION

BFSA was retained by Sixth and Center, LLC to conduct a cultural resources survey of the proposed Sixth and Center Project in the city of Rancho Cucamonga in San Bernardino County. The archaeological survey was conducted in order to comply with CEQA and City of Rancho Cucamonga cultural resource guidelines with regards to development-generated impacts to cultural resources. The project is located in an area of moderate cultural resource sensitivity, as is suggested by known site density and predictive modeling. Sensitivity for cultural resources in a given area is usually indicated by known settlement patterns, which in the southwestern San Bernardino County area are focused around environments with accessible food and water.

The Sixth and Center Project proposes to construct three industrial buildings totaling 86,772 square feet. The project is an approximately 5.4-acre property located in the city of Rancho Cucamonga within southwestern San Bernardino County, California (APN 209-262-25) (Figure 2.0–1). The project is located at the northeast corner of the intersection of Center Avenue and Sixth Street in the city of Rancho Cucamonga. Specifically, the project is located in Section 14 of the USGS 7.5-minute *Guasti, California* topographic map, Township 1 South, Range 7 West (Figure 2.0–2). The project, as proposed by the applicant, will consist of three industrial buildings, associated parking, and landscaping (Figure 2.0–3).

Principal Investigator Brian F. Smith directed the cultural resources study for the project and conducted the pedestrian survey with assistance from field archaeologist Clarence Hoff. The survey was conducted in five-meter interval transects. The survey conditions were poor, as approximately 30 percent of the ground surface was visible. The property is covered with a mixture of dense grasses and weeds, with scattered patches of clear soils. The technical report was prepared by Principal Investigator Brian Smith and Tracy Stropes, M.A., RPA. Tracy Stropes created the report graphics and Elena Goralogia conducted technical editing and report production with assistance from Courtney Accardy. Qualifications of key personnel are provided in Appendix A.

2.1 Previous Work

The records search for the property from the SCCIC at CSU Fullerton reported that 13 cultural resource sites and 18 reports have been recorded within a one-mile radius of the project. A discussion of the complete records search is provided in Section 4.1 of this report.

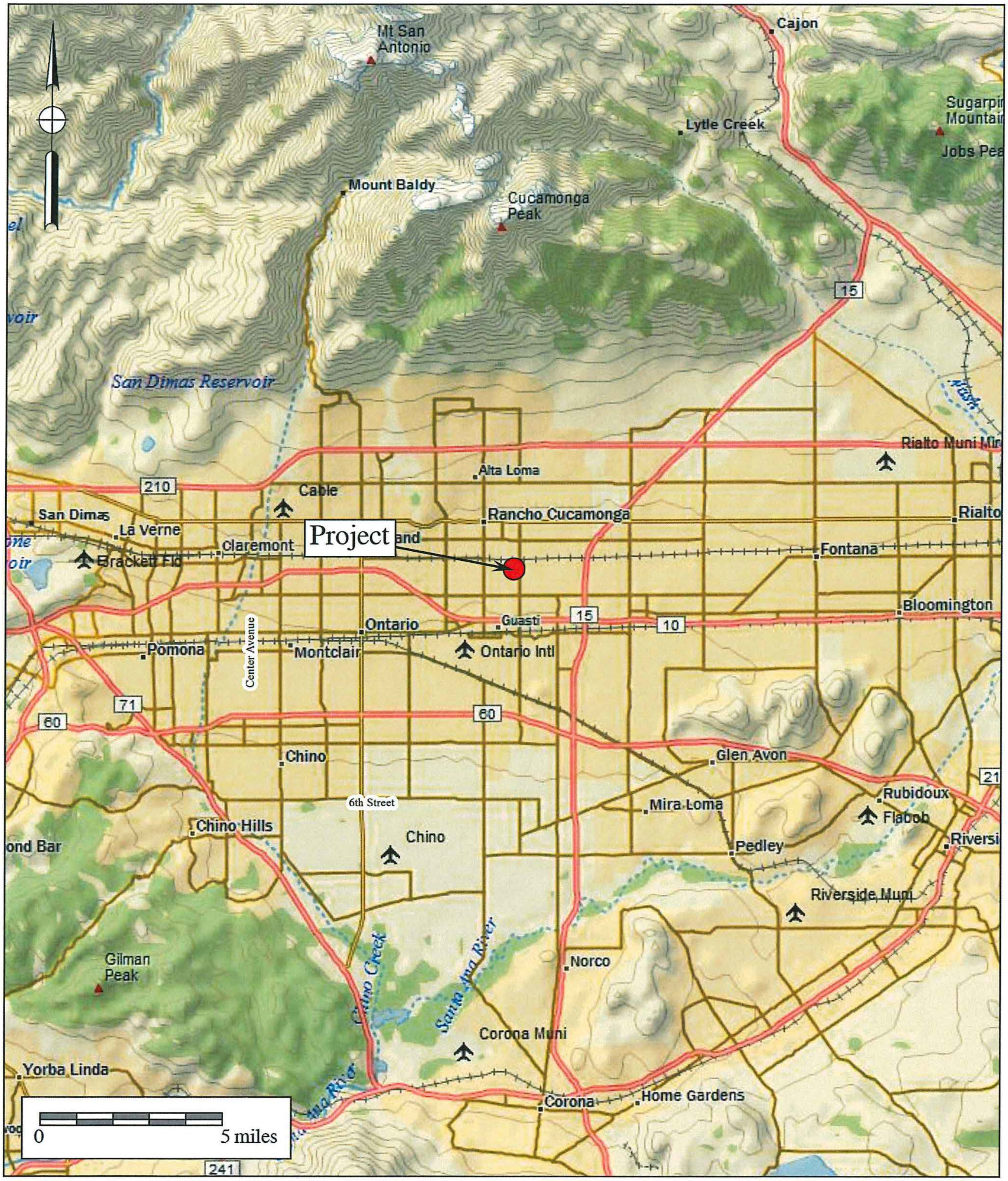

Figure 2.0–1

General Location Map

The Sixth and Center Project

DeLorme World Base Map Service (1:250,000 series)

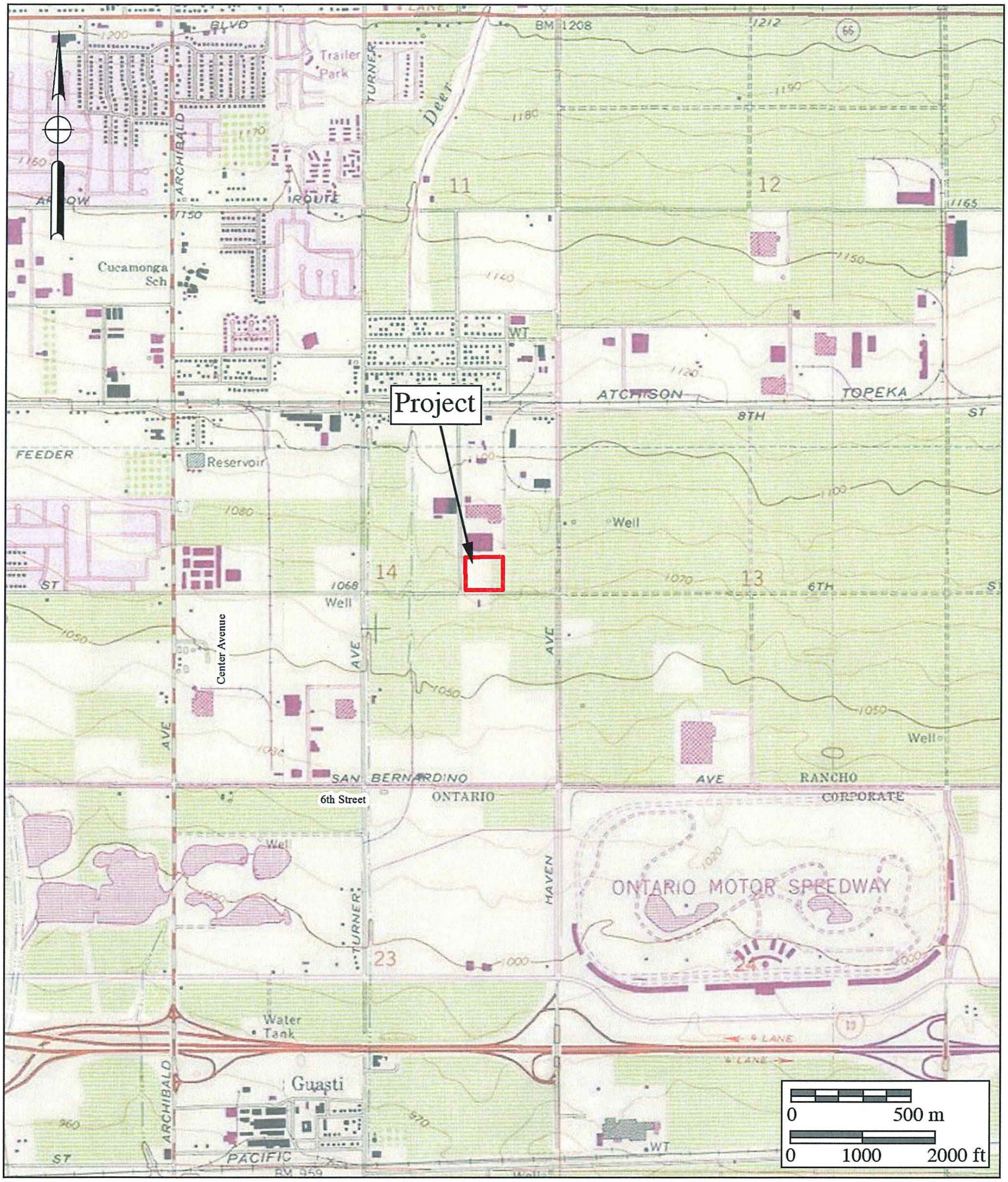

Figure 2.0–2

Project Location Map

The Sixth and Center Project

USGS *Guasti* Quadrangle (7.5-minute series)

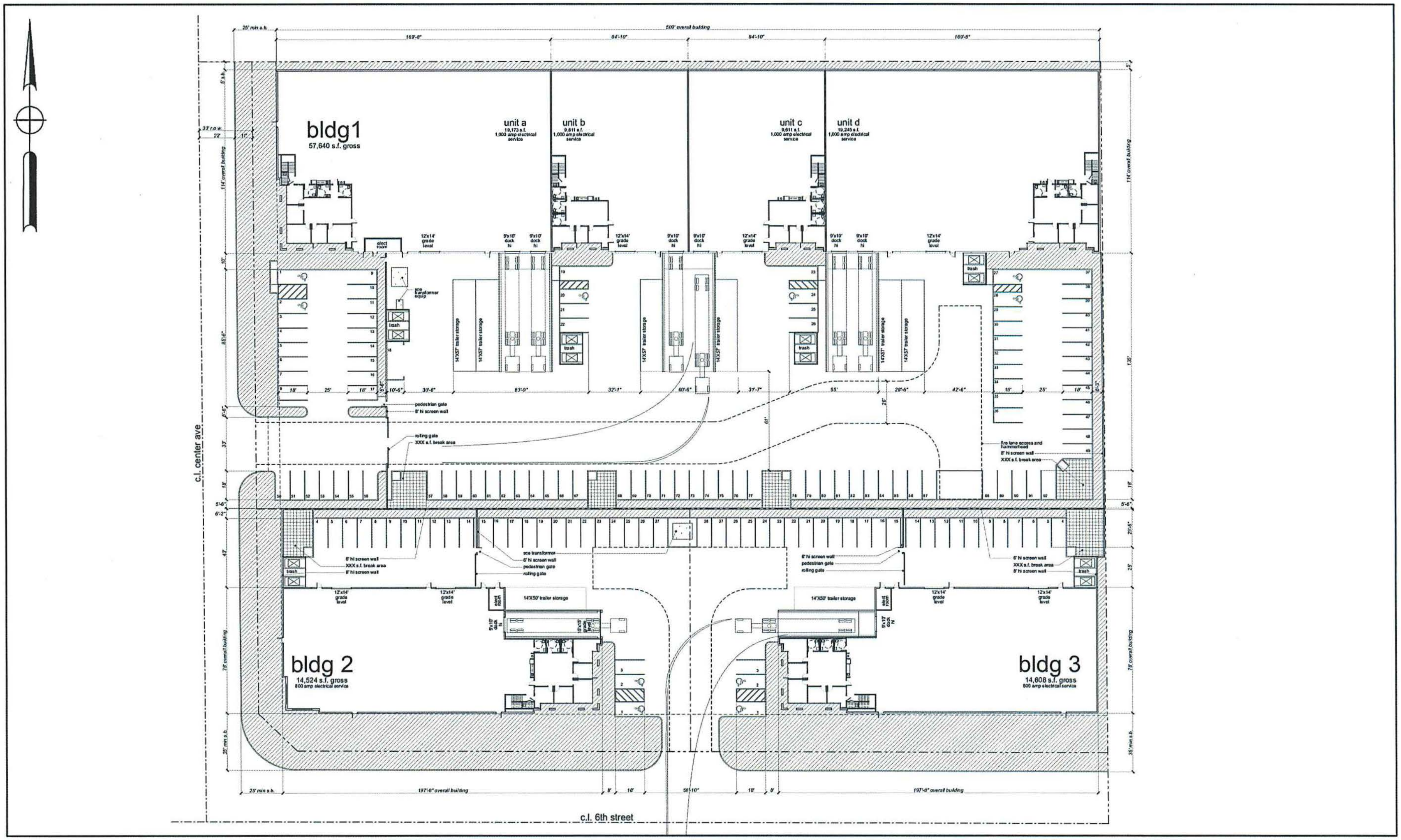

Figure 2.0–3

Site Plan

The Sixth and Center Project

Brian F. Smith & Associates, Inc.
Archaeology · History · Paleontology · Biology

2.2 Project Setting

The proposed project site is generally located in southwestern San Bernardino County, northeast of the intersection of Center Avenue and Sixth Street. The subject site is located in the north-central section of Chino Valley in the foothills of the eastern end of the San Gabriel Mountains, located to the west of the San Bernardino Mountains. The San Gabriel Mountains extend from Newall Pass in Los Angeles County to the east to the Cajon Pass in San Bernardino County. These mountains are part of the Transverse Ranges with peaks exceeding 9,000 feet above mean sea level (AMSL). The project area's lowest point is located at its southwest corner and its highest point is located at its northeastern corner. Elevations within the project area range from approximately 327 to 330 feet AMSL. The entire project area has been previously disturbed by grading and disking. Currently, vegetation within the project area is characterized as primarily non-native grasses and weeds.

2.3 Cultural Setting

2.3.1 Prehistoric Period

Paleo Indian, Archaic Period Milling Stone Horizon, and the Late Prehistoric Shoshonean groups are the three general cultural periods represented in San Bernardino County. The following discussion of the cultural history of San Bernardino County references the San Dieguito Complex, the Encinitas Tradition, the Milling Stone Horizon, the La Jolla Complex, the Pauma Complex, and the San Luis Rey Complex, since these culture sequences have been used to describe archaeological manifestations in the region. The Late Prehistoric component in the southwestern area of San Bernardino County was represented by the Gabrielino and the Serrano Indians. According to Kroeber (1976), the Serrano probably owned a stretch of the Sierra Madre from Cucamonga east to above Mentone and halfway up to San Timoteo Canyon, including the San Bernardino Valley and just missing Riverside County. However, Kroeber (1976) also states that this area has been assigned to the Gabrielino, "which would be a more natural division of topography, since it would leave the Serrano pure mountaineers."

Absolute chronological information, where possible, will be incorporated into this discussion to examine the effectiveness of continuing to use these terms interchangeably. Reference will be made to the geological framework that divides the culture chronology of the area into four segments: late Pleistocene (20,000 to 10,000 years before the present [YBP]), early Holocene (10,000 to 6,650 YBP), middle Holocene (6,650 to 3,350 YBP), and late Holocene (3,350 to 200 YBP).

Paleo Indian Period (Late Pleistocene: 11,500 to circa 9,000 YBP)

The Paleo Indian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basin lands (Moratto 1984). However, by the terminus of the late Pleistocene, the climate became warmer, which caused glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The coastal shoreline at 10,000 YBP, depending upon the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

Paleo Indians were likely attracted to multiple habitat types, including mountains, marshlands, estuaries, and lakeshores. These people likely subsisted using a more generalized hunting, gathering, and collecting adaptation, utilizing a variety of resources including birds, mollusks, and both large and small mammals (Erlandson and Colten 1991; Moratto 1984; Moss and Erlandson 1995).

Archaic Period (Early and Middle Holocene: circa 9,000 to 1,300 YBP)

The Archaic Period of prehistory began with the onset of the Holocene around 9,000 YBP. The transition from the Pleistocene to the Holocene was a period of major environmental change throughout North America (Antevs 1953; Van Devender and Spaulding 1979). The general warming trend caused sea levels to rise, lakes to evaporate, and drainage patterns to change. In southern California, the general climate at the beginning of the early Holocene was marked by cool/moist periods and an increase in warm/dry periods and sea levels. The coastal shoreline at 8,000 YBP, depending upon the particular area of the coast, was near the 20-meter isobath, or one to four kilometers further west than its present location (Masters 1983).

The rising sea level during the early Holocene created rocky shorelines and bays along the coast by flooding valley floors and eroding the coastline (Curray 1965; Inman 1983). Shorelines were primarily rocky with small littoral cells, as sediments were deposited at bay edges but rarely discharged into the ocean (Reddy 2000). These bays eventually evolved into lagoons and estuaries, which provided a rich habitat for mollusks and fish. The warming trend and rising sea levels generally continued until the late Holocene (4,000 to 3,500 YBP).

At the beginning of the late Holocene, sea levels stabilized, rocky shores declined, lagoons filled with sediment, and sandy beaches became established (Gallegos 1985; Inman 1983; Masters 1994; Miller 1966; Warren and Pavesic 1963). Many former lagoons became saltwater marshes surrounded by coastal sage scrub by the late Holocene (Gallegos 2002). The sedimentation of the lagoons was significant in that it had profound effects on the types of resources available to prehistoric peoples. Habitat was lost for certain large mollusks, namely *Chione* and *Argopecten*, but habitat was gained for other small mollusks, particularly *Donax* (Gallegos 1985; Reddy 2000). The changing lagoon habitats resulted in the decline of larger shellfish, the loss of drinking water, and the loss of Torrey Pine nuts, causing a major depopulation of the coast as people shifted inland to reliable freshwater sources and intensified their exploitation of terrestrial small game and plants, including acorns (originally proposed by Rogers 1929; Gallegos 2002).

The Archaic Period in southern California is associated with a number of different cultures, complexes, traditions, and horizons, including San Dieguito, La Jolla, Encinitas, Milling Stone, and Pauma, as well as the Intermediate Period.

Late Prehistoric Period (Late Holocene: 1,300 YBP to 1790)

Approximately 1,350 YBP, a Shoshonean-speaking group from the Great Basin region moved into San Bernardino County, marking the transition to the Late Prehistoric Period. This period has been characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, technological innovations. Technological developments during this period included the introduction of the bow and arrow between A.D. 400 and 600 and the introduction of ceramics. Atlatl darts were replaced by smaller arrow darts, including the Cottonwood series points. Other hallmarks of the Late Prehistoric Period include extensive trade networks as far reaching as the Colorado River Basin and cremation of the dead.

Protohistoric Period (Late Holocene: 1790 to Present)

The territory of the Gabrielino at the time of Spanish contact covers much of present-day Los Angeles and Orange counties. The southern extent of this culture area is bounded by Aliso Creek, the eastern extent is located east of present-day San Bernardino along the Santa Ana River, the northern extent includes the San Fernando Valley, and the western extent includes portions of the Santa Monica Mountains. The Gabrielino also occupied several Channel Islands including Santa Barbara Island, Santa Catalina Island, San Nicholas Island, and San Clemente Island. Because of their access to certain resources, including a steatite source from Santa Catalina Island, this group was among the wealthiest and most populous aboriginal groups in all of southern California. Trade of materials and resources controlled by the Gabrielino extended as far north as the San Joaquin Valley, as far east as the Colorado River, and as far south as Baja California (Bean and Smith 1978; Kroeber 1976).

The Gabrielino lived in permanent villages and smaller resource gathering camps occupied at various times of the year depending upon the seasonality of the resource. Larger villages were comprised of several families or clans, while smaller seasonal camps typically housed smaller family units. The coastal area between San Pedro and Topanga Canyon was the location of primary subsistence villages, while secondary sites were located near inland sage stands, oak groves, and pine forests. Permanent villages were located along rivers and streams, as well as in sheltered areas along the coast. As previously mentioned, the Channel Islands were also the locations of relatively large settlements (Bean and Smith 1978; Kroeber 1976).

Resources procured along the coast and on the islands were primarily marine in nature and included tuna, swordfish, ray and shark, California sea lion, Stellar sea lion, harbor seal, northern elephant seal, sea otter, dolphin and porpoise, various waterfowl species, numerous fish species, purple sea urchin, and mollusk, such as rock scallop, California mussel, and limpet. Inland resources included oak acorn, pine nut, Mohave yucca, cacti, sage, grass nut, deer, rabbit, hare, rodent, quail, duck, and a variety of reptiles such as western pond turtle and numerous different snakes (Bean and Smith 1978; Kroeber 1976).

The social structure of the Gabrielino is little known; however, there appears to have been at least three social classes: 1) the elite, which included the rich, chiefs, and their immediate family; 2) a middle class, which included people of relatively high economic status or long-established lineages; and 3) a class of people that included most other individuals in the society. Villages were politically autonomous units comprised of several lineages. During times of the year when certain seasonal resources were available, the village would divide into lineage groups and move out to exploit them, returning to the village between forays (Bean and Smith 1978; Kroeber 1976).

Each lineage had its own leader, with the village chief coming from the dominant lineage. Several villages might be allied under a paramount chief. Chiefly positions were of an ascribed status, most often passed to the eldest son. Chiefly duties included providing village cohesion, leading warfare and peace negotiations with other groups, collecting tribute from the village(s) under his jurisdiction, and arbitrating disputes within the village(s). The status of the chief was legitimized by his safekeeping of the sacred bundle, a representation of the link between the material and spiritual realms and the embodiment of power (Bean and Smith 1978; Kroeber 1976).

Shamans were leaders in the spirit realm. The duties of the shaman included conducting healing and curing ceremonies, guarding the sacred bundle, locating lost items, identifying and collecting poisons for arrows, and making rain (Bean and Smith 1978; Kroeber 1976).

Marriages were made between individuals of equal social status and, in the case of powerful lineages, marriages were arranged to establish political ties between the lineages (Bean and Smith 1978; Kroeber 1976).

Men conducted the majority of the heavy labor, hunting, fishing, and trading with other groups. Women's duties included gathering and preparing plant and animal resources, and making baskets, pots, and clothing (Bean and Smith 1978; Kroeber 1976).

Gabrielino houses were domed, circular structures made of thatched vegetation. Houses varied in size, and could house from one to several families. Sweathouses (semicircular, earth-covered buildings) were public structures used in male social ceremonies. Other structures included menstrual huts and a ceremonial structure called a *yuvar*, an open-air structure built near the chief's house (Bean and Smith 1978; Kroeber 1976).

Clothing was minimal; men and children most often went naked, while women wore deerskin or bark aprons. In cold weather, deerskin, rabbit fur, or bird skin (with feathers intact) cloaks were worn. Island and coastal groups used sea otter fur for cloaks. In areas of rough terrain, yucca fiber sandals were worn. Women often used red ochre on their faces and skin for adornment or protection from the sun. Adornment items included feathers, fur, shells, and beads (Bean and Smith 1978; Kroeber 1976).

Hunting implements included wooden clubs, sinew-backed bows, slings, and throwing clubs. Maritime implements included rafts, harpoons, spears, hook and line, and nets. A variety of other tools included deer scapulae saws, bone and shell needles, bone awls, scrapers, bone or shell flakers, wedges, stone knives and drills, metates, mullers, manos, shell spoons, bark platters, and wooden paddles and bowls. Baskets were made from rush, deer grass, and skunkbush. Baskets were fashioned for hoppers, plates, trays, and winnowers for leaching, straining, and gathering. Baskets were also used for storing, preparing, and serving food, and for keeping personal and ceremonial items (Bean and Smith 1978; Kroeber 1976).

The Gabrielino had exclusive access to soapstone, or steatite, procured from Santa Catalina Island quarries. This highly prized material was used for making pipes, animal carvings, ritual objects, ornaments, and cooking utensils. The Gabrielino profited well from trading steatite since it was valued so much by groups throughout southern California (Bean and Smith 1978; Kroeber 1976).

The Serrano, however, were primarily hunters and gatherers. Individual family dwellings were likely circular, domed structures. Vegetal staples varied with locality; acorns and piñon nuts were found in the foothills, and mesquite, yucca roots, cacti fruits, and piñon nuts were found in or near the desert regions. Diets were supplemented with other roots, bulbs, shoots, and seeds (Heizer 1978). Deer, mountain sheep, antelopes, rabbits, and other small rodents were among the principal food packages. Various game birds, especially quail, were also hunted. The bow and arrow was used for large game, while smaller game and birds were killed with curved throwing sticks, traps, and snares. Occasionally, game was hunted communally, often during mourning ceremonies (Benedict 1924; Drucker 1937; Heizer 1978). In general, manufactured goods included baskets, some pottery, rabbit-skin blankets, awls, arrow straighteners, sinew-backed bows, arrows, fire drills, stone pipes, musical instruments (rattles, rasps, whistles, bull-roarers, and flutes), feathered costumes, mats, bags, storage pouches, and nets (Heizer 1978). Food acquisition and processing required the manufacture of additional items such as knives, stone or bone scrapers, pottery trays and bowls, bone or horn spoons, and stirrers. Mortars, made of either stone or wood, and metates were also manufactured (Strong 1971; Drucker 1937; Benedict 1924).

2.3.2 Historic Period

The historic background of the project area began with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations, as well as expanding the knowledge of and access to new resources in the region (Brigandi 1998). In the late eighteenth century, the San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego County) missions began colonizing southern California, and gradually expanded their use of the interior valley (presently western Riverside County) for raising grain and cattle to support the missions. The San Gabriel Mission claimed lands in what is presently Jurupa, Riverside, San Jacinto, and the San Gorgonio Pass, while the San Luis Rey Mission claimed land in what is presently Lake Elsinore, Temecula, and Murrieta (American Local History Network: Riverside County, California 1998). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1964). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social conflicts due to the introduction of an entirely new social order (Cook 1976).

In the mid- to late 1770s, Juan Bautista de Anza passed through much of Riverside County while searching for an overland route from Sonora, Mexico to San Gabriel and Los Angeles, where he described fertile valleys, lakes and sub-desert areas (American Local History Network: Riverside County, California 1998; Riverside County n.d.). In 1797, Father Presidente Lausen, Father Norberto de Santiago, and Corporal Pedro Lisalde led an expedition from Mission San Juan Capistrano through southwestern Riverside County in search of a new mission site, before constructing Mission San Luis Rey in northern San Diego County (Brigandi 1998).

While no missions were ever built in what would become Riverside County (American Local History Network: Riverside County, California 1998), many mission outposts, or *asistencias,* were established in the early years of the nineteenth century to extend the missions' influence to the backcountry (Brigandi 1998). Two outposts that were located in Riverside County include San Jacinto and Temecula.

Mexico gained independence in 1822 and desecularized the missions in 1832, signifying the end of the Mission Period (Brigandi 1998; Riverside County n.d.). By this time, the missions owned some of the best and most fertile land in southern California. In order for California to develop, the land would have to be made productive enough to turn a profit (Brigandi 1998). The new government began distributing the vast mission holdings to wealthy and politically connected Mexican citizens. The "grants" were called "ranchos," of which Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo were located in present-day Riverside County. Many of these ranchos have lent their names to modern-day locales (American Local History Network: Riverside County, California 1998).

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent upon the mission system became evident when, in 1838, a group of Native Americans from the San Luis Rey Mission petitioned government officials in San Diego to relieve suffering at the hands of the rancheros, stating:

> We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission ... We plead and beseech you ... to grant us a Rev. Father for this place. We have been accustomed to the Rev. Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely upon prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become upon the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans as compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The ranchers, both Mexican and American, did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook 1976).

In 1846, war erupted between Mexico and the United States. In 1848, with the signing of the Treaty of Guadalupe Hidalgo, the region was annexed as a territory of the United States, and in 1850, California became a state. These events generated a steady flow of settlers into the area, including gold miners, entrepreneurs, health-seekers, speculators, politicians, adventurers, seekers of religious freedom, and individuals desiring to create utopian colonies.

General History of Rancho Cucamonga

The word "Cucamonga" is Shoshone in origin, meaning "sandy place," and was first documented in 1811 in records of Mission San Gabriel. The 13,000-acre Rancho Cucamonga was granted to Tiburcio Tapia, the president of the Los Angeles City Council, in 1839 (City of Rancho Cucamonga 2010). Tapia lived on the land granted to him, on top of Red Hill, planted vineyards, and built a small winery (enlarged and called Thomas Winery in 1933 and Filippi Vineyards in 1967). These historic winery buildings are located at the northeast corner of Foothill Boulevard and Vineyard Avenue and are currently used for commercial purposes (City of Rancho Cucamonga 2010).

Tapia's daughter Maria Merced Tapia de Prudhomme inherited Rancho Cucamonga after Tapia died in 1845, and her husband Leon Victor Prudhomme took control until he sold it to John Rains in 1858 (City of Rancho Cucamonga 2010). Rains expanded the vineyards on the rancho with the addition of roughly 125,000 to 150,000 new vines (City of Rancho Cucamonga 2010). When Rains was found murdered in 1862, his widow Dona Maria Merced Williams de Rains inherited the rancho, but encountered financial problems and lost it, effectively ending the rancho era in the Cucamonga area (City of Rancho Cucamonga 2010).

The city of Rancho Cucamonga was incorporated in 1977, and included three towns:

Cucamonga, Alta Loma, and Etiwanda. In the late nineteenth century, agriculture became the main industry in the area, including citrus fruits and wine-making grapes (City of Rancho Cucamonga 2010). Although the agriculture industry in Rancho Cucamonga has changed over time, it remains a recognizable feature of the city's landscape (City of Rancho Cucamonga 2010).

2.4 Research Goals

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is the southwestern portion of San Bernardino County. The scope of work for the archaeological program conducted for the Sixth and Center Project included the survey of approximately 5.4 acres and the subsequent evaluation of potential cultural resources. Given the area involved and the narrow focus of the cultural resources study, the research design for this project was necessarily limited and general in nature. Since the main objective of the investigation was to identify the presence of, significance of, and potential impacts to cultural resources, the goal here is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

Although initial site evaluation investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The basic research effort employed is focused upon gathering sufficient data to determine the boundaries of any identified resource, the depth, stratigraphy, and contents of any subsurface deposits, and the overall integrity of the site. Testing and recordation of the contents of the site would provide the basis to complete an analysis of spatial relationships of artifacts, features, and natural resources. Ultimately, this information forms the foundation to determine the cultural affiliation of the site, the period of occupation, site function, and potential to address more focused research questions. The following research questions take into account the small size and location of the project area discussed above.

Research Questions:

- Can located cultural resources be situated with a specific time period, population, or individual?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation? What are the site activities? What is the site function? What resources were exploited?

- How do the located sites compare to others reported from different surveys conducted in the area?
- How do the located sites fit existing models of settlement and subsistence for valley environments of the region?

Data Needs

At the survey level, the principle research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research were undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project area;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 METHODOLOGY

The archaeological program for the Sixth and Center Project consisted of an institutional records search, an intensive pedestrian survey of the approximately 5.4-acre project area, and preparation of a technical study. This archaeological study conformed to City of Rancho Cucamonga cultural resource guidelines. Statutory requirements of CEQA and subsequent legislation (Section 15064.5) were followed in evaluating the significance of cultural resources. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO March, 1995).

3.1 Archaeological Records Search

The records search conducted by the SCCIC at CSU Fullerton was reviewed for an area of one mile surrounding the project in order to determine the presence of any previously recorded sites. Results of the records search are provided in Appendix B and discussed in Section 4.1. The SCCIC also provided the standard review of the National Register of Historic Places and the Office of Historic Preservation Historic Property Directory. Land patent records, held by the Bureau of Land Management (BLM) and accessible through the BLM General Land Office (GLO) website, were also reviewed for pertinent project information. In addition, the BFSA research library was consulted for any relevant historical information.

3.2 Field Methodology

In accordance with City CEQA review requirements, an intensive pedestrian reconnaissance was conducted that employed a series of parallel survey transects spaced at five-meter intervals to locate archaeological sites within the project. The archaeological survey of the project was conducted on February 29, 2016. The entire project was covered by the survey process and photographs were taken to document project conditions during the survey (see Section 4.2). Ground visibility throughout the property was poor with approximately 30 percent of the ground visible. No artifacts or cultural resources were observed as a result of the survey.

3.3 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, a brief description of the setting, research methods employed, and the overall results of the survey. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of this report will be placed at the SCCIC at CSU Fullerton. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate Department of Parks and Recreation (DPR) site forms, which will be filed with the SCCIC.

3.4 Native American Consultation

The analysis of nearby site components and artifacts did not indicate Native American religious, ritual, or other special activities at this location. In addition, BFSA requested a review of the Sacred Lands Files (SLF) by the Native American Heritage Commission (NAHC) to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the project. The NAHC SLF search did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. All correspondence is provided in Appendix C.

3.5 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of San Bernardino County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA provide the guidance for making such a determination. The following sections detail the CEQA criteria that a resource must meet in order to be determined important.

3.5.1 California Environmental Quality Act

According to CEQA (§15064.5a), the term "historical resource" includes the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (Public Resources Code SS5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Public Resources Code SS5024.1, Title 14, Section 4852) including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
b) Is associated with the lives of persons important in our past;
c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2) The significance of an historical resource is materially impaired when a project:

a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,
c) Demolishes or materially alters in an adverse manner those physical

characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
3) If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21803.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4) If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety

Code Section 7050.5).

2) The requirement of CEQA and the Coastal Act.

4.0 RESULTS

4.1 Records Search Results

An archaeological records search for the project and the surrounding area within a one-mile radius was conducted by the SCCIC at CSU Fullerton. The records search for the project did not identify any previously recorded cultural resources within the Sixth and Center Project. The records search did identify 13 cultural resources located within a one-mile radius of the project area, which include historic structures, a historic artifact deposit, a historic railroad spur, and historic wineries. Brief descriptions of the sites located within a one-mile radius are provided in Table 4.1–1 and the complete records search results are provided in Appendix B.

Table 4.1–1
Archaeological Sites Located
Within One Mile of the Sixth and Center Project

Site(s)	Description
SBR-4200/H, SBR-11,278/H, SBR-11,279/H, SBR-11,280/H, P-36-016421, P-36-016422, P-36-016436, P-36-016438, and P-36-016439	Historic buildings
SBR-11,276/H	Historic trash deposit
SBR-11,277/H	Historic railroad spur
SBR-11,281/H	Historic winery district
P-36-016423	Historic winery

The records search also indicated that no reports/studies have been conducted for the property or within the project area; however, a total of 18 cultural resource studies have been conducted within a one-mile radius of the proposed project area (Table 4.1–2).

Table 4.1–2
Previous Studies Conducted
Within One Mile of the Sixth and Center Project

Billat, Lorna
2006 Archibald/CA-7134K. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Bonner, Wayne H. and Marnie Aislin-Kay
2005 Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate ES-043-02 (Mt. Carmel Catholic), 10079 8th Street, Rancho Cucamonga, San Bernardino County, California. Michael Brandman Associates. Unpublished report on

file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

2006 Cultural Resource Records Search Results and Site Visit for Global Signal Telecommunications Facility Candidate 3021590 (Laird Construction) 9460 Lucas Ranch Road, Rancho Cucamonga, San Bernardino County, California. Michael Brandman Associates. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

2007 Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Candidate LA2247A (Global Signal-Laird Construction) 9460 Lucas Ranch Road, Rancho Cucamonga, San Bernardino County, California. Michael Brandman Associates. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Budinger, Fred

2003 A Section 106 Historic Preservation Review of the Proposed Verizon Wireless Winery Unmanned Cellular Telecommunications Site to Be Located at 9951 8th Street, Rancho Cucamonga, San Bernardino County, California. 47PP. Tetra Tech. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Duke, Curt

2001 Cultural Resource Assessment: Cingular Wireless Facility No. SB139-01, San Bernardino County, California. 12PP. LSA. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Encarnacion, Deirdre

2005 Historical/Archaeological Resources Survey Report: San Antonio Channel (West Edison) Recycled Water Pipeline Project in the Cities of Montclair and Ontario, San Bernardino County, California. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Goodwin, Riordan

2004a Cultural Resource Assessment: PGP Crescent Business Center, City of Rancho Cucamonga, San Bernardino County, California. 11PP. LSA. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

2004b Archaeological Monitoring for PGP Crescent Business Center, City of Rancho Cucamonga, San Bernardino County, California. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Hogan, Michael and Bai Tang

2004 Addendum to Historical/Archaeological Resources Survey: Fourth St. Recycled Water

Pipeline in and Near the Cities of Ontario & Rancho Cucamonga, San Bernardino County, California. CRM Tech. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Padon, Beth

2012 Cultural Resource Assessment Study for Verizon "Hemlock" Site in Rancho Cucamonga, San Bernardino County, California. Discovery Works. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Pollock, Katherine H., Virginia Austerman, and Michael K. Lerch

2005 Archaeological Survey of a 2.75 Mile Section of the Etiwanda-Archline-Cucamonga-Genamic 66kV Transmission Line to be Rebuilt, San Bernardino County, California. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Schmidt, James J.

2007 DWO 4505-3127: Rancho Vista New AA Station Project, Etiwanda Area, San Bernardino County, California. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Sider, W.A.

1976 Cucamonga Creek 1776-1976 After 200 Years. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Tang, Bai "Tom"

2002 Identification & Evaluation of Historic Properties: Fourth St. Recycled Water Pipeline in and Near the Cities of Ontario & Rancho Cucamonga, San Bernardino County, California. 29PP. CRM Tech. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

2010 Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Wlodarski, Robert J.

2010 Cultural Resources Record Search and Archaeological Survey Results for the Proposed Royal Street Communications, California, LLC, Site LA2242B (Cucamonga Water District) Located at 9111 Cleveland Avenue, Rancho Cucamonga, San Bernardino County, California, 91730. HEART. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

Wlodarski, Robert J. and Wayne H. Bonner
2005 CA7134G Archibald-Tibbetts, 9624 Hermosa Avenue, Rancho Cucamonga, San Bernardino County, California. Unpublished report on file at the South Central Coastal Information Center at California State University, Fullerton, Fullerton, California.

The SCCIC reviewed the following historic sources:

- The National Register of Historic Places Index
- The Office of Historic Preservation, Archaeological Determinations of Eligibility
- The Office of Historic Preservation, Directory of Properties in the Historic Property Data File
- 1897 and 1955 Historic Aerial Maps

The Office of Historic Preservation, Directory of Properties in the Historic Property Data File lists sites P-36-016421, P-36-016422, P-36-016423, P-36-016436, SBR-4200/H, P-36-016438, and P-36-016439, which are recorded as the Deberard House, Danner's Market/English House, Padre Winery/Blaine Winery, Willows School, the Whitson House, the Santolucito House, and Santolucito Italian/American Market, respectively. Only one site, Site P-36-016423, was determined to be eligible for listing on the National Register, and it is currently listed on the California Register of Historical Resources.

BFSA also requested a records search of the SLF of the NAHC. The NAHC SLF search did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. All correspondence is provided in Appendix C.

The records search and literature review suggest that there is a low potential for prehistoric sites to be contained within the boundaries of the property, because the property has been graded previously, is not associated with any prehistoric water sources, and likely had minimal prehistoric food resources. Although historic sites are present within a one-mile radius of the project, the majority of these sites are located surrounding the development to the north and east of the project. Given the historic and prehistoric settlement of the region, in addition to the frequency of cultural sites known to be surrounding the project Area of Potential Effect (APE), there is a low potential for archaeological discoveries. The results of the records search suggest that historic sites should be the primary site type within the property. Based upon background research for the property and current aerial photographs, the potential for the presence of prehistoric sites is low.

4.2 Results of the Field Survey

The archaeological survey of the project was conducted on February 29, 2016. All elements of the survey were directed by Principal Investigator Brian F. Smith with assistance from field archaeologist Clarence Hoff. The archaeological survey of the property was an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately five-meter intervals. The entire property was accessible with approximately 30 percent ground visibility, which was only affected by dense grass and weeds. During the pedestrian survey, the observation was made that the property has been graded and disked in the past. The area surrounding the subject property has also been disturbed by commercial and industrial development. The property topography is relatively flat, no seasonal drainages were observed inside the project, and the surrounding areas consist of industrial and commercial buildings, paved roads, and parking lots. This characterization of a disturbed landscape is relevant to the consideration of the presence of cultural resources within the project area. Overviews of the project area are provided in Plates 4.2–1 and 4.2–2. The intensive archaeological survey of the property did not result in the identification of any cultural resources. The previous disturbance of the property may have contributed to the survey results. However, no evidence was detected during the survey to suggest the prior existence of any cultural sites on the property.

Plate 4.2–1: Overview of the project area from the northwest corner, facing southeast.

Plate 4.2–2: Overview of the project area from the southeast corner, facing northwest.

5.0 RECOMMENDATIONS

The cultural resources study for the Sixth and Center Project was negative for the presence of archaeological sites. The current survey by BFSA did not identify any cultural resources within the project APE. No potential impacts to cultural resources are associated with the proposed development of the project. The archaeological study was completed in accordance with City of Rancho Cucamonga cultural resource guidelines and CEQA significance evaluation criteria. Based upon the absence of any cultural resources on or near the APE, mitigation measures will not be required for this project. Furthermore, given the lack of potential for buried resources due to the level of previous disturbance caused by grading, monitoring of any future grading is not recommended.

6.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Brian F. Smith
Principal Investigator

April 21, 2016
Date

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APPENDIX A

Qualifications of Key Personnel

Brian F. Smith, MA

Owner, Principal Investigator

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History, and Anthropology, University of San Diego, California **1975**

Professional Memberships

Society for California Archaeology

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the Southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and

Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of An Archaic Cultural Resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Lawson Valley Project, San Diego County, California: Project manager/director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project achaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project manager/director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor to over 2,500 cultural resources management publications, a selection of which are presented below.

2015 An Archaeological/Historical Study for the Safari Highlands Ranch Project, City of Escondido, County of San Diego.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels II Project, Planning Case No. 36962, Riverside County, California.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels I Project, Planning Case No. 36950, Riverside County, California.

2015 Cultural Resource Data Recovery and Mitigation Monitoring Program for Site SDI-10,237 Locus F, Everly Subdivision Project, El Cajon, California.

2015 Phase I Cultural Resource Survey for the Woodward Street Senior Housing Project, City of San Marcos, California (APN 218-120-31).

2015 An Updated Cultural Resource Survey for the Box Springs Project (TR 33410), APNs 255-230-010, 255-240-005, 255-240-006, and Portions of 257-180-004, 257-180-005, and 257-180-006.

2015 A Phase I and II Cultural Resource Report for the Lake Ranch Project, TR 36730, Riverside County, California.

2015 A Phase II Cultural Resource Assessment for the Munro Valley Solar Project, Inyo County, California.

2014 Cultural Resources Monitoring Report for the Diamond Valley Solar Project, Community of Winchester, County of Riverside.

2014 National Historic Preservation Act Section 106 Compliance for the Proposed Saddleback Estates Project, Riverside County, California.

2014 A Phase II Cultural Resource Evaluation Report for RIV-8137 at the Toscana Project, TR 36593, Riverside County, California.

2014 Cultural Resources Study for the Estates at Del Mar Project, City of Del Mar, San Diego, California (TTM 14-001).

2014 Cultural Resources Study for the Aliso Canyon Major Subdivision Project, Rancho Santa Fe, San Diego County, California.

2014 Cultural Resources Due Diligence Assessment of the Ocean Colony Project, City of Encinitas.

2014 A Phase I and Phase II Cultural Resource Assessment for the Citrus Heights II Project, TTM 36475, Riverside County, California.

2013 A Phase I Cultural Resource Assessment for the Modular Logistics Center, Moreno Valley, Riverside County, California.

2013 A Phase I Cultural Resources Survey of the Ivey Ranch Project, Thousand Palms, Riverside County, California.

2013 Cultural Resources Report for the Emerald Acres Project, Riverside County, California.

2013 A Cultural Resources Records Search and Review for the Pala Del Norte Conservation Bank Project, San Diego County, California.

2013 An Updated Phase I Cultural Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside.

2013 El Centro Town Center Industrial Development Project (EDA Grant No. 07-01-06386); Result of Cultural Resource Monitoring.

2013 Cultural Resources Survey Report for the Renda Residence Project, 9521 La Jolla Farms Road, La Jolla, California.

2013 A Phase I Cultural Resource Study for the Ballpark Village Project, San Diego, California.

2013 Archaeological Monitoring and Mitigation Program, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN-060-032-04).

2012 Mitigation Monitoring Report for the Los Peñasquitos Recycled Water Pipeline.

2012 Cultural Resources Report for Menifee Heights (Tract 32277).

2012 A Phase I Cultural Resource Study for the Altman Residence at 9696 La Jolla Farms Road, La Jolla, California 92037.

2012 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2012 A Phase I Cultural Resource Study for the Payan Property Project, San Diego, California.

2012 Phase I Archaeological Survey of the Rieger Residence, 13707 Durango Drive, Del Mar, California 92014, APN 300-369-49.

2011 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2011 Mitigation Monitoring Report for the 1887 Viking Way Project, La Jolla, California.

2011 Cultural Resource Monitoring Report for the Sewer Group 714 Project.

2011 Results of Archaeological Monitoring at the 10th Avenue Parking Lot Project, City of San Diego, California (APNs 534-194-02 and 03).

2011 Archaeological Survey of the Pelberg Residence for a Bulletin 560 Permit Application; 8335 Camino Del Oro; La Jolla, California 92037 APN 346-162-01-00 .

2011 A Cultural Resources Survey Update and Evaluation for the Robertson Ranch West Project and an Evaluation of National Register Eligibility of Archaeological sites for Sites for Section 106 Review (NHPA).

2011 Mitigation Monitoring Report for the 43rd and Logan Project.

2011 Mitigation Monitoring Report for the Sewer Group 682 M Project, City of San Diego Project #174116.

2011 A Phase I Cultural Resource Study for the Nooren Residence Project, 8001 Calle de la Plata, La Jolla, California, Project No. 226965.

2011 A Phase I Cultural Resource Study for the Keating Residence Project, 9633 La Jolla Farms Road, La Jolla, California 92037.

2010 Mitigation Monitoring Report for the 15th & Island Project, City of San Diego; APNs 535-365-01, 535-365-02 and 535-392-05 through 535-392-07.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Sewer and Water Group 772 Project, San Diego, California, W.O. Nos. 187861 and 178351.

2010 Pottery Canyon Site Archaeological Evaluation Project, City of San Diego, California, Contract No. H105126.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Racetrack View Drive Project, San Diego, California; Project No. 163216.

2010 A Historical Evaluation of Structures on the Butterfield Trails Property.

2010 Historic Archaeological Significance Evaluation of 1761 Haydn Drive, Encinitas, California (APN 260-276-07-00).

2010 Results of Archaeological Monitoring of the Heller/Nguyen Project, TPM 06-01, Poway, California.

2010 Cultural Resource Survey and Evaluation Program for the Sunday Drive Parcel Project, San Diego County, California, APN 189-281-14.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Emergency Garnet Avenue Storm Drain Replacement Project, San Diego, California, Project No. B10062

2010 An Archaeological Study for the 1912 Spindrift Drive Project

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological Constraints Study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an Archaeological Review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in the City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of Archaeological Monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of Archaeological Monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2003 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California. Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad. Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the French Valley Specific Plan/EIR, French Valley, County of Riverside. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and the Evaluation of Cultural Resources at The TPM#24003– Lawson Valley Project. Brian F. Smith and Associates, San Diego, California.

2000 Archaeological Mitigation of Impacts to Prehistoric Site SDI-5326 at the Westview High School Project for the Poway Unified School District. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the Menifee Ranch Project. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Survey and Evaluation of Cultural Resources for the Bernardo Mountain Project, Escondido, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Nextel Black Mountain Road Project, San Diego, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Rancho Vista Project, 740 Hilltop Drive, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Poway Creek Project, Poway, California. Brian F. Smith and Associates, San Diego, California.

2000 Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/ Cavadias Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project. Brian F. Smith and Associates, San Diego, California.

2000 Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 A Report for an Archaeological Evaluation of Cultural Resources at the Otay Ranch Village Two SPA, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Evaluation of Cultural Resources for the Airway Truck Parking Project, Otay Mesa, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and Evaluation of a Resource for the Tin Can Hill Segment of the Immigration and Naturalization and Immigration Service Border Road, Fence, and Lighting Project, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey of the Home Creek Village Project, 4600 Block of Home Avenue, San Diego, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey for the Sgobassi Lot Split, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Evaluation of Cultural Resources at the Otay Ranch Village 11 Project. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological/Historical Survey and Evaluation of a Cultural Resource for The Osterkamp Development Project, Valley Center, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of a Cultural Resource for the Proposed College Boulevard Alignment Project. Brian F. Smith and Associates, San Diego, California.

1999 Results of an Archaeological Evaluation for the Anthony's Pizza Acquisition Project in Ocean Beach, City of San Diego (with L. Pierson and B. Smith). Brian F. Smith and Associates, San Diego, California.

1996 An Archaeological Testing Program for the Scripps Poway Parkway East Project. Brian F. Smith and Associates, San Diego, California.

1995 Results of a Cultural Resources Study for the 4S Ranch. Brian F. Smith and Associates, San Diego, California.

1995 Results of an Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System. Brian F. Smith and Associates, San Diego, California.

1994 Results of the Cultural Resources Mitigation Programs at Sites SDI-11,044/H and SDI-12,038 at the Salt Creek Ranch Project . Brian F. Smith and Associates, San Diego, California.

1993 Results of an Archaeological Survey and Evaluation of Cultural Resources at the Stallion Oaks Ranch Project. Brian F. Smith and Associates, San Diego, California.

1992 Results of an Archaeological Survey and the Evaluation of Cultural Resources at the Ely Lot Split Project. Brian F. Smith and Associates, San Diego, California.

1991 The Results of an Archaeological Study for the Walton Development Group Project. Brian F. Smith and Associates, San Diego, California.

Tracy A. Stropes, MA, RPA

Senior Project Archaeologist

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: tstropes@bfsa-ca.com

Education

Master of Arts, Anthropology, San Diego State University, California **2007**

Bachelor of Science, Anthropology, University of California, Riverside **2000**

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Archaeological Institute of America

Experience

Project Archaeologist **March 2009–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Project Management of all phases of archaeological investigations for local, state, and federal agencies, field supervision, lithic analysis, National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) site evaluations, and authoring/coauthoring of cultural resource management reports.

Archaeological Principal Investigator **June 2008–February 2009**
TRC Solutions **Irvine, California**

Cultural resource segment of Natural Sciences and Permitting Division; management of archaeological investigations for private companies and local, state, and federal agencies, personnel management, field and laboratory supervision, lithic analysis, Native American consultation and reporting, MRHP and CEQA site evaluations, and authoring/coauthoring cultural resource management reports.

Principal Investigator and Project Archaeologist **June 2006–May 2008**
Archaeological Resource Analysts **Oceanside, California**

As a sub consultant, served as Principal Investigator and Project Archaeologist for several projects for SRS Inc., including field direction, project and personnel management, lab analysis, and authorship of company reports.

Project Archaeologist **September 1996–June 2006**
Gallegos & Associates **Carlsbad, California**

Project management, laboratory management, lithic analysis, field direction, Native American consultation, report authorship/technical editing, and composition of several data recovery/preservation programs for both CEQA and NEPA level compliance.

Project Archaeologist **September 1993–September 1996**
Macko Inc. **Santa Ana, California**

Project management, laboratory management, lithic analysis, field supervision, and report authorship/technical editing.

Archaeological Field Technician **January 1993–September 1993**
Chambers Group Inc. **Irvine, California**

Archaeological excavation, surveying, monitoring, wet screen facilities management, and project logistics.

Archaeological Field Technician **May 1992–September 1992**
John Minch and Associates **San Juan Capistrano, California**

Archaeological excavation, surveying, monitoring, wet screen facilities management, and project logistics.

Reports/Papers

Principal Author

2012 A Class III Cultural Resources Study for the USGS Creepmeter Project; July 20, 2012; Tracy Stropes and Brian Smith.

2011 Results of the Mitigation Monitoring Program for the Mission Brewery Villas Project City of San Diego (Project No. 52078) / April 9, 2012 / Tracy A. Stropes.

2011 Mitigation Monitoring Report for the 43rd and Logan Project; June 7, 2012; Tracy A. Stropes and Brian F. Smith.

2011 Mitigation Monitoring Report for the Sewer and Water Group 768 Project; April 10, 2012; Tracy A. Storpes and Brian F. Smith.

2010 A Phase I Cultural Resource Study for the Butterfield Residence Project, La Jolla, California / January 17, 2011 / Tracy A. Stropes and Brian F. Smith.

2010 A Cultural Resources Literature Review for the 11099 North Torrey Pines Road Project, San Diego, California; November 17, 2010; Tracy A. Stropes and Brian F. Smith.

2010 A Cultural Resource Monitoring Report for the Eichen Residence Project, San Diego, California, Project No. 191775 / August 17, 2011 / Tracy A. Stropes.

2010 Phase I Cultural Resources Survey for the San Jacinto Poultry Ranch Storage Building Project; November 11, 2010; Tracy Stropes and Brian Smith.

2010 Cultural Resource Monitoring Report for the Salvation Army Vehicle Storage Area Project; 1015 West 12th Street, City of San Diego; Project #217113; December 5, 2011, Tracy A. Stropes, Principal Investigator.

2010 Cultural Resource Monitoring Report for the Sunset Cliffs Trunk Sewer Project, City of San Diego, Project No. 178901, January 5, 2012, Tracy A. Stropes.

2010 Mitigation Monitoring Report for the Sewer Group 682 Project; April 16, 2012; Tracy A. Stropes and Brian F. Smith.

2010 A Phase III Cultural Resource Data Recovery Program for CA-SDI-16986, Hidden Meadows, San Diego County, California (TPM 20794) Tracy A. Stropes and Brian F. Smith.

2010 Research Design, Data Recovery Program, and Mitigation, Monitoring, and Reporting Program for 1900 Spindrift Drive La Jolla, California; APN 346-44-05; January 26, 2011; Tracy Stropes and Brian F. Smith.

2010 An Archaeological Study for the 1912 Spindrift Drive Project La Jolla California, Project No. 214654; L64A-003A; APN 346-44-04; January 26, 2011; Tracy Stropes and Brian F. Smith.

2009 An Archaeological Assessment for the Rivera-Placentia Project, City of Riverside, California. Prepared for Riverside Construction Company.

2009 Cultural Resource Data Recovery Plan for the North Ocean Beach Gateway Project. Prepared for the City of San Diego and KTU+A.

2009 Cultural Resource Letter Report for the Borrego Substation Feasibility Study, Borrego Springs, California. Prepared for RBF Consulting.

2009 A Cultural Resource Study for the Gatto Residence Project, La Jolla, California. Prepared for Marengo Martin Architects Inc.

2008 Phase I Cultural Resource Survey for the 28220 Highridge Road Development Project, Rancho Palos Verdes, California. Prepared for REC Development.

2008 Wild Goose Expansion 3 Project Butte County, California Colusa County, California. Prepared for Niska Gas Storage LLC.

2008 Class III Cultural Resource Survey for the Burlington Northern Santa Fe Four Railway Bridge Renewal Project San Bernardino County, California. Prepared for BNSF Railway Company.

2008 I-80 Colfax Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

2008 I-80 Gold Run Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

2008 Cultural Resource Monitoring at 31431 Camino Capistrano, San Juan Capistrano California. Prepared for Herman Weissker, Inc.

2008 Cultural Resource Inventory for the Snow White Pumice Mine, Hinkley California. Prepared for U.S. Mining and Minerals Corporation.

2007 Nodule Industries of North Coastal San Diego: Change and Stasis in 10,000 Years of Lithic Technology. Masters Thesis on file, San Diego State University.

2007 Cultural Resource Inventory for Empire Homes (APN 104-180-04), Lake Forest, California. Prepared for Empire Homes.

2007 Phase I Archaeological Assessment for APN 104-200-09, Beumont, California. Prepared for Mary Chan.

2007 Cultural Resource Inventory for Empire Homes (APN 104-180-04), Lake Forest, California. Prepared for Empire Homes.

2006 Carlsbad Municipal Golf Course Data Recovery Program for CA-SDI-8694, and Indexing and Preservation Program Study for CA-SDI-8303 and CA-SDI-8797 Locus C, City of Carlsbad, CA. Prepared for City of Carlsbad.

2005 Grand Pacific Resorts Data Recovery and Index Sample Program for CA-SDI-8797, Area A, City of Carlsbad, CA. Prepared for Grand Pacific Resorts Inc.

2004 "Near the Harris Site Quarry" Cultural Resource Data Recovery and Preservation Program for CA-SDI-13028, San Diego County, California. Prepared for Harbrecht Development, L.P.

2004 Cultural Resource Survey and Boundary Test Report for the Lilac Ranch Project, San Diego County, California. Prepared for Empire Companies.

2003 Cultural Resource Data Recovery and Preservation Program for CA-SDI-12027, San Diego County, California. Prepared for Harbrecht Development Inc.

2002 Data Recovery Program for the Pacbell Site CA-SDI-5633, San Marcos, California. Prepared for Joseph Wong Design Associates.

2001 McCrink Ranch Cultural Resource Test Program Additional Information for Selected Sites, San Diego County, California. Prepared for Shapouri & Associates.

2001 The Quail Ridge Project Cultural Resource Test Program, San Diego County, California. Prepared for Helix Environmental Planning, Inc.

2000 Cultural Resource Survey and Evaluation for the North Sand Sheet Full Buildout Program, Owens Lake, California. Prepared for CH2MHill.

1995 Final Report: Archaeological Investigations Conducted for the Abalone Cove Dewatering Wells, City of Rancho Palos Verdes Los Angeles County, California. Prepared for the City of Rancho Palos Verdes, Environmental Services.

1995 Final Report: A Class III Intensive Survey of a 100-Acre Sand and Gravel Mining Area, Imperial County, California. Prepared for the Lilburn Corporation.

1994 Final Report: Data Recovery Excavations at Five Late Prehistoric Archaeological Sites Along the Los Trancos Access Road, Newport Coast Planned Community, Orange County, California. Prepared for the Coastal Community Builders, a division of The Irvine Company.

Contributing Author

2008 Lithic Analysis for Thirteen Sites Along the Transwestern Phoenix Expansion Project, Loops A and B. Prepared for Transwestern Pipeline Company, LLC.

2005 Cultural Resource Survey and Testing for the Star Ranch Property, San Diego, California.

2004 Cultural Resource Test Report for the Palomar Point Project: Site CA-SDI-16205, Carlsbad, California. Prepared for Lanikai Management Corp.

2004 Cultural Resource Survey and Test Report for the Canyon View Project, Carlsbad, California. Prepared for Shapouri & Associates.

2004 Cultural Resource Test Report for the Yamamoto Property: Site SDM-W-2046, Carlsbad, California. Prepared for Cunningham Consultants, Inc.

2004 Historical Resources Report for the Kuta and Mascari Properties, Otay Mesa, California. Prepared for Centex Homes.

2004 Cultural Resource Monitor and Test Report for the Encina Power Plant Project, Carlsbad, California. Prepared for Haley & Aldrich, Inc.

2004 Cultural Resource Test Report for Site CA-SDI-16788, Otay Mesa, California. Prepared for Otay Mesa Property, L.P.

2004 Cultural Resource Survey and Test Report for the Lonestar Project, Otay Mesa, San Diego County, California. Prepared for Otay Mesa Property, L.P.

2003 Cultural Resource Mitigation Program for the Torrey Ranch Site CA-SDI-5325, San Diego, California. Prepared for Garden Communities.

2003 Cultural Resource Survey and Test Report for the Johnson Canyon Parcel, Otay Mesa, San Diego County, California. Prepared for Otay Mesa Property, L.P.

2002 Cultural Resource Data Recovery Plan for the Shaw Project: Sites CA-SDI-13025 and CA-SDI-13067, San Diego County, California. Prepared for Shapouri & Associates.

2001 Archaeological Test Program for CA-SDI-14112 Mesa Norte Project, San Diego, California. Prepared for Hunsaker & Associates.

2001 The Vista-Oceanside Cultural Resource Survey and Test Program, Vista, California. Prepared for Shapouri & Associates.

2001 Cultural Resource Test Program for the Wilson Property, Carlsbad, California. Prepared for the City of Carlsbad.

2001 Cultural Resource Test Plan for the Oceanside-Escondido Project, County of San Diego, California. Prepared for Dudek & Associates.

2001 Cultural Resource Test Program for the Kramer Junction Expansion Project Adelanto, California. Prepared for AMEC.

2001 Cultural Resource Test Program for CA-SDI-12508 San Diego, California (LDR. No. 99-1331). Prepared for Garden Communities.

2000 Archaeological Testing of Prehistoric Sites CASDI-14115 and CA-SDI-14116 for The Mesa Grande Project, San Diego, California. Prepared for Solana Mesa Partners, LLC.

2000 Cultural Resource Survey and Test Report for the Wetmore Property, Otay Mesa, San Diego County, California. Prepared for Mr. Andy Campbell.

2000 The Torrey Ranch Cultural Resource Test Program, San Diego County, California. Prepared for Garden Communities.

2000 Cultural Resource Test Results for the Otay Mesa Generating Project. Prepared for the California Energy Commission and Otay Mesa Generating Company, LCC.

2000 The Eternal Hills Cultural Resource Survey and Test Program, City of Oceanside, California. Prepared for Eternal Hills Memorial Park.

2000 The Quail Ridge Cultural Resource Test Program, San Diego County, California. Prepared for Helix Environmental Planning Inc.

2000 Cultural Resource Testing Program for CA-SDI-5652/H and CA-SDI-9474H SR 78/Rancho Del Oro Interchange Project, Oceanside, California. Prepared for Tetratech Inc.

2000 Cultural Resource Test Results for a Portion of CA-SDI-8654 (Kuebler Ranch) Otay Mesa, San Diego County, California. Prepared for Shapouri & Associates.

2000 Historical/Archaeological Monitoring and Data Recovery Program for Prehistoric Site CA-SDI-48, Locus C Naval Base Point Loma, San Diego, California. Prepared for Department of the Navy, Southwest Division.

2000 Cultural Resource Evaluation Report for the Palomar College Science Building Project San Marcos, California. Prepared for Parsons Engineering Science Inc.

1999 Cultural Resource Monitoring Report for the Village of Ystagua Water Main Break City of San Diego, California. Prepared for the City of San Diego Water Department.

1999 The Effect of Projectile Point Size on Atlatl Dart Efficiency in Lithic Technology Vol. 24, No 1 p (27-37).

1999 Cultural Resource Evaluation Report for the Oceanside-Escondido Bikeway Project, San Marcos, California. Prepared for City of San Marcos.

1999 5000 Years of Occupation: Cultural Resource Inventory and Assessment Program for the Carlsbad Municipal Golf Course Project City of Carlsbad, California. Prepared or Cotton/Beland/Associates, Inc.

1999 Silver Oaks Estates Cultural Resource Enhanced Survey and Test Report for a Portion of CA-SDI-7202 San Diego, California. Prepared for Helix Environmental Planning Inc.

1999 Historical Archaeological Test of a portion of CA-SDI-8303 for the Faraday Road Extension Carlsbad, California. Prepared for the City of Carlsbad.

1999 Cultural Resource Literature Review for the North Coast Transportation Study Arterial Streets Alternative San Diego County, California. Prepared for MLF/San Diego Association of Govt.

1998 Archaeological Test Report for a Portion of CA-SDI-9115/SDM-W-122 Carlsbad, California. Prepared for Industrial Developments International.

1998 Rainforest Ranch Cultural Resource Survey and Significance Test for Prehistoric Sites CA-SDI-14932, CA-SDI-14937, CA-SDI-14938, and CA-SDI-14946 County of San Diego, California. Prepared for Boys and Girls Club of Inland North County.

1998 Cultural Resource Evaluation Report for the Oceanside-Escondido Bikeway Project San Marcos, California.

1998 Final Report: Cultural Resource Survey Report for the Sterling Property, Carlsbad, California. Prepared for SPT Holdings LCC.

1996 Final Report: Archaeological Survey and Test for the Huber Property Carlsbad, California. Prepared for Gene Huber.

1996 Final Report: Results of Phase II Test Excavations and Phase III Data Recovery Excavations at Nine Archaeological Sites Within the Newport Coast Planned Community Phase III Entitlement Area, San Joaquin Hills, Orange County, California. Prepared for Coastal Community Builders, a division of The Irvine Company.

1995 Preliminary Report: Phase II Test Results From Nine Prehistoric Archaeological Sites Within The Proposed Upper Newport Bay Regional County Park. Prepared for EDAW, Inc.

1995 Final Report: A Phase II Test Excavation at CA-ORA-136, Block 800 City of Newport Beach, Orange County California. Prepared for the Irvine Apartment Communities, a division of The Irvine Company.

Presentations

2004 Guest Lecturer and Flintknapping Demonstration Mission San Luis Rey Band of Mission Indians Annual Inter-tribal Pow-Wow. Mark Mojado, Tribal Contact.

2003 Steep Edge Unifacial Tools of Otay Mesa: An Analysis of Edge Types from CA SDI-7215 SCA Southern California Data Sharing Meetings

2001 Identification of Late Period Behavior Patterns in Elfin Forest: Three Sites in Northern San Diego County.

2001 Society for California Archaeology Data Sharing Meetings, San Luis Obispo, California.

1996 Trans-Tehachapian Lithic Trade at the Canebreak/Sawtooth Transition. Thirteenth Annual Meeting, Society of California Archaeology, Bakersfield, California.

1994 Point Size and Atlatl Dart Efficiency. Twenty Fourth Annual Meeting, Great Basin Anthropological Conference, Elko, Nevada.

1994/96 Guest Lecturer and Flint Knapping Instruction - Archaeological Field Class Fall Semester ,Cypress College, Cypress, California. Paul Langenwalter/Henry C. Koerper, Directors.

1994/95 Annual Guest Lecturer - "Living History Days" at the Mission, Mission San Juan Capistrano, San Juan Capistrano, California.

APPENDIX B

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX C

NAHC Sacred Lands File Search Results

February 24, 2016

For: Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

From: Eric A Rodriguez, M.A., RPA
Brian F. Smith and Associates Inc.
14010 Poway Rd. Suite A
Poway, CA 92064

Re: Request for a Sacred Lands File records search for the Sixth and Center Project in Rancho Cucamonga, California.

I am writing to request a record search of the Sacred Lands File and a list of appropriate Native American contacts for the Sixth and Center Project. The project is for an archaeological assessment requested by the City of Rancho Cucamonga. The project is located in San Bernardino County on the northeast corner of Sixth Street and Center Avenue in Rancho Cucamonga, California. Specifically, the property is located in Section 14 of Township 01 South and Range 07 West in the USGS *Guasti* Quadrangle (APNs: 0209-262-25). A copy of the project map showing the project area and a 1 mile search radius buffer as well as the corresponding shapefile depicted thereon, has been included for your records.

Sincerely,

Eric A. Rodriguez, M.A., RPA
Archaeologist/GIS Specialist
Phone: 858-484-0915 ext
Email: erodriguez@bfsa-ca.com

Attachments:
-USGS 7.5 *Guasti,* California topographic maps with project area delineated.
-Project Area Shapefile (.zip)

Sacred Lands File & Native American Contacts List Request
NATIVE AMERICAN HERITAGE COMMISSION
□915 Capitol Mall, RM 364 □Sacramento, CA 95814□(916) 653-4082 □
(916) 657-5390 – Fax□
nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Project: The Sixth and Center Project

County: San Bernardino

USGS Quadrangle Name: *Guasti*

Township: 01S Range: 07W

Company/Firm/Agency: Brian F. Smith & Associates

Contact Person: Eric A. Rodriguez, RPA

Street Address: 14010 Poway Road, Suite A

City: Poway Zip: 92064

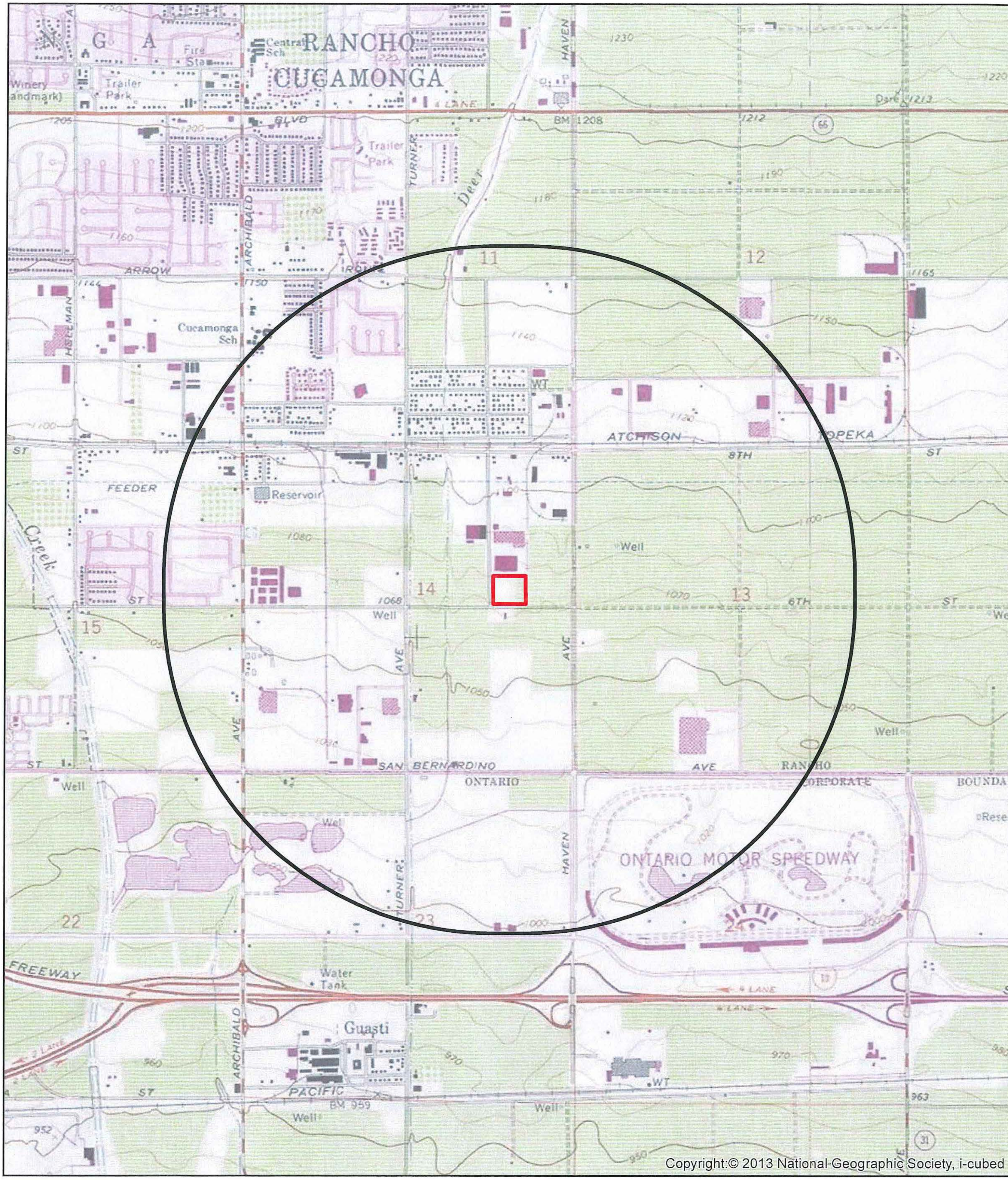
Phone: 858-484-0915

Fax: 858-679-9896

Email: erodriguez@bfsa-ca.com

Project Description:

The project is for an archaeological assessment requested by the City of Rancho Cucamonga. The project is located in San Bernardino County on the northeast corner of Sixth Street and Center Avenue in Rancho Cucamonga, California. Specifically, the property is located in Section 14 of Township 01 South and Range 07 West in the USGS *Guasti* Quadrangle (APNs: 0209-262-25). A copy of the project map showing the project area and a 1 mile search radius buffer as well as the corresponding shapefile depicted thereon, has been included for your records.



Records Search Location Map
The Sixth and Center Project
USGS *Guasti* Quadrangle (7.5-minute series)

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

March 2, 2016

Eric Rodriguez
Brian F. Smith and Associates

Sent via e-mail: erodriguez@bfsa-ca.com
Number of pages: 3

RE: Proposed Sixth and Center Project, City of Rancho Cucamonga, Guasti USGS Quadrangle, San Bernardino County, California

Dear Mr. Rodriguez:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent above reference codes is to mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects.

As of July 1, 2015, Public Resources Code Sections 21080.1, 21080.3.1 and 21080.3.2 require public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the USGS quadrangle information provided with negative results.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton
Associate Government Planning Analyst

Native American Heritage Commission
Tribal Consultation List
San Bernardino County
March 2, 2016

San Manuel Band of Mission Indians
Lynn Valbuena, Chairwoman
26569 Community Center — Serrano
Highland , CA 92346
(909) 864-8933

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla, Serrano
Banning , CA 92220
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

Soboba Band of Luiseno Indians
Rosemary Morillo, Chairperson; Attn: Carrie Garcia
P.O. Box 487 — Luiseno, Cahuilla
San Jacinto , CA 92581
carrieg@soboba-nsn.gov
(951) 654-2765

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 — Serrano
Patton , CA 92369
(909) 528-9027
(909) 528-9032

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Fernandeño, Tataviam, Serrano, Vanyume, Kitanemuk
Newhall , CA 91322
tsen2u@hotmail.com
(760) 885-0955 Cell

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina , CA 91723
gabrielenoindians@yahoo.com — Gabrielino
(626) 926-4131

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 483-3564 Cell

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino Tongva
Los Angeles , CA 90012
sgoad@gabrielino-tongva.com
(951) 807-0479

This list is current only as of the date of this document.
Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3, 65362.4 et seq. and Public Resources Code Sections 21080.3.1 for the proposed Sixth and Center Project, City of Rancho Cucamonga, San Bernardino County, California.

March 8, 2016

Andrew Salas
Chairperson
Gabrieleno Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, California 91723

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Mr. Salas:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in San Bernardino County, California. The project area can be found at the northeast corner of the intersection of Sixth Street and Center Avenue in Rancho Cucamonga, California (APN 0209-262-25). Specifically, this project is located in Section 14 of the USGS 7.5-minute *Guasti, California* topographic quadrangle (Township 1 South, Range 7 West). Please find enclosed sections of the USGS *Guasti* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate Sixth and Center Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact the City of Rancho Cucamonga directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Guasti, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 8, 2016

Anthony Morales
Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, California 91778

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Mr. Morales:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

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March 8, 2016

Goldie Walker
Chairperson
Serrano Nation of Mission Indians
P.O. Box 343
Patton, California 92369

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Ms. Walker:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

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USGS 7.5-minute *Guasti, California* topographic map with project area delineated

March 8, 2016

John Valenzuela
Chairperson
San Fernando Band of Mission Indians
P.O. Box 221838
Newhall, California 91322

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Mr. Valenzuela:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.

Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 8, 2016

Lynn Valbuena
Chairwoman
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, California 92346

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Ms. Valbuena:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 8, 2016

Robert Martin
Chairperson
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, California 92220

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Mr. Martin:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Brian F. Smith and Associates, Inc.

Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

March 8, 2016

Rosemary Morillo, Chairperson
Attn: Carrie Garcia
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, California 92581

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Ms. Morillo:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Guasti, California* topographic map with project area delineated

March 8, 2016

Sandonne Goad
Chairperson
Gabrielino/Tongva Nation
106 ½ Judge John Aiso Street #231
Los Angeles, California 90012

Subject: Information regarding Native American cultural resources on or near the Sixth and Center Project, San Bernardino County, California

Dear Ms. Goad:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the Sixth and Center Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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GABRIELENO BAND OF MISSION INDIANS - KIZH NATION

Historically known as The San Gabriel Band of Mission Indians

Recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Dear Tracy A. Stropes, M,A, RPA
Senior Project Archaeologist

"The project locale located at the northern corner of the intersection of sixth street and center Avenue in Rancho Cucamonga lies in an area where the Ancestral & traditional territories of the Kizh(Kitc) Gabrieleño villages, such as" ***Cucamonga*** *" adjoined and overlapped with each other, at least during the Late Prehistoric and Protohistoric Periods. The homeland of the Kizh (Kitc) Gabrieleños , probably the most influential Native American group in aboriginal southern California (Bean and Smith 1978a:538), was centered in the Los Angeles Basin, and reached as far east as the San Bernardino-Riverside area. The homeland of the Serranos was primarily the San Bernardino Mountains, including the slopes and lowlands on the north and south flanks.Whatever the linguistic affiliation, Native Americans in and around the project area echibited similar orgainization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/ base sites are marked by midden deposits, often with bedrock mortars. During their seasonal rounds to exploit plant resources, small groups would migrate within their traditional territory in search of specific plants and animals. Their gathering strategies often left behind signs of special use sites, usually grinding slicks on bedrock boulders, at the locations of the resources. Therefore in order to protect our resources we're requesting one of our experienced & certified Native American monitors to be on site during any & all ground disturbances (this includes but is not limited to pavement removal, pot-holing or auguring, boring, grading, excavation and trenching).*

In all cases, when the NAHC states there are "No" records of sacred sites" in the subject area; they always refer the contractors back to the Native American Tribes whose tribal territory the project area is in. This is due to the fact, that the NAHC is only aware of general information on each California NA Tribe they are "NOT " the "experts" on our Tribe. Our Elder Committee & Tribal Historians are the experts and is the reason why the NAHC will always refer contractors to the local tribes.

In addition, we are also often told that an area has been previously developed or disturbed and thus there are no concerns for cultural resources and thus minimal impacts would be expected. I have two major recent examples of how similar statements on other projects were proven very inadequate. An archaeological study claimed there would be no impacts to an area adjacent to the Plaza Church at Olvera Street, the original Spanish settlement of Los Angeles, now in downtown Los Angeles. In fact, this site was the Gabrieleno village of Yangna long before it became what it is now today. The new development wrongfully began their construction and they, in the process, dug up and desecrated 118 burials. The area that was dismissed as culturally sensitive was in fact the First Cemetery of Los Angeles where it had been well documented at the Huntington Library that 400 of our Tribe's ancestors were buried there along with the founding families of Los Angeles (Picos, Sepulvedas, and Alvardos to name a few). In addition, there was another inappropriate study for the development of a new sports complex at Fedde Middle School in the City of Hawaiian Gardens could commence. Again, a village and burial site were desecrated despite their mitigation measures. Thankfully, we were able to work alongside the school district to quickly and respectfully mitigate a mutually beneficial resolution.

Given all the above, the proper thing to do for your project would be for our Tribe to monitor ground disturbing construction work. Because we are the lineal descendants of the vast area of Los Angeles and Orange Counties, we hold sacred the ability to protect what little of our culture remains. We thank you for taking seriously your role and responsibility in assisting us in preserving our culture.

With respect,

Please contact our office regarding this project to coordinate a Native American Monitor to be present. Thank You

Andrew Salas, Chairman
Cell (626) 926-4131

Addendum: clarification regarding some confusions regarding consultation under AB52:

AB52 clearly states that consultation must occur with tribes that claim traditional and cultural affiliation with a project site. Unfortunately, this statement has been left open to interpretation so much that neighboring tribes are claiming affiliation with projects well outside their traditional tribal territory. The territories of our surrounding Native American tribes such as the Luiseno, Chumash, and Cahuilla tribal entities. Each of our tribal territories has been well defined by historians, ethnographers, archaeologists, and ethnographers – a list of resources we can provide upon request. Often, each Tribe as well educates the public on their very own website as to the definition of their tribal boundaries. You may have received a consultation request from another Tribe. However we are responding because your project site lies within our Ancestral tribal territory, which, again, has been well documented. What does Ancestrally or Ancestral mean? The people who were in your family in past times, Of, belonging to, inherited from, or denoting an ancestor or ancestors http://www.thefreedictionary.com/ancestral. . If you have questions regarding the validity of the "traditional and cultural affiliation" of another Tribe, we urge you to contact the Native American Heritage Commission directly. Section 5 section 21080.3.1 (c) states "...the Native American Heritage Commission shall assist the lead agency in identifying the California Native American tribes that are traditionally and culturally affiliated with the project area." In addition, ***please see the map below.***

APPENDIX 1: Map 1-2; Bean and Smith 1978 map.

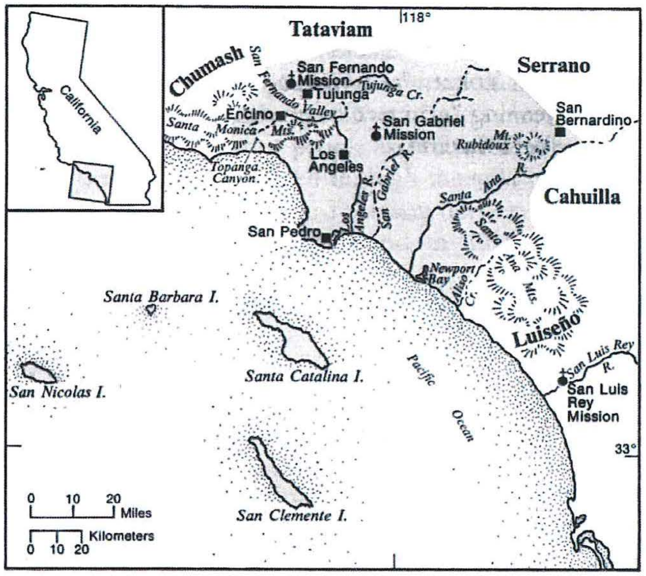


Fig. 1. Tribal territory.

The United States National Museum's Map of Gabrielino Territory:

Bean, Lowell John and Charles R. Smith
1978 Gabrielino IN *Handbook of North American Indians, California*, Vol. 8, edited by R.F. Heizer, Smithsonian Institution Press, Washington, D.C., pp. 538-549

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary

Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians@yahoo.com gabrielenoindians@yahoo.com

APPENDIX F

Geology and Soils

Geotechnical Engineering Investigation

Proposed Industrial Development
Northeast Corner of 6th Street and Center Avenue
Rancho Cucamonga, California

Sixth and Center LLC
1360 Reynolds Avenue, Suite 112
Irvine, California 92614

Attn.: Mr. Philip Homme

February 24, 2016
Project Number 18712-16

TABLE OF CONTENTS

NorCal Engineering
Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

February 24, 2016 Project Number 18712-16

Sixth and Center LLC
1360 Reynolds Avenue, Suite 112
Irvine, California 92614

Attn.: Mr. Philip Homme

RE: **Geotechnical Engineering Investigation** - Proposed Industrial Development - Located at the Northeast Corner of 6^{th} Street and Center Avenue, in the City of Rancho Cucamonga, California

Dear Mr. Homme:

Pursuant to your request, this firm has performed a Geotechnical Engineering Investigation in accordance with your authorization of signed proposal dated February 3, 2016 for the above referenced project. The purpose of this investigation is to evaluate the subsurface conditions of the subject site and to provide recommendations for the proposed industrial development.

The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration and sampling; 3) laboratory testing; 4) engineering analysis of field and laboratory data; 5) and preparation of a geotechnical engineering report. It is the opinion of this firm that the proposed development is feasible from a geotechnical standpoint provided that the recommendations presented in this report are followed in the design and construction of the project.

1.0 Project Description

It is proposed to construct three (3) industrial buildings totaling 86,772 square feet on the 5.40-acre subject property as shown on the attached Site Plan. The proposed concrete tilt-up buildings will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. Other improvements will consist of new asphalt/concrete pavement, hardscape and landscaping. It is assumed that the proposed grading for the development will include minor cut and fill procedures. Final building plans shall be reviewed by this firm prior to submittal for city approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

2.0 Site Description

The subject property is located at the northeast corner of 6th Street and Center Avenue, in the City of Rancho Cucamonga. The generally rectangular-shaped parcel is relatively level with topography of the relatively level property descending gradually from north to south on the order of a few feet. The site is currently an undeveloped lot covered with a low growth of vegetation consisting of natural weeds and grasses.

3.0 Site Exploration

The investigation consisted of the placement of eight (8) subsurface exploratory trenches by a backhoe to depths ranging between 5 and 20 feet below current ground elevations. The explorations were visually classified and logged by a field engineer with locations of the subsurface explorations shown on the attached Site Plan. The exploratory trenches revealed the existing earth materials to consist of a fill and natural soil. A detailed description of the subsurface conditions is listed on the excavation logs in Appendix A.

Fill: A fill soil and disturbed top soils classifying as a brown, fine to medium grained, silty SAND with gravel was encountered to a depth of 1 to 1½ feet. These soils were noted to be loose to medium dense and moist.

Natural: An undisturbed alluvium soil classifying as a brown, fine to medium grained, silty SAND with gravel to a fine to course grained, gravelly SAND with cobbles was encountered directly beneath the fill and observed to be medium dense and damp to moist.

The overall engineering characteristics of the earth material were relatively uniform with each excavation. No groundwater was encountered to the depth of our trenches and slight caving did occur in the deeper cohesionless soils.

4.0 Laboratory Tests

Relatively undisturbed samples of the subsurface soils were obtained to perform laboratory testing and analysis for direct shear, consolidation tests, and to determine in-place moisture/densities. These relatively undisturbed ring samples were obtained by driving a thin-walled steel sampler lined with one inch long brass rings with an inside diameter of 2.42 inches into the undisturbed soils. Bulk bag samples were obtained in the upper soils for expansion index tests and maximum density tests. Wall loadings on the order of 4,000 lbs./lin.ft. and maximum compression loads on the order of 100 kips were utilized for testing and design purposes. All test results are included in Appendix B, unless otherwise noted.

4.1 **Field moisture content** (ASTM:D 2216) and the dry density of the ring samples were determined in the laboratory. This data is listed on the logs of explorations.

4.2 **Maximum density tests** (ASTM: D-1557) were performed on typical samples of the upper soils. Results of these tests are shown on Table I.

4.3 **Expansion index tests** (ASTM: D 4829) were performed on remolded samples of the upper soils. Results of these tests are provided on Table II.

4.4 **Corrosion tests** consisting of sulfate, pH, resistivity and chloride analysis to determine potential corrosive effects of soils on concrete and underground utilities. Test results are provided on Table III.

4.5 **R-Value test** per California Test Method 301 was performed on a representative sample, which may be anticipated to be near subgrade to determine pavement design. Result provided within pavement section design section of report.

4.6 **Direct shear tests** (ASTM: D-3080-11) were performed on undisturbed and disturbed samples of the subsurface soils. The test is performed under saturated conditions at loads of 1,000 lbs./sq.ft., 2,000 lbs./sq.ft., and 2,000 lbs./sq.ft. with results shown on Plate A.

4.7 **Consolidation tests** (ASTM: D-2435-11) were performed on undisturbed samples to determine the differential and total settlement which may be anticipated based upon the proposed loads. Water was added to the samples at a surcharge of one KSF and the settlement curves are plotted on Plates B and C.

5.0 Seismicity Evaluation

The proposed development lies outside of any Alquist Priolo Special Studies Zone and the potential for damage due to direct fault rupture is considered very remote. The site is located in an area of high regional seismicity and the Cucamonga fault is located about 5 kilometers from the site. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults.

The seismic design of the project has been updated to the latest 2010 ASCE 7-10 (with July 2013 errata) standards and the mapped seismic ground motions were provided by using the Java based program available from the United States Geological Survey (USGS) website: http://geohazards.usgs.gov/designmaps/us/application.php. The earthquake design parameters are in accordance with the 2013 California Building Code (CBC) and are listed on the following page.

Seismic Design Parameters

Site Location	Latitude	34.085°
	Longitude	-117.579°
Site Class		D
Maximum Spectral Response Acceleration	S_S	1.500g
	S_1	0.600g
Adjusted Maximum Acceleration	S_{MS}	1.500g
	S_{M1}	0.900g
Design Spectral Response Acceleration Parameters	S_{DS}	1.000g
	S_{D1}	0.600g

6.0 Liquefaction Evaluation

The site is expected to experience ground shaking and earthquake activity that is typical of Southern California area. It is during severe ground shaking that loose, granular soils below the groundwater table can liquefy. Our analysis indicates the potential for liquefaction at this site is considered to be very low due to the depth of groundwater in excess of 400 feet within the vicinity area based on review of ground water maps of the Upper Santa Ana River Basin. (Carson and Matti, 1982). Thus, the design of the proposed construction in conformance with the latest Building Code provisions for earthquake design is expected to provide mitigation of ground shaking hazards that are typical to Southern California.

7.0 Conclusions and Recommendations

Based upon our evaluations, the proposed development is acceptable from a geotechnical engineering standpoint. By following the recommendations and guidelines set forth in our report, the structures will be safe from excessive settlements under the anticipated design loadings and conditions. The proposed development shall meet all requirements of the City Building Ordinance and will not impose any adverse effect on existing adjacent structures.

The following recommendations are based upon geotechnical conditions encountered in our field investigation and laboratory data. Therefore, these surface and subsurface conditions could vary across the site. Variations in these conditions may not become evident until the commencement of grading operations and any unusual conditions which may be encountered in the course of the project development may require the need for additional study and revised recommendations.

It is recommended that site inspections be performed by a representative of this firm during all grading and construction of the development to verify the findings and recommendations documented in this report. The following sections present a discussion of geotechnical related requirements for specific design recommendations of different aspects of the project.

7.1 Site Grading Recommendations

Any vegetation and or demolition debris shall be removed and hauled from proposed grading areas prior to the start of grading operations. Existing vegetation shall not be mixed or disced into the soils. Any removed soils may be reutilized as compacted fill once any deleterious material or oversized materials (in excess of eight inches) is removed. Grading operations shall be performed in accordance with the attached "Specifications for Compacted Fill Operations".

7.1.1 Removal and Recompaction Recommendations

All disturbed soils and/or fill (about 1 to 1½ feet) shall be removed to competent native material, the exposed surface scarified to a depth of 12 inches, brought to within 2% of optimum moisture content and compacted to a minimum of 90% of the laboratory standard (ASTM: D-1557) prior to placement of any additional compacted fill soils, foundations, slabs-on-grade and pavement. Grading shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

It is possible that isolated areas of undiscovered fill not described in this report are present on site. If found, these areas should be treated as discussed earlier. A diligent search shall also be conducted during grading operations in an effort to uncover any underground structures, irrigation or utility lines. If encountered, these structures and lines shall be either removed or properly abandoned prior to the proposed construction.

Any imported fill material should be preferably soil similar to the upper soils encountered at the subject site. All soils shall be approved by this firm prior to importing at the site and will be subjected to additional laboratory testing to assure concurrence with the recommendations stated in this report. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase. Adequate drainage away from the structures, pavement and slopes should be provided at all times.

If placement of slabs-on-grade and pavement is not completed immediately upon completion of grading operations, additional testing and grading of the areas may be necessary prior to continuation of construction operations. Likewise, if adverse weather conditions occur which may damage the subgrade soils, additional assessment by the geotechnical engineer as to the suitability of the supporting soils may be needed.

7.1.2 Fill Blanket Recommendations

Due to the potential for differential settlement of foundations placed on compacted fill and the medium dense native materials, it is recommended that all foundations including floor slab areas be underlain by a uniform compacted fill blanket at least three feet in thickness. This fill blanket shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

7.2 Shrinkage and Subsidence

Results of our in-place density tests reveal that the soil shrinkage will be on the order of 10 to 15% due to excavation and recompaction, based upon the assumption that the fill is compacted to 92% of the maximum dry density per ASTM standards. Subsidence should be 0.2 feet due to earthwork operations. The volume change does not include any allowance for vegetation or organic stripping, removal of subsurface improvements or topographic approximations. Although these values are only approximate, they represent our best estimate of lost yardage, which will likely occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field testing using the actual equipment and grading techniques should be conducted.

7.3 Temporary Excavations

Temporary unsurcharged excavations in the existing site materials less than 4 feet high may be made at a vertical gradient unless cohesionless soils are encountered. In areas where soils with little or no binder are encountered, where adverse geological conditions are exposed, or where excavations are adjacent to existing structures, shoring, slot-cutting, or flatter excavations may be required. The temporary cut slope gradients given do not preclude local raveling and sloughing. All excavations shall be made in accordance with the requirements of CAL-OSHA and other public agencies having jurisdiction. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase.

7.4 Foundation Design

All foundations may be designed utilizing the following safe bearing capacities for an embedded depth of 18 inches into approved fill materials with the corresponding widths:

Allowable Safe Bearing Capacity (psf)

Width (ft)	Continuous Foundation	Isolated Foundation
1.5	2000	2500
2.0	2075	2575
4.0	2375	2875
6.0	2500	3000

The bearing value may be increased by 500 psf for each additional foot of depth in excess of the 18-inch minimum depth, up to a maximum of 4,000 psf. A one third increase may be used when considering short term loading and seismic forces. Any foundations located along the property lines or where lateral overexcavation is not possible may utilize a safe bearing capacity of 1,500 psf. A representative of this firm shall inspect all foundation excavations prior to pouring concrete.

7.5 Settlement Analysis

Resultant pressure curves for the consolidation tests are shown on Plates B and C. Computations utilizing these curves and the recommended safe bearing capacities reveal that the foundations will experience settlements on the order of 3/4 inch and differential settlements of less than 1/4 inch.

7.6 Lateral Resistance

The following values may be utilized in resisting lateral loads imposed on the structure. Requirements of the Uniform Building Code should be adhered to when the coefficient of friction and passive pressures are combined.

Coefficient of Friction – 0.40

Equivalent Passive Fluid Pressure = 250 lbs./cu.ft.

Maximum Passive Pressure = 2,500 lbs./cu.ft.

The passive pressure recommendations are valid only for approved compacted fill soils.

7.7 Retaining Wall Design Parameters

Active earth pressures against retaining wall will be equal to the pressures developed by the following fluid densities. These values are for **granular backfill material** placed behind the walls at various ground slopes above the walls.

Surface Slope of Retained Materials (Horizontal to Vertical)	Equivalent Fluid Density (lb./cu.ft.)
Level	30
5 to 1	35
4 to 1	38
3 to 1	40
2 to 1	45

Any applicable short-term construction surcharges and seismic forces should be added to the above lateral pressure values. An equivalent fluid pressure of 45 pcf may be utilized for the restrained wall condition with a level grade behind the wall.

All walls shall be waterproofed as needed and protected from hydrostatic pressure by a reliable permanent subdrain system. The subsurface drainage system shall consist of 4-inch diameter perforated PVC pipe encased with gravel and wrapped with filter fabric. The granular backfill to be utilized immediately adjacent to the retaining/basement walls shall consist of an approved granular soils with a sand equivalency greater than 30. This backfill zone of free draining material shall consist of a wedge beginning a minimum of one horizontal foot from the base of the wall extending upward at an inclination of no less than 3/4 to 1 (horizontal to vertical).

The seismic-induced lateral soil pressure for walls greater than 6 feet shall be computed using a triangular pressure distribution with the maximum value at the top of the wall. The maximum lateral pressure of (20 pcf) H, where H is the height of the retained soils above the wall footing should be utilized in final design of retaining walls. Sliding resistance values and passive fluid pressures given in our referenced report may be increased by 1/3 during short-term wind and seismic loading conditions.

7.8 Slab Design

All concrete slabs-on-grade shall be at least four inches in office and hardscape areas, six inches in warehouse and placed on approved subgrade soils. Additional reinforcement requirements and an increase in thickness of the slabs-on-grade may be necessary based upon proposed loading conditions in the structures and should be evaluated further by the project engineers and/or architect.

A vapor retarder (10-mil minimum thickness) should be utilized in areas which would be sensitive to the infiltration of moisture. This retarder shall meet requirements of ASTM E 96, *Water Vapor Transmission of Materials* and ASTM E 1745, *Standard Specification for Water Vapor Retarders used in Contact with Soil or Granular Fill Under Concrete Slabs.* The vapor retarder shall be installed in accordance with procedures stated in ASTM E 1643, *Standard practice for Installation of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs.*

The moisture retarder may be placed directly upon approved subgrade soils, although one to two inches of sand beneath the membrane is desirable. The subgrade upon which the retarder is placed shall be smooth and free of rocks, gravel or other protrusions which may damage the retarder. Use of sand above the retarder is under the purview of the structural engineer; if sand is used over the retarder, it should be placed in a dry condition.

7.9 Pavement Section Design

The table below provides a preliminary pavement design based upon an R-Value of 55 for the proposed pavement areas. Final pavement design may need to be based on R-Value testing of the subgrade soils near the conclusion of rough grading to assure that these soils are consistent with those assumed in this preliminary design.

Type of Traffic	Traffic Index	Asphaltic Concrete (in)	Base Material (in)
Automobile Parking Stalls and Circulation Areas	4.0/5.0	3.0	3.0
Heavy Truck Access Areas (GVW < 90,000 lbs.; 5 axle)	7.0	4.0	6.0

All concrete slabs to be utilized for pavement shall be a minimum of six inches in thickness and placed on approved subgrade soils. The above recommendations are based upon estimated traffic loads. Client should submit anticipated traffic loadings, when available, so that pavement sections may be reviewed to determine adequacy to support these loads.

Any approved base material shall consist of a Class II aggregate or equivalent and should be compacted to a minimum of 95% relative compaction. All pavement materials shall conform to the requirements set forth by the City of Rancho Cucamonga. The base material and asphaltic concrete should be tested prior to delivery to the site and during placement to determine conformance with the project specifications. A pavement engineer shall designate the specific asphalt mix design to meet the required project specifications.

All pavement areas shall have positive drainage toward an approved outlet from the site. Drain lines behind curbs and/or adjacent to landscape areas should be considered by client and the appropriate design engineers to prevent water from infiltrating beneath pavement. If such infiltration occurs, damage to pavement, curbs and flow lines, especially on sites with expansive soils, may occur during the life of the project.

7.10 Utility Trench and Excavation Backfill

Trenches from installation of utility lines and other excavations may be backfilled with on-site soils or approved imported soils compacted to a minimum of 90% relative compaction. All utility lines shall be properly bedded with clean sand having a sand equivalency rating of 30 (SE > 30) or more. This bedding material shall be thoroughly water jetted around the pipe structure prior to placement of compacted backfill soils.

7.11 Corrosion Design Criteria

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations and underground utilities were tested for corrosion potential. The minimum resistivity value obtained for the samples tested is representative of an environment that may be corrosive to metals. The soil pH value was considered mildly acidic and may have a significant effect on soil corrosivity. Consideration should be given to corrosion protection systems for buried metal such as protective coatings, wrappings or the use of PVC where permitted by local building codes.

According to Table 4.3.1, ACI 318 Building Code and Commentary, these contents revealed negligible levels of sulfate exposure. Therefore, a Type II cement according to latest CBC specifications may be utilized for building foundations at this time. Additional sulfate tests shall be performed at the completion of site grading to assure that these soils are consistent with the recommendations stated in this design. Sulfate test results may be found on the attached Table III.

7.12 Expansive Soil

If any expansive soils are encountered, special attention should be given to the project design and maintenance. The attached *Expansive Soil Guidelines* should be reviewed by the engineers, architects, owner, maintenance personnel and other interested parties and considered during the design of the project and future property maintenance.

8.0 Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase. It is the responsibility of the owner to ensure that all information within this report is submitted to the Architect and appropriate Engineers for the project. This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project.

A preconstruction conference should be held between the developer, general contractor, grading contractor, city inspector, architect, and soil engineer to clarify any questions relating to the grading operations and subsequent construction. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker

REGISTERED PROFESSIONAL ENGINEER
KEITH D. TUCKER
No. 841
Exp. 12/31/16
GEOTECHNICAL
STATE OF CALIFORNIA

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager

SPECIFICATIONS FOR PLACEMENT OF COMPACTED FILL

Excavation

Any existing low density soils and/or saturated soils shall be removed to competent natural soil under the inspection of the Soils Engineering Firm. After the exposed surface has been cleansed of debris and/or vegetation, it shall be scarified until it is uniform in consistency, brought to the proper moisture content and compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557).

In any area where a transition between fill and native soil or between bedrock and soil are encountered, additional excavation beneath foundations and slabs will be necessary in order to provide uniform support and avoid differential settlement of the structure.

Material For Fill

The on-site soils or approved import soils may be utilized for the compacted fill provided they are free of any deleterious materials and shall not contain any rocks, brick, asphaltic concrete, concrete or other hard materials greater than eight inches in maximum dimensions. Any import soil must be approved by the Soils Engineering firm a minimum of 24 hours prior to importation of site.

Placement of Compacted Fill Soils

The approved fill soils shall be placed in layers not excess of six inches in thickness. Each lift shall be uniform in thickness and thoroughly blended. The fill soils shall be brought to within 2% of the optimum moisture content, unless otherwise specified by the Soils Engineering firm. Each lift shall be compacted to a minimum of 90% relative compaction (in accordance with ASTM: D-1557) and approved prior to the placement of the next layer of soil. Compaction tests shall be obtained at the discretion of the Soils Engineering firm but to a minimum of one test for every 500 cubic yards placed and/or for every 2 feet of compacted fill placed.

The minimum relative compaction shall be obtained in accordance with accepted methods in the construction industry. The final grade of the structural areas shall be in a dense and smooth condition prior to placement of slabs-on-grade or pavement areas. No fill soils shall be placed, spread or compacted during unfavorable weather conditions. When the grading is interrupted by heavy rains, compaction operations shall not be resumed until approved by the Soils Engineering firm.

Grading Observations

The controlling governmental agencies should be notified prior to commencement of any grading operations. This firm recommends that the grading operations be conducted under the observation of a Soils Engineering firm as deemed necessary. A 24 hour notice must be provided to this firm prior to the time of our initial inspection.

Observation shall include the clearing and grubbing operations to assure that all unsuitable materials have been properly removed; approve the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished grade and designate areas of overexcavation; and perform field compaction tests to determine relative compaction achieved during fill placement. In addition, all foundation excavations shall be observed by the Soils Engineering firm to confirm that appropriate bearing materials are present at the design grades and recommend any modifications to construct footings.

Expansive Soil Guidelines

The following expansive soil guidelines are provided for your project. The intent of these guidelines is to inform you, the client, of the importance of proper design and maintenance of projects supported on expansive soils. ***You, as the owner or other interested party, should be warned that you have a duty to provide the information contained in the soil report including these guidelines to your design engineers, architects, landscapers and other design parties in order to enable them to provide a design that takes into consideration expansive soils.***

In addition, you should provide the soil report with these guidelines to any property manager, lessee, property purchaser or other interested party that will have or assume the responsibility of maintaining the development in the future.

Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The amount of this swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. Expansive soils are divided into five categories ranging from "very low" to "very high". Expansion indices are assigned to each classification and are included in the laboratory testing section of this report. *If the expansion index of the soils on your site, as stated in this report, is 21 or higher, you have expansive soils.* The classifications of expansive soils are as follows:

Classification of Expansive Soil*

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

When expansive soils are compacted during site grading operations, care is taken to place the materials at or slightly above optimum moisture levels and perform proper compaction operations. Any subsequent excessive wetting and/or drying of expansive soils will cause the soil materials to expand and/or contract. These actions are likely to cause distress of foundations, structures, slabs-on-grade, sidewalks and pavement over the life of the structure. ***It is therefore imperative that even after construction of improvements, the moisture contents are maintained at relatively constant levels, allowing neither excessive wetting or drying of soils.***

Evidence of excessive wetting of expansive soils may be seen in concrete slabs, both interior and exterior. Slabs may lift at construction joints producing a trip hazard or may crack from the pressure of soil expansion. Wet clays in foundation areas may result in lifting of the structure causing difficulty in the opening and closing of doors and windows, as well as cracking in exterior and interior wall surfaces. In extreme wetting of soils to depth, settlement of the structure may eventually result. Excessive wetting of soils in landscape areas adjacent to concrete or asphaltic pavement areas may also result in expansion of soils beneath pavement and resultant distress to the pavement surface.

Excessive drying of expansive soils is initially evidenced by cracking in the surface of the soils due to contraction. Settlement of structures and on-grade slabs may also eventually result along with problems in the operation of doors and windows.

Projects located in areas of expansive clay soils will be subject to more movement and "hairline" cracking of walls and slabs than similar projects situated on non-expansive sandy soils. There are, however, measures that developers and property owners may take to reduce the amount of movement over the life the development. The following guidelines are provided to assist you in both design and maintenance of projects on expansive soils:

- Drainage away from structures and pavement is essential to prevent excessive wetting of expansive soils. Grades should be designed to the latest building code and maintained to allow flow of irrigation and rain water to approved drainage devices or to the street. Any "ponding" of water adjacent to buildings, slabs and pavement after rains is evidence of poor drainage; the installation of drainage devices or regrading of the area may be required to assure proper drainage. Installation of rain gutters is also recommended to control the introduction of moisture next to buildings. Gutters should discharge into a drainage device or onto pavement which drains to roadways.

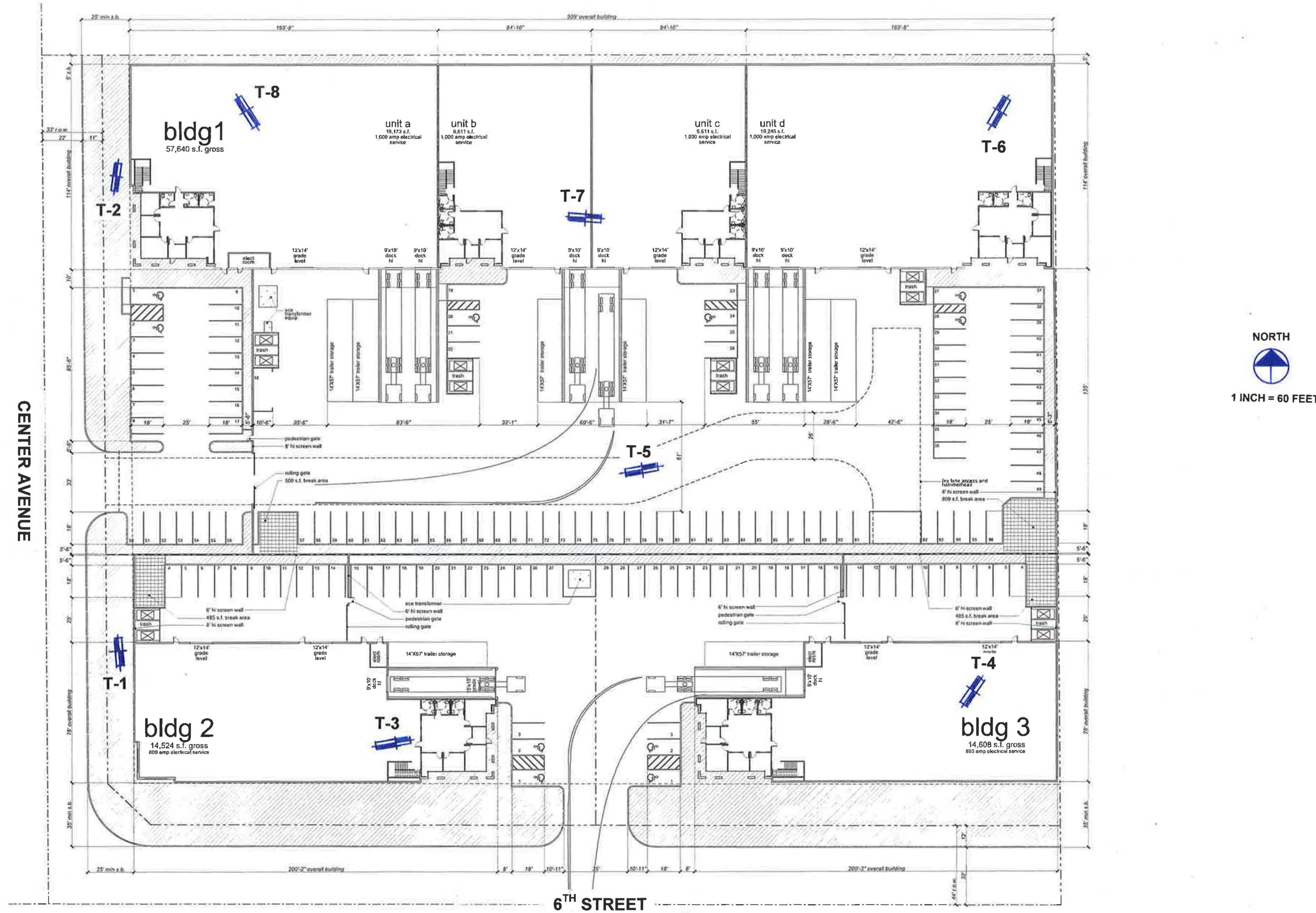
- Irrigation should be strictly controlled around building foundations, slabs and pavement and may need to be adjusted depending upon season. This control is essential to maintain a relatively uniform moisture content in the expansive soils and to prevent swelling and contracting. Over-watering adjacent to improvements may result in damage to those improvements. NorCal Engineering makes no specific recommendations regarding landscape irrigation schedules.

- Planting schemes for landscaping around structures and pavement should be analyzed carefully. Plants (including sod) requiring high amounts of water may result in excessive wetting of soils. Trees and large shrubs may actually extract moisture from the expansive soils, thus causing contraction of the fine-grained soils.

- Thickened edges on exterior slabs will assist in keeping excessive moisture from entering directly beneath the concrete. A six-inch thick or greater deepened edge on slabs may be considered. Underlying interior and exterior slabs with 6 to 12 inches or more of non-expansive soils and providing presaturation of the underlying clayey soils as recommended in the soil report will improve the overall performance of on-grade slabs.

- Increase the amount of steel reinforcing in concrete slabs, foundations and other structures to resist the forces of expansive soils. The precise amount of reinforcing should be determined by the appropriate design engineers and/or architects.

- Recommendations of the soil report should always be followed in the development of the project. Any recommendations regarding presaturation of the upper subgrade soils in slab areas should be performed in the field and verified by the Soil Engineer.



NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT	18712-16	DATE	FEBRUARY 2016

SITE PLAN

List of Appendices
(in order of appearance)

Appendix A

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL. SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVEL-LY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

Indicates 2.5-inch Inside Diameter. Ring Sample.

Indicates 2-inch OD Split Spoon Sample (SPT).

Indicates Shelby Tube Sample.

Indicates No Recovery.

Indicates SPT with 140# Hammer 30 in. Drop.

Indicates Bulk Sample.

Indicates Small Bag Sample.

Indicates Non-Standard

Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Sixth & Center LLC 18712-16	Log of Trench T-1

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	**Groundwater Depth:** None Encountered
Drilling Method: Backhoe	
Hammer Weight:	**Drop:**
Surface Elevation: Not Measured	

Depth (feet)	Lithology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
	GWT not encountered	NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel					
5		Boring completed at depth of 5'					
10							
15							
20							
25							
30							
35							

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NorCal Engineering

Sixth & Center LLC 18712-16	Log of Trench T-2

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lithology		Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		GWT not encountered	FILL Silty (fine to medium grained) SAND Brown, loose, moist					
			NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel					
5								
			Gravelly (fine to coarse grained) SAND Light brown, medium dense, damp; slightly silty					
10			Boring completed at depth of 10'					
15								
20								
25								
30								
35								

NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-3

Boring Location: 6th & Center, Rancho Cucamonga

Date of Drilling: 2/16/16 | Groundwater Depth: None Encountered

Drilling Method: Backhoe

Hammer Weight: | Drop:

Surface Elevation: Not Measured

Depth (feet)	Lithology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	GWT not encountered	FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel Intermingled lenses of gravelly sand	■		6.5	109.9	
5			■		3.8	112.4	
10			■		3.9	111.5	
			■		4.7	106.2	
15			■		4.5	108.9	
20		Boring completed at depth of 20'	■		7.4	105.5	
25							
30							
35							

NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-4

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist to damp; with occasional gravel					
5			■		11.1	104.5	
10		Boring completed at depth of 10'	■		6.5	108.2	
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-5

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel			4.5	109.7	
5		Boring completed at depth of 5'					
10							
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-6

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel	■		3.9	108.8	
5							
		Gravelly (fine to coarse grained) SAND Light brown, medium dense, damp; slightly silty	■		4.6	99.5	
10		Boring completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-7

Boring Location: 6th & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	**Groundwater Depth: None Encountered**
Drilling Method: Backhoe	
Hammer Weight:	**Drop:**
Surface Elevation: Not Measured	

Depth (feet)	Lithology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
	GWT not encountered	NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel					
5			■		3.6	114.9	
		Gravelly (fine to coarse grained) SAND Light brown, medium dense, damp; slightly silty					
10			■		2.1	110.5	
15		Boring completed at depth of 15'					
20							
25							
30							
35							

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NorCal Engineering

Sixth & Center LLC
18712-16

Log of Trench T-8

Boring Location: 6th & Center, Rancho Cucamonga

Date of Drilling: 2/16/16 | Groundwater Depth: None Encountered

Drilling Method: Backhoe

Hammer Weight: | Drop:

Surface Elevation: Not Measured

Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0	FILL Silty (fine to medium grained) SAND Brown, loose, moist					
	NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel	■		5.3	103.6	
5		■		4.2	109.2	
10	Gravelly (fine to coarse grained) SAND Light brown, medium dense, damp; slightly silty	■		1.9	111.0	
	Boring completed at depth of 12'					
15						
20						
25						
30						
35						

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\1871216-2.log Date: 2/24/2016

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Appendix B

TABLE I
MAXIMUM DENSITY TESTS

Sample	Classification	Optimum Moisture	Maximum Dry Density (lbs./cu.ft.)
T-3 @ 2'	Silty SAND	10.5	126.0

TABLE II
EXPANSION INDEX TESTS

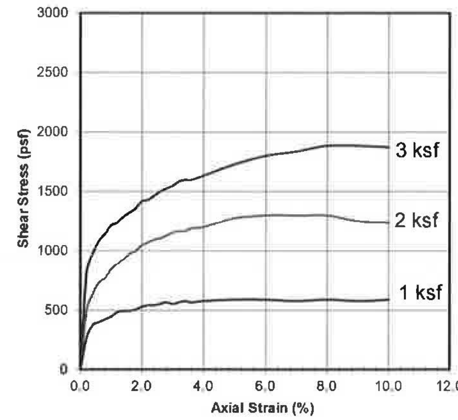
Soil Type	Classification	Expansion Index
T-3 @ 2'	Silty SAND	3

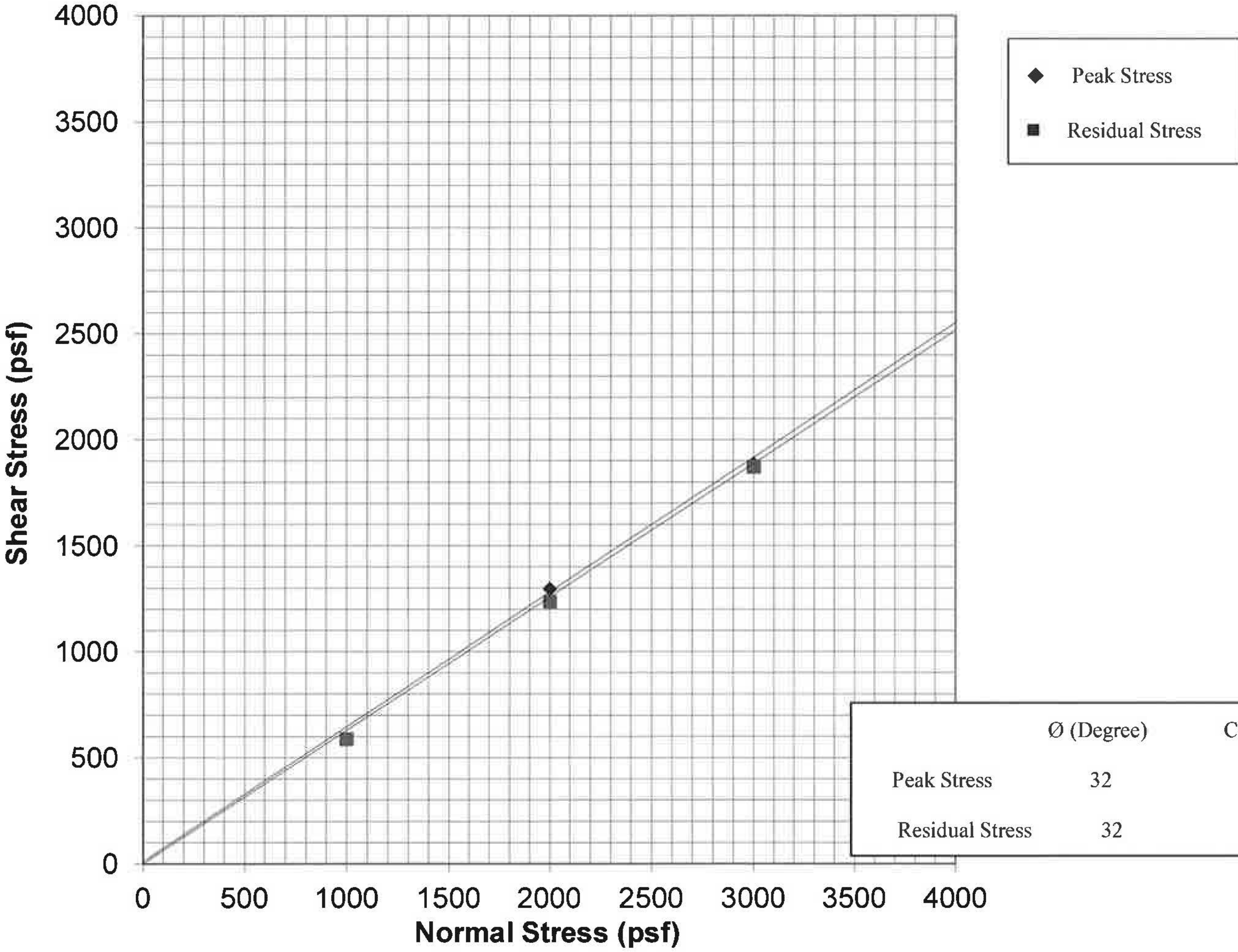
TABLE III
CORROSION TESTS

Sample	pH	Electrical Resistivity (ohm-cm)	Sulfate (%)	Chloride (ppm)
T-3 @ 2'	6.7	12,353	0.001	155

ND denotes not detected
% by weight
ppm – mg/kg

Sample No.	T3@2'			
Sample Type:	Undisturbed/Saturated			
Soil Description:	Silty Fine Grained Sand w/ Some Small Gravel			
		1	2	3
Normal Stress	(psf)	1000	2000	3000
Peak Stress	(psf)	588	1296	1884
Displacement	(in)	0.125	0.150	0.200
Residual Stress	(psf)	588	1236	1872
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	109.9	109.9	109.9
In Situ Water Content	(%)	6.5	6.5	6.5
Saturated Water Content	(%)	19.7	19.7	19.7
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Degree)	C (psf)
Peak Stress	32	10
Residual Stress	32	0

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SOILS AND GEOTECHNICAL CONSULTANTS

Sixth & Center, LLC

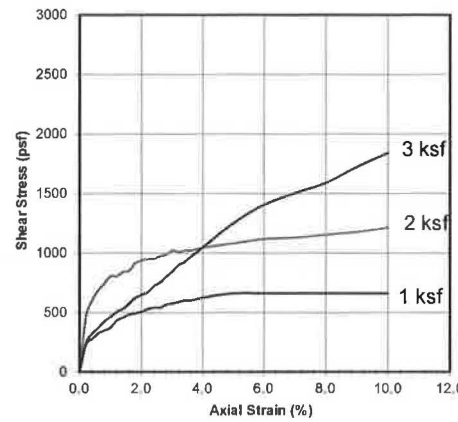
PROJECT NUMBER: 18712-16 DATE: 2/24/2016

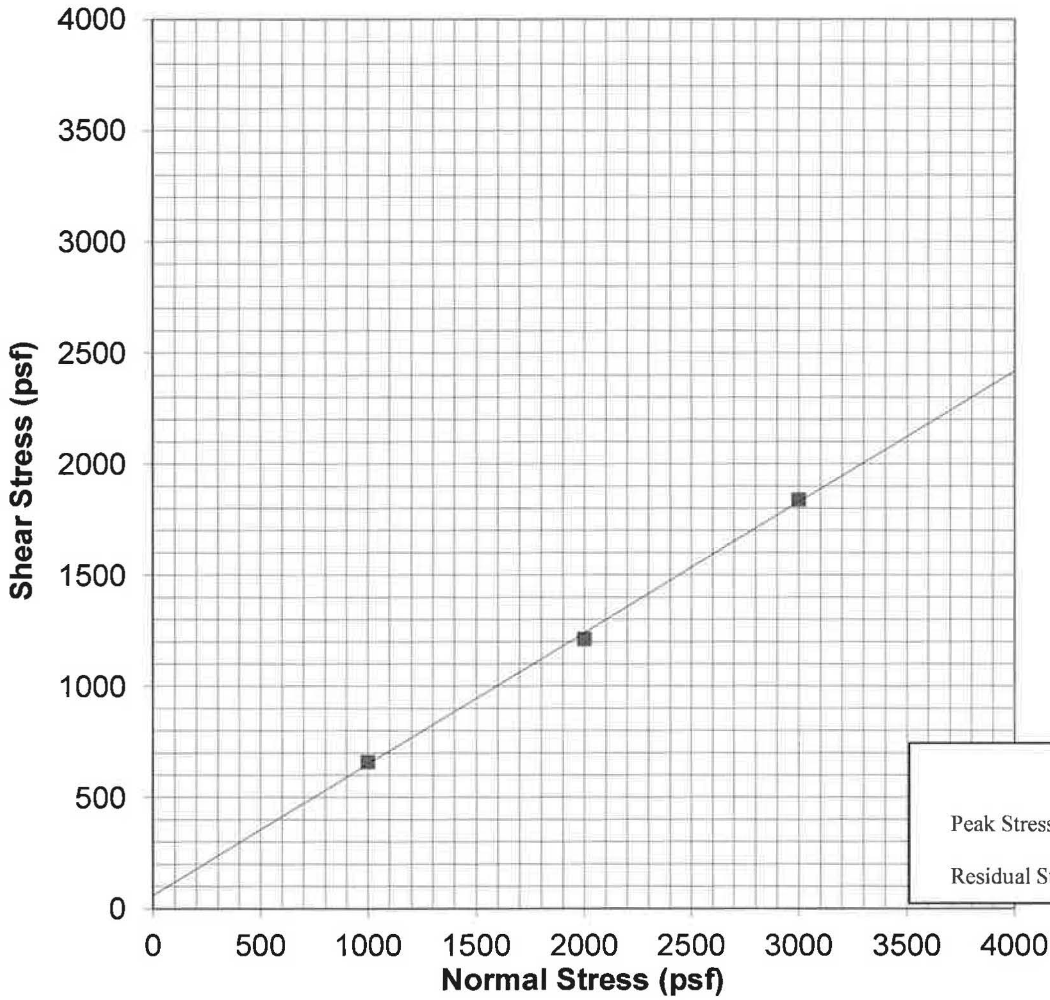
DIRECT SHEAR TEST

ASTM D3080

Plate A

Sample No.		T4@4'		
Sample Type:		Undisturbed/Saturated		
Soil Description:		Fine Grained Sand w/ Some Silt & Gravel		
		1	2	3
Normal Stress	(psf)	1000	2000	3000
Peak Stress	(psf)	660	1212	1840
Displacement	(in.)	0.125	0.250	0.250
Residual Stress	(psf)	660	1212	1840
Displacement	(in.)	0.250	0.250	0.250
In Situ Dry Density	(pcf)	104.5	104.5	104.5
In Situ Water Content	(%)	11.1	11.1	11.1
Saturated Water Content	(%)	22.7	22.7	22.7
Strain Rate	(in/min)	0.020	0.020	0.020





	Ø (Degree)	C (psf)
Peak Stress	30	60
Residual Stress	30	60

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Sixth & Center, LLC

PROJECT NUMBER: 18712-16 DATE: 2/24/2016

DIRECT SHEAR TEST

ASTM D3080

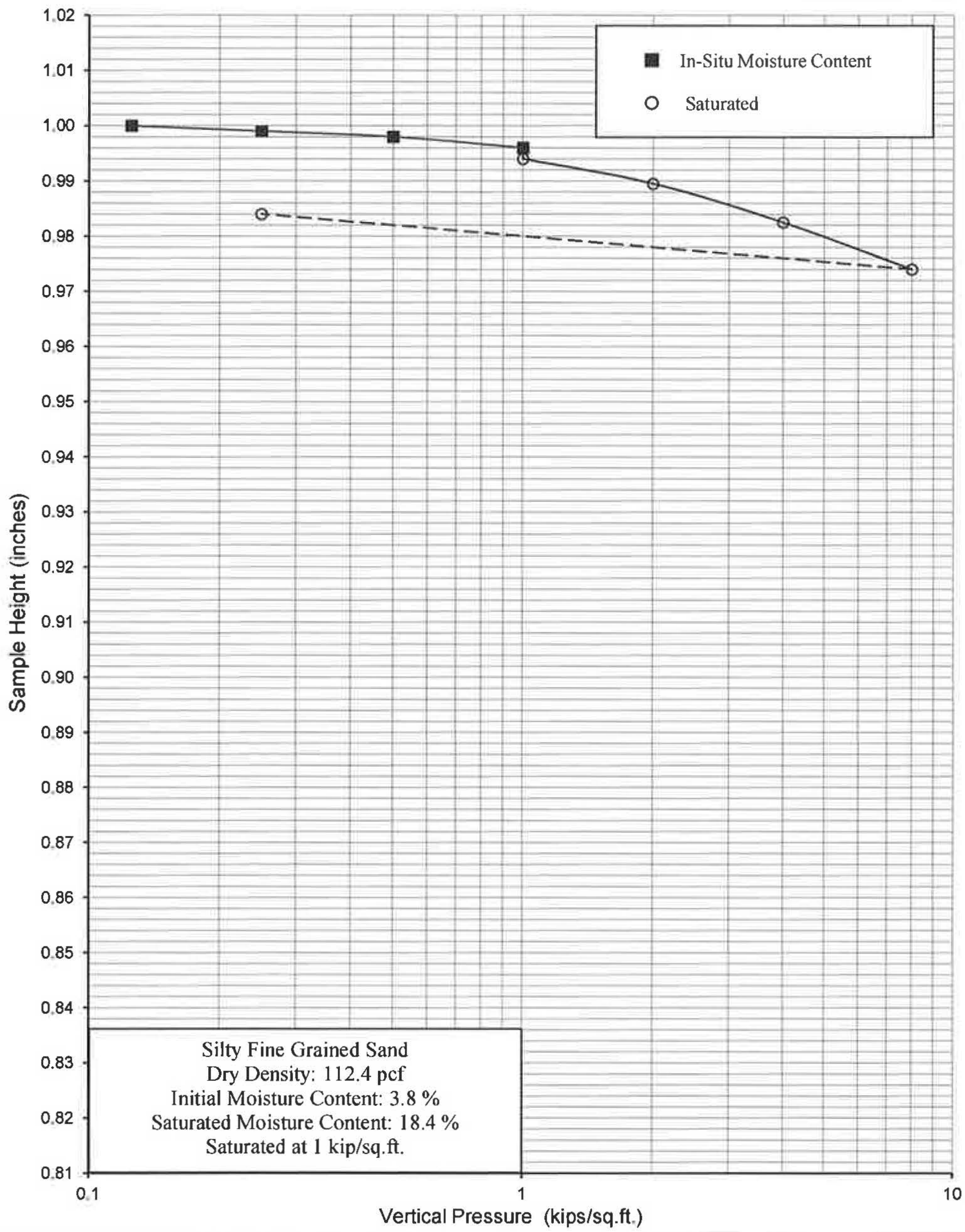
Plate B

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	Sample No.	T3	Depth	5'	Date	2/24/2016

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)
0.125	1.0000	0.0
0.25	0.9990	0.1
0.5	0.9980	0.2
1	0.9960	0.4
1	0.9940	0.6
2	0.9895	1.1
4	0.9825	1.8
8	0.9740	2.6
0.25	0.9840	1.6

Saturated

Date Tested: 2/22/2016
Sample: T3
Depth: 5'



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SOILS AND GEOTECHNICAL CONSULTANTS

Sixth & Center, LLC

PROJECT NUMBER: 18712-16 DATE: 2/24/2016

CONSOLIDATION TEST

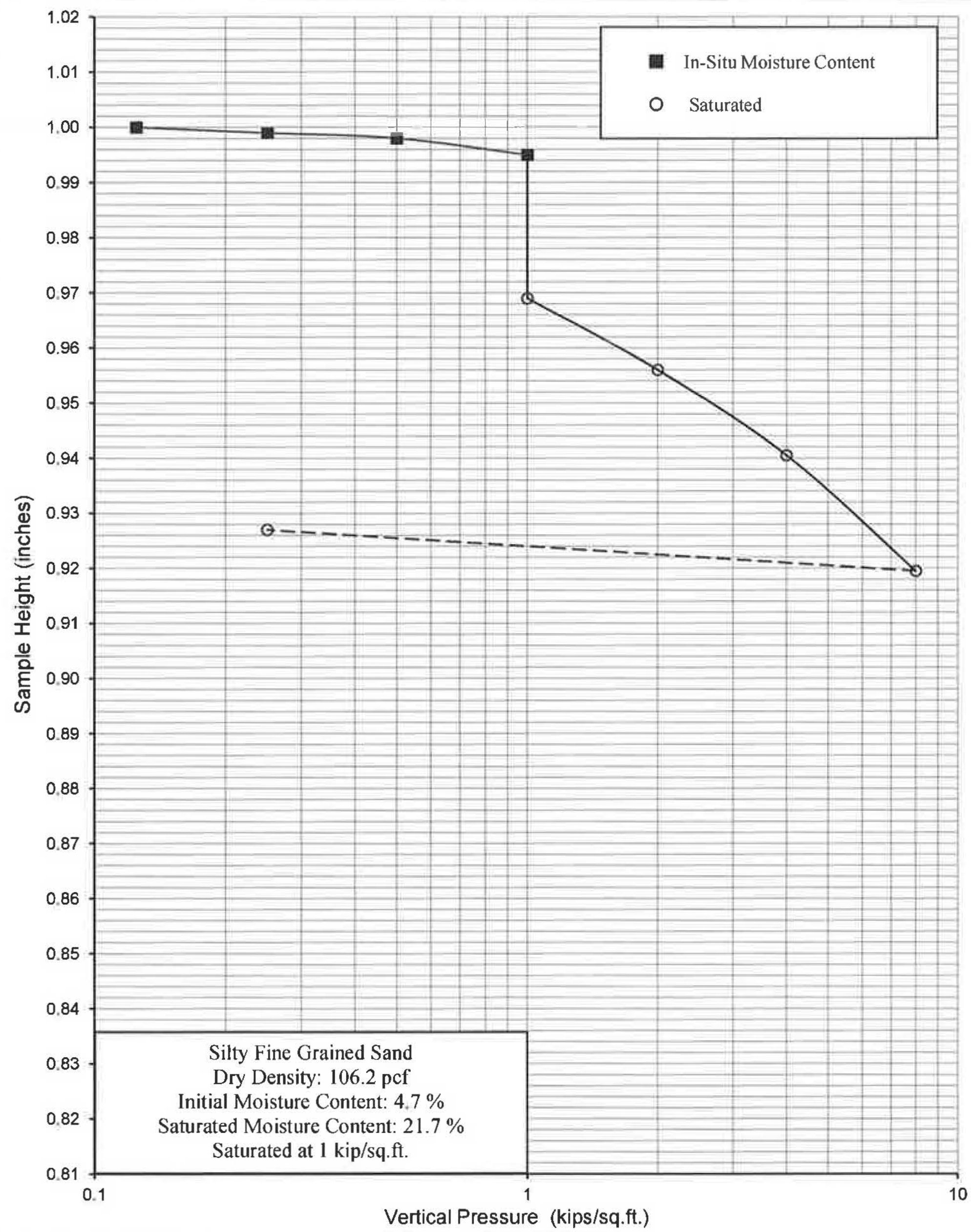
ASTM D2435

Plate C

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	Sample No.	T3	Depth	12'	Date	2/24/2016

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	
0.125	**1.0000**	**0.0**	
0.25	**0.9990**	**0.1**	
0.5	**0.9980**	**0.2**	
1	**0.9950**	**0.5**	
1	**0.9690**	**3.1**	**Saturated**
2	**0.9560**	**4.4**	
4	**0.9405**	**6.0**	
8	**0.9195**	**8.1**	
0.25	**0.9270**	**7.3**	

Date Tested: 2/22/2016
Sample: T3
Depth: 12'



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SOILS AND GEOTECHNICAL CONSULTANTS

Sixth & Center, LLC

PROJECT NUMBER: 18712-16 DATE: 2/24/2016

CONSOLIDATION TEST

ASTM D2435

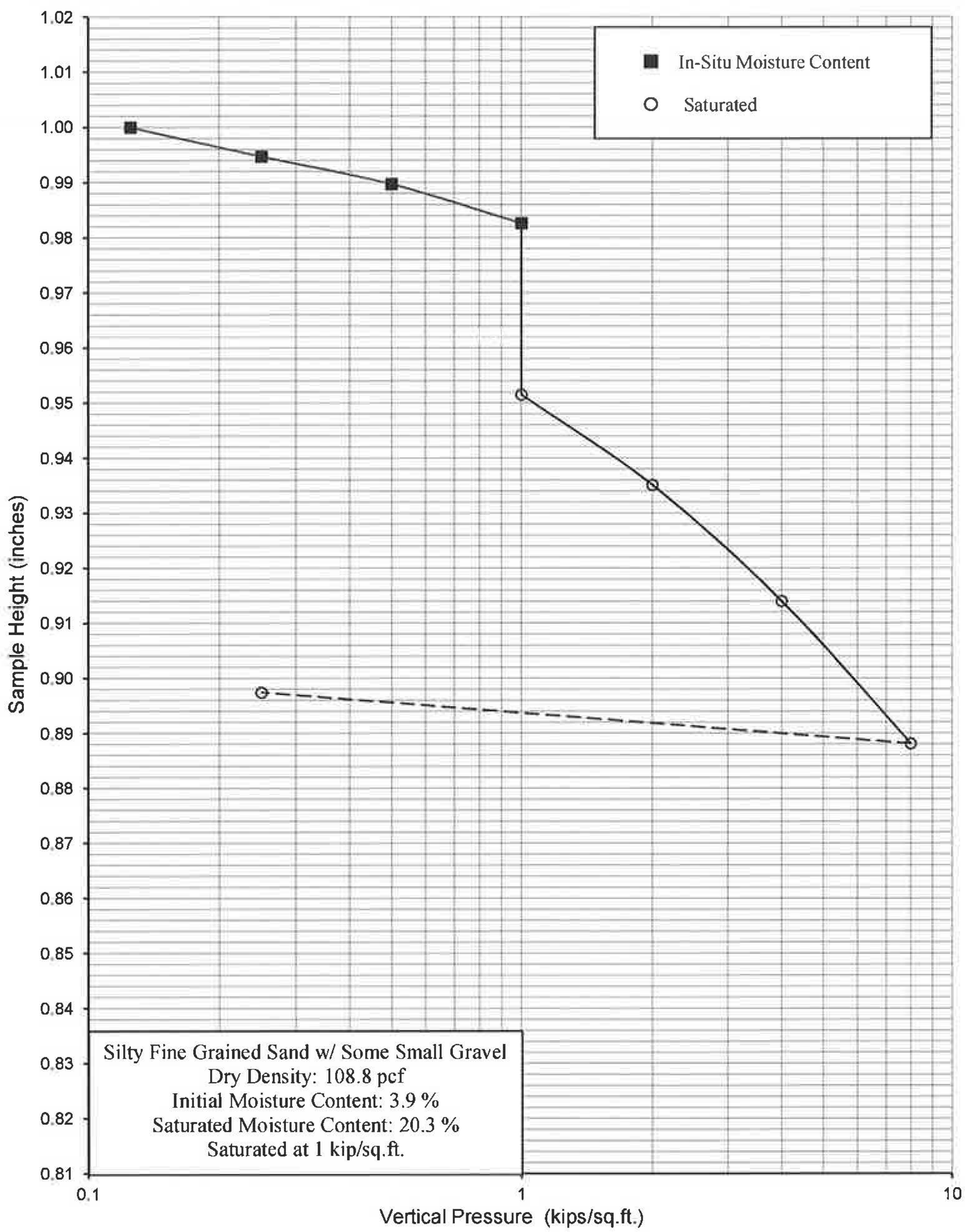
Plate D

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)
0.125	1.0000	0.0
0.25	0.9947	0.5
0.5	0.9897	1.0
1	0.9826	1.7
1	0.9515	4.9
2	0.9351	6.5
4	0.9140	8.6
8	0.8881	11.2
0.25	0.8974	10.3

Saturated

Sample No. T6 Depth 4' Date 2/24/2016

Date Tested: 2/22/2016
Sample: T6
Depth: 4'



Silty Fine Grained Sand w/ Some Small Gravel
Dry Density: 108.8 pcf
Initial Moisture Content: 3.9 %
Saturated Moisture Content: 20.3 %
Saturated at 1 kip/sq.ft.

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SOILS AND GEOTECHNICAL CONSULTANTS

Sixth & Center, LLC

PROJECT NUMBER: 18712-16 DATE: 2/24/2016

CONSOLIDATION TEST

ASTM D2435

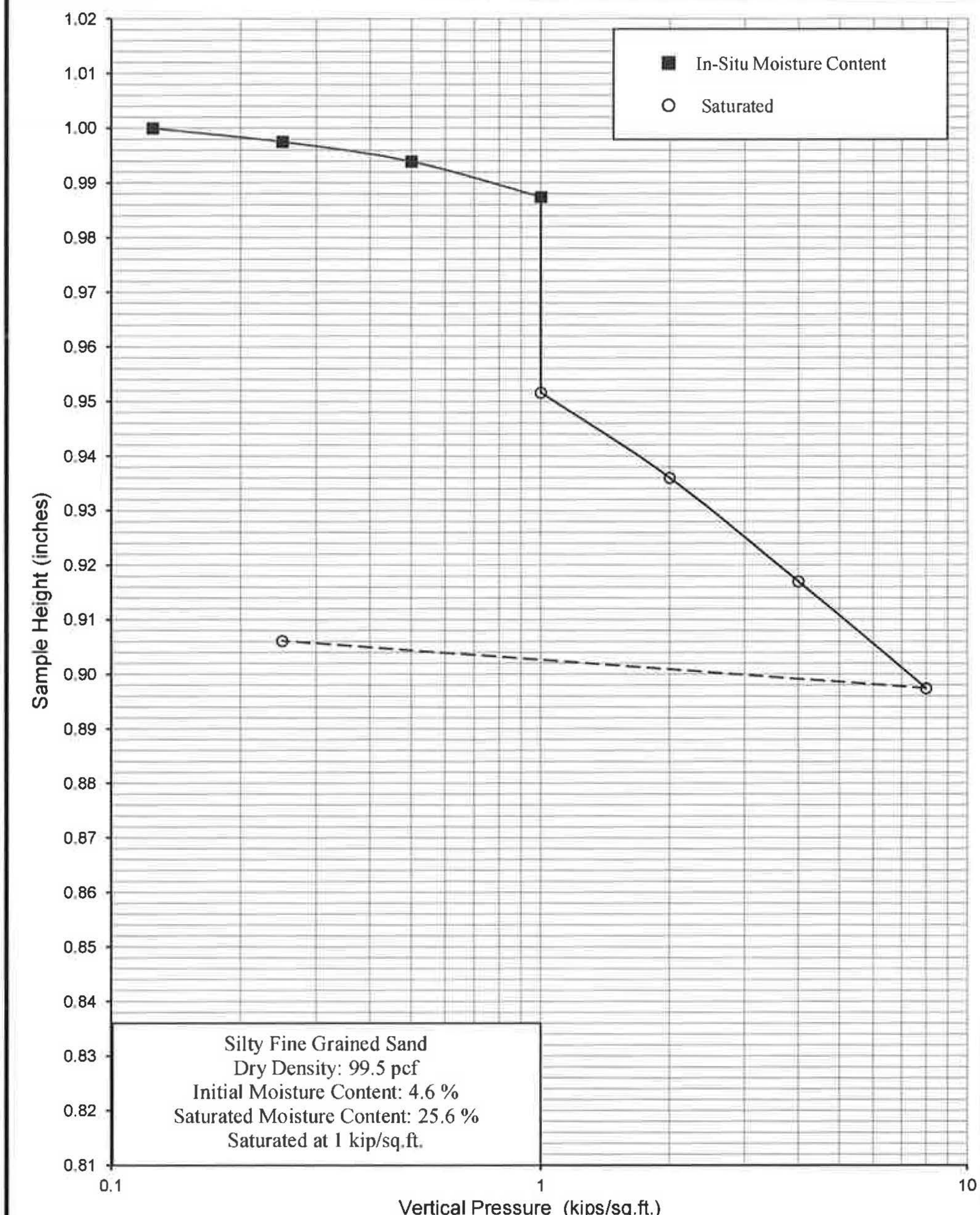
Plate E

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)
0.125	1.0000	0.0
0.25	0.9975	0.2
0.5	0.9939	0.6
1	0.9874	1.3
1	0.9516	4.8
2	0.9360	6.4
4	0.9170	8.3
8	0.8974	10.3
0.25	0.9061	9.4

Saturated

Date Tested: 2/23/2016
Sample: T6
Depth: 8'

Sample No.	T6	Depth	8'	Date	2/24/2016



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SOILS AND GEOTECHNICAL CONSULTANTS

Sixth & Center, LLC

PROJECT NUMBER: 18712-16 DATE: 2/24/2016

CONSOLIDATION TEST

ASTM D2435

Plate F

NorCal Engineering
Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

February 24, 2016 Project Number 18712-16

Sixth and Center LLC
1360 Reynolds Avenue, Suite 112
Irvine, California 92614

Attn.: Mr. Philip Homme

RE: **Soil Infiltration Study** - Proposed Industrial Development - Located at the Northeast Corner of 6th Street and Center Avenue, in the City of Rancho Cucamonga, California

Dear Mr. Homme:

Pursuant to your request, this firm has performed a Soils Infiltration Study for the above referenced project in accordance with your approval of proposal dated February 3, 2016. The purpose of this study is to evaluate the feasibility of an on-site drainage disposal system for the proposed development. The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration; 3) double ring infiltration testing; 4) engineering analysis of field and laboratory data; and 5) preparation of a report.

It is proposed to construct three (3) industrial buildings totaling 86,772 square feet on the 5.40-acre subject property as shown on the attached Site Plan. The proposed concrete tilt-up buildings will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. Other improvements will consist of new asphalt/concrete pavement, hardscape and landscaping. It is assumed that the proposed grading for the development will include minor cut and fill procedures. The proposed on-site drainage disposal system will consist of a shallow infiltration basin and/or trenches.

Site Description

The subject property is located at the northeast corner of 6th Street and Center Avenue, in the City of Rancho Cucamonga. The generally rectangular-shaped parcel is relatively level with topography of the relatively level property descending gradually from north to south on the order of a few feet. The site is currently an undeveloped lot covered with a low growth of vegetation consisting of natural weeds and grasses.

Field Exploration

The testing was conducted on February 16, 2016 and consisted of using the double ring infiltrometer at two (2) locations to determine the infiltration rate of the proposed drainage disposal system. The location of these tests is shown on the attached Site Plan. These test locations were excavated by a backhoe at a depth of 5 and 10 feet below ground surface (bgs). Slight caving did occur to the depth of these test excavations and no groundwater was encountered.

Detailed description of the subsurface soils is shown on the attached test excavations logs in Appendix B. In general, the site was found to be underlain by alluvial deposits consisting of brown, silty, fine to medium grained SAND with gravel to a gravelly, fine to coarse grained, SAND with cobbles. These soils were noted to be medium dense and damp.

Infiltration Test Procedure and Results

The infiltration test consisted of the double ring infiltration test per ASTM Method D 3385. "The double ring infiltrometer method consists of driving two open cylinders, one inside the other, into the ground, partially filling the ring with water or other liquid, and then maintaining the liquid at a constant level. The volume of liquid added to the inner ring, to maintain the liquid level constant is the measure of the volume of liquid that infiltrates the soil.

The volume infiltrated during timed intervals is converted to an incremental infiltration velocity, usually expressed in centimeters per hour or inches per hour and plotted verses elapsed time. The maximum-steady state or average incremental infiltration velocity, depending on the purpose/application of the test is equivalent to the infiltration rate".

Along the bottom of the infiltration test pits, dual infiltration rings were inserted 7 cm vertically into the soil by an impact-absorbing hammer. Guelph tubes, also referred to as bubblers were installed to maintain constant water level in each of the rings. Water levels were maintained at a constant level in both the inner ring and annular space between rings throughout the test, to prevent flow of water from one ring to the other.

The volume of liquid used during each measured time interval was converted into an incremental infiltration velocity of both the inner ring in the annular space using the following equations:

For the inner ring calculated as follows:

$$Vir=\Delta Vir/(Air\Delta t)$$

where:

Vir = inner ring incremental infiltration velocity, cm/hr

ΔVir = volume of water used during time interval to maintain constant head in the inner ring, cm^3

Air = internal area of the inner ting, cm^2

Δt = time interval, hr

The last reading was used for design purposes in each of the test pits. The testing data sheets are attached in Appendix B and summarized in the table below. These excavations were immediately backfilled with the excavated soils and compacted. The double ring infiltration results are shown in Appendix B.

Test No.	Depth (feet bgs)	Soil Type	Infiltration Rate (cm/hr)	(in/hr)
1	5'	Silty Sand	5.3	2.1
2	10'	Gravelly Sand	11.3	45

Groundwater Information

Our firm had recently performed a "Geotechnical Engineering Investigation" dated February 24, 2016 for the subject property and excavated eight (8) exploratory trenches to depths ranging between 5 and 15 feet. No groundwater was encountered to the depth of our excavations. The exposed sidewalls of our trenches did not reveal any evidence (mottling, etc.) that groundwater had been near the surface. The depth of groundwater is expected to be about 400 feet within the vicinity area based on review of ground water maps of the Upper Santa Ana River Basin. (Carson and Matti, 1982).

Discussion of Results

The use of an on-site disposal system by means of a shallow infiltration system appears to be geotechnically feasible for future development. Based upon the results of our testing, the subsurface soils encountered in the proposed on-site drainage disposal system shall utilize a conservative infiltration rate of 2 in/hr in the upper 5 feet. Deeper systems may use an infiltration rate of 10 in/hr to 10 feet below existing grade. All systems must meet the latest city and/or county specifications and California Regional Water Quality Control Board (CRWQCB) requirements.

It is our opinion that the site is suitable for stormwater infiltration without increasing the potential of settlement of proposed and existing structures located either on or adjacent to the subject site. In addition, the potential for hydro-consolidation and the susceptibility for any ground settlements are considered very low. Foundations shall be set back a minimum distance of 10 feet from the drainage disposal system and the bottom of footing shall be a minimum of 10 feet from the expected zone of saturation. The boundary of the zone of saturation may be assumed to project downward from the top of the permeable portion of the disposal system at an inclination of 1 to 1 or flatter, as determined by the soils engineer.

Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase.

This firm should have the opportunity to review the final plans to verify that all our recommendations are incorporated. This report and all conclusions are subject to the review of the controlling authorities for the project. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. All work was performed under the supervision of the Geotechnical Engineer. No other warranty, expressed or implied is made. No other warranty, expressed or implied is made.

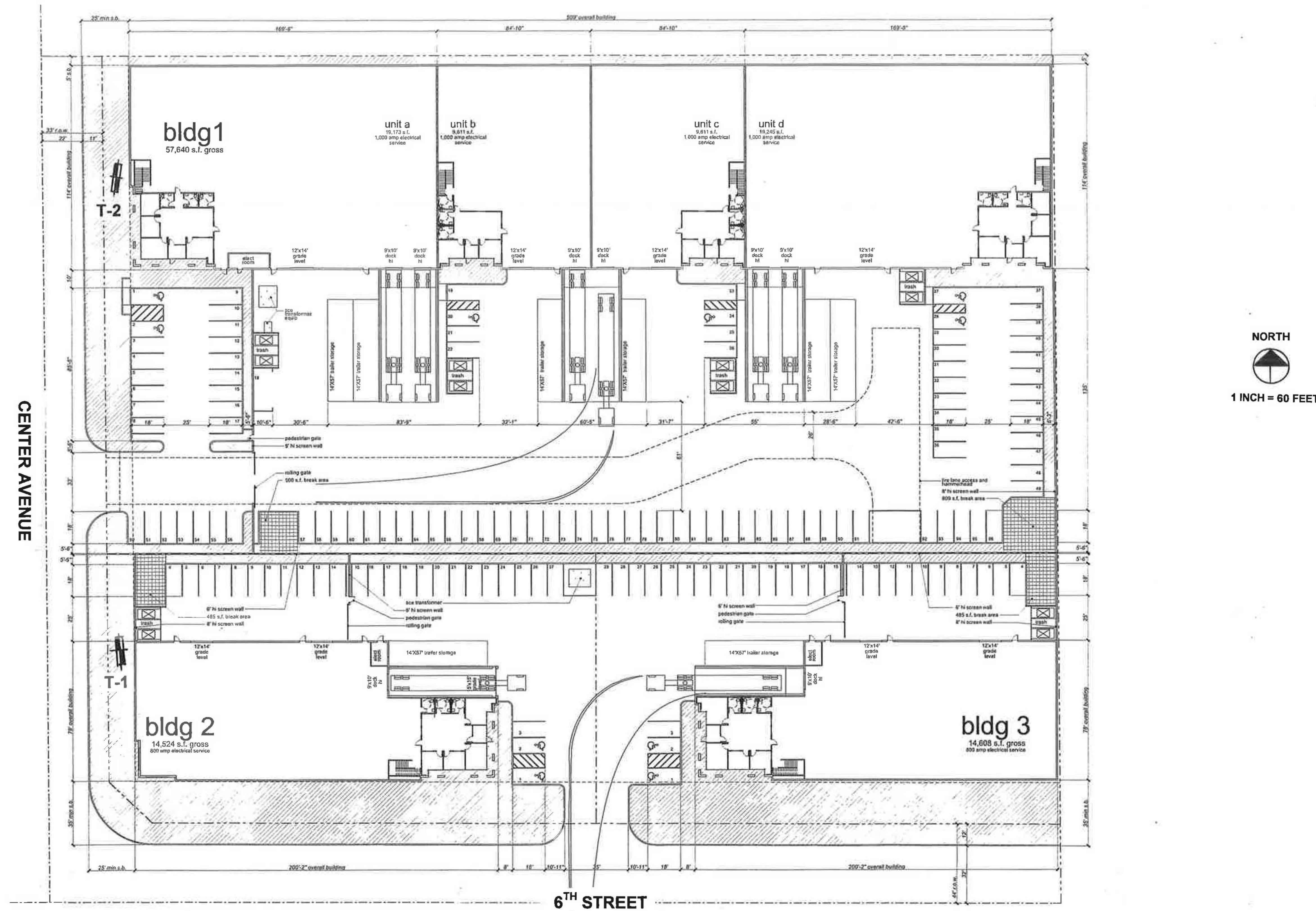
We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

REGISTERED PROFESSIONAL ENGINEER
KEITH D. TUCKER
No. 841
Exp. 12/31/16
GEOTECHNICAL
STATE OF CALIFORNIA

Keith D. Tucker
Project Engineer
R.G.E. 841

Scott D. Spensiero
Project Manager



NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

PROJECT 18712-16 **DATE** FEBRUARY 2016

SITE PLAN

List of Appendices
(in order of appearance)

Appendix A

Log of Exploratory Trenches T-1 and T-2

Appendix B

Field Test Data and Calculations

Appendix A

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL, SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION <u>RETAINED</u> ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS <u>LARGER</u> THAN NO. 200 SIEVE SIZE				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION <u>PASSING</u> ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS <u>SMALLER</u> THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT <u>GREATER</u> THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

■ Indicates 2.5-inch Inside Diameter. Ring Sample.

☒ Indicates 2-inch OD Split Spoon Sample (SPT).

⧅ Indicates Shelby Tube Sample.

◫ Indicates No Recovery.

◧ Indicates SPT with 140# Hammer 30 in. Drop.

🖂 Indicates Bulk Sample.

◪ Indicates Small Bag Sample.

◨ Indicates Non-Standard

☒ Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Sixth & Center LLC 18712-16	Log of Trench T-1

Boring Location: Sixth & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology		Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		GWT not encountered	FILL Silty (fine to medium grained) SAND Brown, loose, moist					
			NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel					
5			Trench completed at depth of 5'					
10								
15								
20								
25								
30								
35								

NorCal Engineering

Sixth & Center LLC 18712-16	Log of Trench T-2

Boring Location: Sixth & Center, Rancho Cucamonga	
Date of Drilling: 2/16/16	Groundwater Depth: None Encountered
Drilling Method: Backhoe	
Hammer Weight:	Drop:
Surface Elevation: Not Measured	

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: % Passing 200 Sieve
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, damp; with occasional gravel					
5							
		Gravelly (fine to coarse grained) SAND Light brown, medium dense, damp; slightly silty					
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

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Appendix B

NORCAL ENGINEERING

SOILS AND GEOTECHNICAL CONSULTANTS

Project:	**Sixth & Center LLC**
Project No:	18712-16
Date:	2/16/16
Test No.	1
Depth:	5'
Tested By:	D.R.

	TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE (cm)	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
1	8:03			99.1			42.6					
	8:13	10	10	100.3	1.2		44.2	1.6				
2	8:13			100.3			44.2					
	8:23	10	20	101.4	1.1		45.6	1.4				
3	8:23			101.4			45.6					
	8:33	10	30	102.4	1.0		46.9	1.3				
4	8:33			102.4			46.9					
	8:43	10	40	103.2	0.8		48.2	1.3				
5	8:43			103.2			48.2					
	8:53	10	50	104.2	1.0		49.5	1.3				
6	8:53			104.2			49.5					
	9:03	10	60	105.0	0.8		50.8	1.3		4.8	7.8	
7	9:03			99.5			44.5					
	9:18	15	75	100.9	1.4		46.5	2.0		5.6	8.0	
8	9:18			100.9			46.5					
	9:33	15	90	102.2	1.3		48.3	1.8		5.2	7.2	
9	9:33			102.2			48.3					
	9:48	15	105	103.6	1.4		50.5	2.2		5.6	8.8	
10	9:48			103.6			50.5					
	10:03	15	120	105.0	1.4		52.3	1.8		5.6	7.2	
11	10:03			100.6			45.0					
	10:18	15	135	101.9	1.3		46.9	1.9		5.2	7.6	
12	10:18			101.9			46.9					
	10:33	15	150	103.2	1.3		48.6	1.7		5.2	6.8	

NORCAL ENGINEERING

SOILS AND GEOTECHNICAL CONSULTANTS

Project:	**Sixth & Center LLC**
Project No:	18712-16
Date:	2/16/16
Test No.	2
Depth:	10'
Tested By:	D.R.

	TIME (hr/min)	CHANGE TIME (min)	CUMULATIVE TIME (min)	INNER RING READING (cm)	INNER RING CHANGE	INNER RING FLOW (cc)	OUTER RING READING (cm)	OUTER RING CHANGE (cm)	OUTER RING FLOW (cc)	INNER RING INF RATE (cm/hr)	OUTER RING INF RATE (cm/hr)	INNER RING INF RATE (ft/hr)
1	10:50			101.6			46.1					
	10:52	2	2	107.6	6.0		52.5	6.4				
2	10:52			100.5			44.3					
	10:55	3	5	107.6	7.1		52.1	7.8				
3	10:55			99.8			42.4					
	10:59	4	9	108.0	8.2		51.0	8.6				
4	10:59			99.5			42.3					
	11:03	4	13	107.2	7.7		50.3	8.0				
5	11:03			98.6			42.7					
	11:07	4	17	107.0	8.4		50.9	8.2				
6	11:07			99.5			42.9					
	11:11	4	21	107.4	7.9		50.8	7.9		118.5	118.5	
7	11:11			99.1			42.3					
	11:15	4	25	107.0	7.9		50.0	7.7		118.5	115.5	
8	11:15			99.4			41.8					
	11:19	4	29	107.0	7.6		49.2	7.4		114.0	111.0	
9	11:19			99.4			42.8					
	11:23	4	33	107.0	7.4		49.7	6.9		111.0	103.5	
10	11:23			99.4			42.9					
	11:27	4	37	106.8	7.3		50.4	7.5		109.5	112.5	
11	11:27			99.5			43.8					
	11:31	4	41	107.0	7.5		50.9	7.1		112.5	106.5	
12	11:31			100.4			44.3					
	11:35	4	45	107.6	7.2		51.4	7.1		108.0	106.5	

APPENDIX G

Noise

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\10.slmdl
Model/Serial Number: 824 / A3176
Firmware/Software Revs: 4.283 / 3.120
Name:
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup/Setup Descr: slm&rta.ssa / SLM & Real-Time Analyzer
Location: At pallet stacking area on north side of Walmart
Note1: Approx. 10' from operational forklift
Note2: 70F, 29.43 in Hg, 27% Humid., 4 mph wind, partly cloudy

Overall Any Data
Start Time: 18-May-2011 17:21:20
Elapsed Time: 00:04:00.7

	A Weight	C Weight	Flat
Leq:	74.4 dBA	80.5 dBC	81.0 dBF
SEL:	98.2 dBA	104.3 dBC	104.8 dBF
Peak:	108.4 dBA	109.1 dBC	109.1 dBF
	18-May-2011 17:24:51	18-May-2011 17:24:44	18-May-2011 17:24:48
Lmax (slow):	87.9 dBA	90.9 dBC	91.0 dBF
	18-May-2011 17:24:49	18-May-2011 17:24:49	18-May-2011 17:24:49
Lmin (slow):	62.8 dBA	68.6 dBC	69.7 dBF
	18-May-2011 17:21:34	18-May-2011 17:21:33	18-May-2011 17:21:33
Lmax (fast):	91.7 dBA	93.9 dBC	94.0 dBF
	18-May-2011 17:24:48	18-May-2011 17:24:48	18-May-2011 17:24:48
Lmin (fast):	59.2 dBA	67.1 dBC	68.2 dBF
	18-May-2011 17:21:28	18-May-2011 17:21:30	18-May-2011 17:21:30
Lmax (impulse):	94.3 dBA	96.2 dBC	96.3 dBF
	18-May-2011 17:24:51	18-May-2011 17:24:44	18-May-2011 17:24:48
Lmin (impulse):	63.1 dBA	69.1 dBC	70.4 dBF
	18-May-2011 17:23:23	18-May-2011 17:21:33	18-May-2011 17:21:33

Spectra

Date	Time	Run Time
18-May-2011	17:21:20	00:04:00.7

Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1	Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1
12.5	63.2		76.2		39.0		630	67.7		84.8		45.8	
16.0	60.8	66.2	73.2	78.3	41.6	45.6	800	64.6		83.9		47.6	
20.0	59.6		67.5		41.5		1000	63.1	68.6	82.1	86.9	46.7	52.4
25.0	62.7		70.0		44.6		1250	63.6		79.1		48.4	
31.5	67.6	72.5	68.8	73.9	46.6	51.1	1600	63.8		79.9		48.8	
40.0	70.0		68.5		47.3		2000	61.7	66.9	81.9	84.9	46.3	51.4
50.0	70.4		68.1		48.0		2500	60.1		77.6		42.6	
63.0	71.6	76.2	83.2	86.2	51.8	55.4	3150	63.4		76.7		41.0	
80.0	72.1		83.1		51.2		4000	53.5	64.2	73.4	79.7	36.6	43.3
100	68.5		73.7		51.0		5000	53.5		74.0		36.4	
125	68.7	73.9	77.6	82.2	50.3	54.9	6300	49.8		69.2		32.9	
160	70.1		79.2		48.9		8000	47.2	52.2	66.0	71.2	30.3	35.3
200	68.1		77.5		51.5		10000	42.4		59.4		25.8	
250	63.4	69.9	73.7	80.0	46.3	53.3	12500	39.5		57.8		24.0	
315	60.2		73.2		45.0		16000	34.8	41.1	52.6	59.4	23.0	27.7
400	65.6		78.8		48.7		20000	30.1		48.9		21.3	
500	69.1	72.5	85.1	88.5	48.5	52.6							

Ln Start Level: 15 dB

L1.00	0.0 dBA	L50.00	0.0 dBA	L95.00	0.0 dBA
L5.00	0.0 dBA	L90.00	0.0 dBA	L99.00	0.0 dBA

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 1 times
SPL Exceedance level 2: 120 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105 dB Exceeded: 4 times
Peak-2 Exceedance Level: 100 dB Exceeded: 4 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\10.slmdl
Model/Serial Number: 824 / A3176

Current Any Data
Start Time: 18-May-2011 17:21:20
Elapsed Time: 00:04:00.7

	A Weight	C Weight	Flat
Leq:	74.4 dBA	80.5 dBC	81.0 dBF
SEL:	98.2 dBA	104.3 dBC	104.8 dBF
Peak:	108.4 dBA	109.1 dBC	109.1 dBF
	18-May-2011 17:24:51	18-May-2011 17:24:44	18-May-2011 17:24:48
Lmax (slow):	87.9 dBA	90.9 dBC	91.0 dBF
	18-May-2011 17:24:49	18-May-2011 17:24:49	18-May-2011 17:24:49
Lmin (slow):	62.8 dBA	68.6 dBC	69.7 dBF
	18-May-2011 17:21:34	18-May-2011 17:21:33	18-May-2011 17:21:33
Lmax (fast):	91.7 dBA	93.9 dBC	94.0 dBF
	18-May-2011 17:24:48	18-May-2011 17:24:48	18-May-2011 17:24:48
Lmin (fast):	59.2 dBA	67.1 dBC	68.2 dBF
	18-May-2011 17:21:28	18-May-2011 17:21:30	18-May-2011 17:21:30
Lmax (impulse):	94.3 dBA	96.2 dBC	96.3 dBF
	18-May-2011 17:24:51	18-May-2011 17:24:44	18-May-2011 17:24:48
Lmin (impulse):	63.1 dBA	69.1 dBC	70.4 dBF
	18-May-2011 17:23:23	18-May-2011 17:21:33	18-May-2011 17:21:33

Calibrated:	18-May-2011 13:09:02	Offset:	-48.2 dB
Checked:	19-May-2011 06:46:08	Level:	113.9 dB
Calibrator	not set	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Disabled	Number Interval Records:	0
History Records:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2