Banyan Avenue Residential

AIR QUALITY IMPACT ANALYSIS

CITY OF RANCHO CUCAMONGA

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LIST OF ABBREVIATED TERMS

%	Percent
°F	Degrees Fahrenheit
(1)	Reference
µg/m^3	Microgram per Cubic Meter
1992 CO Plan	*1992 Federal Attainment Plan for Carbon Monoxide*
1993 CEQA Handbook	SC*AQMD's CEQA Air Quality Handbook (1993)*
2003 AQMP	*SCAQMD's 2003 Air Quality Management Plan*
2016 AQMP	*SCAQMD's Final 2016 Air Quality Management Plan*
2016-2040 RTP/SCS	*2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*
AB 2595	California Clean Air Act
AQIA	Air Quality Impact Analysis
AQMP	Air Quality Management Plan
BAAQMD	Bay Area Air Quality Management District
Brief	Brief of Amicus Curiae by the SCAQMD in the Friant Ranch Case
C_2H_3Cl	Vinyl Chloride
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEQA Guidelines	*2019 CEQA Statute and Guidelines*
City	City of Rancho Cucamonga
CO	Carbon Monoxide
COHb	Carboxyhemoglobin
EIR	Environmental Impact Reports
EMFAC	EMissions FACtor Model
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
H_2S	Hydrogen Sulfide

HI	Hazard Index
hp	Horsepower
lbs	Pounds
lbs/day	Pounds Per Day
LST	Localized Significance Threshold
LST METHODOLOGY	Final Localized Significance Threshold Methodology
MICR	Maximum Individual Cancer Risk
MM	Mitigation Measures
mph	Miles Per Hour
MWELO	California Department of Water Resources' Model Water Efficient
N_2	Nitrogen
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NC	Neighborhood Commercial
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
O_3	Ozone
O_2 Deficiency	Chronic Hypoxemia
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	Banyan Avenue Residential
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
SIPs	State Implementation Plans
SO_2	Sulfur Dioxide
SO_4	Sulfates
SO_X	Sulfur Oxides
SR-210	State Route 210
SRA	Source Receptor Area
TAC	Toxic Air Contaminant

Title 24	California Building Code
TITLE I	Non-Attainment Provisions
TITLE II	Mobile Sources Provisions
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
vph	Vehicles Per Hour

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Banyan Avenue Residential Air Quality Impact Analysis* (AQIA) 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* (*CEQA Guidelines*) as implemented by the County of Riverside (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures (MM) 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	3.7	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Operational Emissions	3.8	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.9	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.10	*Less Than Significant*	*n/a*
Sensitive Receptors	3.11	*Less Than Significant*	*n/a*
Odors	3.12	*Less Than Significant*	*n/a*
Cumulative Impacts	3.13	*Less Than Significant*	*n/a*

ES.2 STANDARD REGULATORY REQUIREMENTS

There are numerous requirements that development projects must comply with by law, and that were put in place by federal, State, and local regulatory agencies for the improvement of air quality. The two most pertinent regulatory requirements that apply to the proposed Project and which are required by South Coast Air Quality Management District (SCAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to

Rule 403 (Fugitive Dust) (2) and Rule 1113 (Architectural Coatings) (3). As such, credit for Rule 403 and Rule 1113 have been taken in the analysis.

SCAQMD RULE 403

This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent and reduce fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth moving and grading activities.

SCAQMD RULE 1113

This rule serves to limit the Volatile Organic Compound (VOC) content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

ES.3 CONSTRUCTION AND OPERATIONAL-SOURCE EMISSIONS MMS

The Project would not result in an exceedance of any regional or localized construction or operational-source emissions thresholds. As such, the Project would not result in any significant impacts and no MMs are required.

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1 INTRODUCTION

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

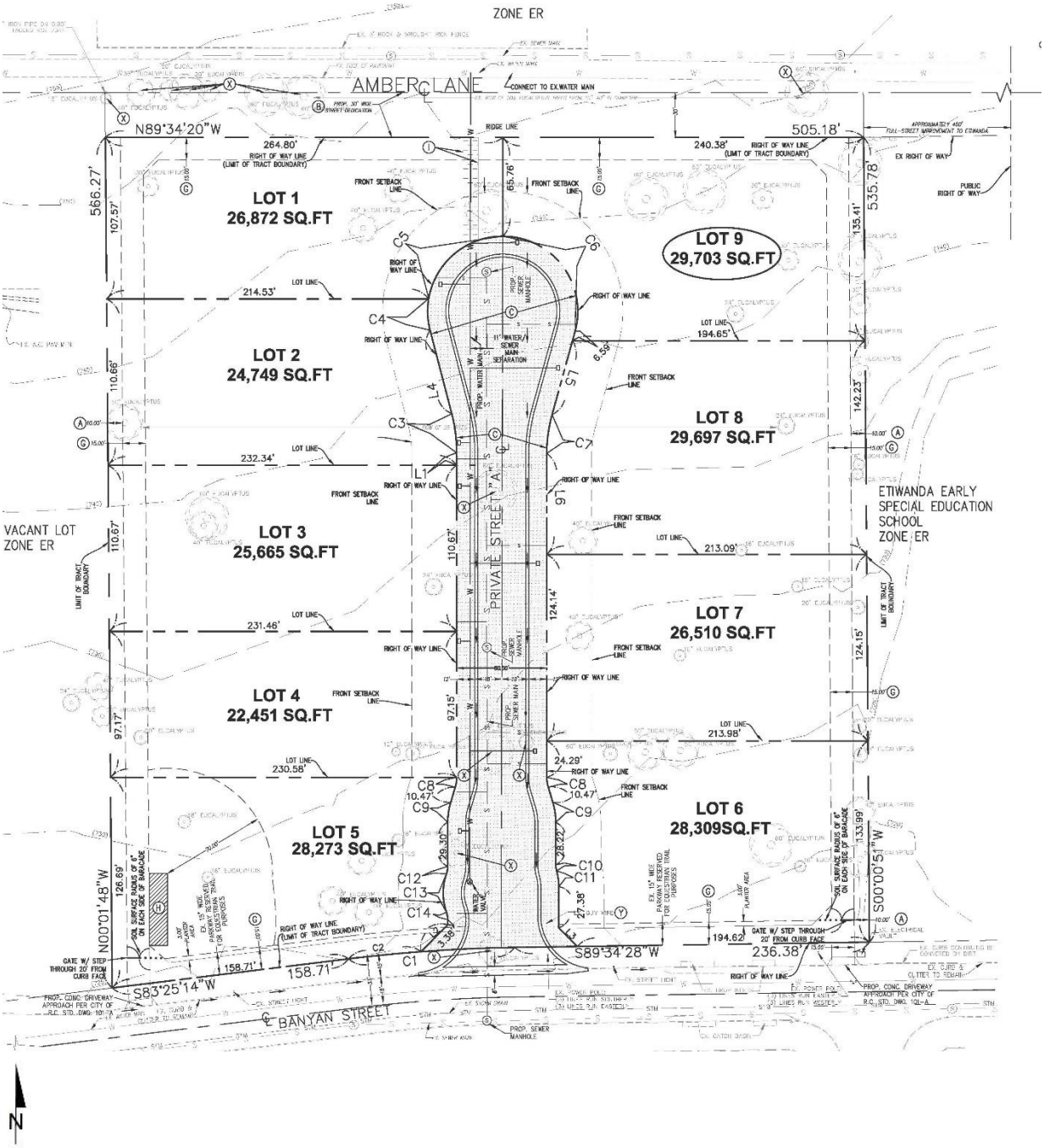
1.1 SITE LOCATION

The proposed Banyan Avenue Residential site is located at 12774 Summit Avenue (Banyan), in the City of Rancho Cucamonga. The Project site is currently vacant. Residential land uses are located north and south of the Project site. The Frost First Education Center and Etiwanda Medical Therapy Unit are located adjacent east of the Project site. Vacant land located adjacent west and south of the Project site are designated as "Very Low Density Residential" (4). The State Route 210 (SR-210) Freeway is located approximately 0.45 miles south of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of nine (9) single family residential dwelling units (DU) on a 4.62-acre site. Exhibit 1-A illustrates the site plan for the Project.

EXHIBIT 1-A: SITE PLAN



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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 (SCAB)

The Project site is located in the SCAB within the jurisdiction of SCAQMD (5). 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 previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded 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 bounded 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 bounded 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 (°F). 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 (SO_2) to sulfates (SO_4) 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% along the coast and 59% 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% 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 14½ 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 nitrogen oxides (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 SCAB 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 onshore 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 CRITERIA POLLUTANTS

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 health effects are identified below (6):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	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 (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	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 (O_2) supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with O_2 transport and competing with O_2 to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for O_2 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 (O_2 deficiency) as seen at high altitudes.

Criteria Pollutant	Description	Sources	Health Effects
SO_2	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 SO_4. Collectively, these pollutants are referred to as sulfur oxides (SO_X).	Coal or oil burning power plants and industries, refineries, diesel engines	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.

Criteria Pollutant	Description	Sources	Health Effects
NO_X	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 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. NO_X is 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 monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	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 result 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 O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer	Formed when reactive organic gases (ROG) and NO_X react in the presence of sunlight. ROG sources include any source	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 O_3 effects. Short-term exposure (lasting for a

Criteria Pollutant	Description	Sources	Health Effects
	months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	few hours) to O_3 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 O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 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 outdoor sports and live in communities with high O_3 levels. O_3 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 O_3 may be more toxic than exposure to O_3 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.
Particulate Matter	PM_{10}: A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X,	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

Criteria Pollutant	Description	Sources	Health Effects
	and consequently the significant reduction air clarity. 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. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$: A similar air pollutant to PM_{10} 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 SO_4 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.	organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	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 lifespan, 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 $PM_{2.5}$.
VOC	VOCs 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	Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products.	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.

Criteria Pollutant	Description	Sources	Health Effects
	form O_3 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 CO, 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 terms VOC and ROG (see below) interchangeably.	Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	
ROG	Similar to VOC, ROGs are also precursors in forming O_3 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 NO_X 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 terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include	Metal smelters, resource recovery, leaded gasoline, deterioration of Pb paint.	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.

Criteria Pollutant	Description	Sources	Health Effects
	operational activities such as metal processing or Pb acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of Pb emissions.		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.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves (7).	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	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.

2.5 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated 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 2-2 (8).

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. At the time of this AQIA, the most recent state and federal standards were updated by CARB on May ,4 2016 and are presented in Table 2-2. 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 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the SCAQMD meets the standards set by the EPA or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS standards. In order to improve air quality in nonattainment areas, a State Implementation Plan (SIP) is drafted by CARB. The SIP outlines the measures that the state will take to improve air quality. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area (9).

TABLE 2-2: 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 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

TABLE 2-2: 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 (5/4/16)**

2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: CO, Pb, O_3, particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (10). On February 21, 2019, CARB posted the 2018 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (11). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.7 LOCAL AIR QUALITY

The SCAQMD has designated general forecast areas and air monitoring areas (referred to as Source Receptor Areas [SRA]) throughout the district in order to provide Southern California residents about the air quality conditions. The Project site is located within the Northwest San Bernardino Valley area (SRA 32). Within SRA 32, the Northwest San Bernardino Valley monitoring station is located approximately 6.2 miles southwest of the Project site and reports air quality statistics for O_3, CO, NO_2, and PM_{10}. As the Northwest San Bernardino Valley monitoring station does not include statistics for $PM_{2.5}$, the next nearest station will be used. The Central San Bernardino Valley 1 (SRA 34) monitoring station, located approximately 3.13 miles southeast of the Project, is the next nearest monitoring stations that reports air quality statistics for $PM_{2.5}$. It should be noted that the Central San Bernardino Valley 1 monitoring station was utilized in lieu of the Northwest San Bernardino Valley monitoring station only in instances where data was not available.

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to

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

be representative of the local air quality at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ for 2017 through 2019 was obtained from the SCAQMD Air Quality Data Tables (12). Additionally, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2017-2019

Pollutant	Standard	Year		
		2017	2018	2019
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.150	0.133	0.131
Maximum Federal 8-Hour Concentration (ppm)		0.127	0.111	0.107
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	66	25	31
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	87	52	52
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.9	1.7	1.5
Maximum Federal 8-Hour Concentration	> 20 ppm	1.4	1.2	1.1
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.064	0.059	0.058
Annual Federal Standard Design Value		0.015	0.015	0.014
PM_{10}				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	106	73	125
Annual Federal Arithmetic Mean ($\mu g/m^3$)		31.5	32.3	28.1
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 $\mu g/m^3$	26	14	7
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	39.20	2920	46.50
Annual Federal Arithmetic Mean ($\mu g/m^3$)	> 12 $\mu g/m^3$	12.04	11.13	10.84
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	1	0	2

ppm= Parts Per Million
Source: Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from SCAQMD Air Quality Data Tables.

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (13). The 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 EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of 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 (14). The CAA also mandates that states submit and implement 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) (15) (16). 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 Pb. 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 2-3 (previously presented) provides the NAAQS within the SCAB.

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 NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

CARB.

CARB, which became part of the CalEPA 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. AB 2595 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. CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl 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 (17) (13).

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 (AQMP) 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 5% or more annual reduction in emissions or 15% 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 5% per year under certain circumstances.

Title 24 Energy Efficiency Standards and California Green Building Standards.

CCR Title 24 Part 6: The California Energy Code 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. CALGreen is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that became effective January 1, 2020.

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 waste and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65% diversion requirement.

The code also provides exemptions for areas not served by construction waste 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.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2020.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings.

The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) will use approximately 30% less energy due to lighting upgrade requirements (18).

Because the Project will be constructed after January 1, 2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (18):

- Short-term bicycle parking. If the new project or an additional alteration 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% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking 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).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3).
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8)
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section
- 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).

  - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
  - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMP 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 3.11.

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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, contribute to an existing or projected air quality violation, or 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 NAAQS and CAAQS. Additionally, the Project has been evaluated to determine consistency with the applicable AQMP, exposure of sensitive receptors to substantial pollutant concentrations, and the impacts of odors. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the *CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (1):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (20). The SCAQMD's *CEQA Air Quality Significance Thresholds* (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Regional Construction Threshold	Regional Operational 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
Pb	3 lbs/day	3 lbs/day

Source: Regional Thresholds presented in this table are based on the SCAQMD Air Quality Significance Thresholds, April 2019
lbs/day = Pounds Per Day

3.3 MODELS EMPLOYED TO ANALYZE AIR QUALITY

3.3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL (CALEEMOD)

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 CalEEMod Version 2016.3.2. 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 GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from MMs (21). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1.

3.3.2 EMISSION FACTORS MODEL

On August 19, 2019, the EPA approved the 2017 version of the EMissions FACtor model (EMFAC) web database for use in SIP and transportation conformity analyses. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, vehicle miles traveled (VMT) from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by CARB to project changes in future emissions from on-road mobile sources (22). This AQIA utilizes summer, winter, and annual EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season.

Because the EMFAC2017 emission rates are associated with vehicle fuel types while CalEEMod vehicle emission factors are aggregated to include all fuel types for each individual vehicle class, the EMFAC2017 emission rates for different fuel types of a vehicle class are averaged by activity or by population and activity to derive CalEEMod emission factors. The equations applied to obtain CalEEMod vehicle emission factors for each emission type are detailed in CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* (23). EMFAC2017 emission rates utilized in this analysis can be found in Appendix 3.2 of this report.

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

GRADING ACTIVITIES

Dust is typically a major concern during 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.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. This analysis assumes that earthwork activities are expected to balance on site and no import or export of soils would be required.

CONSTRUCTION WORKER VEHICLE TRIPS

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

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in May 2021 and will last through June 2022. The construction schedule utilized in the analysis, shown in Table 3-2, 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[2]. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (1).

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	05/03/2021	05/14/2021	10
Grading	05/15/2021	06/11/2021	20
Building Construction	06/12/2021	04/29/2022	230
Paving	04/30/2022	05/27/2022	20
Architectural Coating	05/28/2022	06/24/2022	20

3.4.2 CONSTRUCTION EQUIPMENT

The construction equipment fleet was based on CalEEMod defaults. Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 3-3 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code. It should be noted that most

[2] As shown in the 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.

pieces of equipment would likely operate for fewer hours per day. A summary of construction equipment assumptions by phase is provided at Table 3-3.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Amount	Hours Per Day
Site Preparation	Rubber Tired Dozers	3	8
	Tractors/Loaders/Backhoes	4	8
Grading	Graders	2	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.3 REGIONAL CONSTRUCTION EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

CalEEMod calculates maximum daily emissions for summer and winter periods. As such, the estimated maximum daily construction emissions without mitigation for both summer and winter periods are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. As shown on Table 3-4, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions of any criteria pollutant.

TABLE 3-4: OVERALL CONSTRUCTION EMISSIONS SUMMARY – WITHOUT MITIGATION

Year	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer						
2021	3.98	40.55	21.90	0.04	10.95	5.99
2022	63.34	16.87	17.57	0.03	0.90	0.82
Winter						
2021	3.98	40.56	21.77	0.04	10.95	5.99
2022	63.34	16.87	17.55	0.03	0.90	0.82
Maximum Daily Emissions	**63.34**	**40.56**	**21.90**	**0.04**	**10.95**	**5.99**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod construction-source (unmitigated) emissions are presented in Appendix 3.1.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the 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
- On-Site Cargo Handling Equipment Emissions

3.5.1 AREA SOURCE EMISSIONS

ARCHITECTURAL COATINGS

Over a period of time the building that is 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 CalEEMod.

CONSUMER PRODUCTS

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 defaults provided within CalEEMod.

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 CalEEMod.

3.5.2 Energy Source Emissions

Combustion Emissions Associated with Natural Gas and Electricity

Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas.

When combustion of natural gas occurs within a building, the building is considered a direct emission source and CalEEMod will calculate emissions of all criteria pollutants (23). For purposes of analysis, the emissions associated with natural gas use were calculated using CalEEMod.

CalEEMod also calculates criteria pollutants from generation of electricity associated with a building. It should be noted that when electricity is used in buildings, the electricity generation typically takes place offsite (i.e. power plants). Because power plants are existing stationary sources, criteria pollutant emissions are generally associated with the power plants and not the individual buildings or electricity users (23). Since electricity will be provided to the Project by Los Angeles Department of Water and Power, Project-related electricity generation is considered to take place offsite and therefore criteria pollutant emissions are not accounted for.

Title 24 Energy Efficiency Standards

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. The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020. The CEC anticipates that nonresidential buildings will use approximately 30% less energy (24). The CalEEMod defaults for Title 24 – Electricity and Lighting Energy were reduced by 30% in order to reflect consistency with the 2019 Title 24 standard.

3.5.3 Mobile Source Emissions

The Project related operational air quality emissions derive primarily from the weekday vehicle trips generated by the Project. This study utilizes the Institute of Transportation Engineers (ITE) 10th Edition Trip Generation Standards for Single-Family Detached Housing (ITE Code 210) to determine project-related mobile-source emissions. Based on ITE Code 210, the Project is expected to generate a total of approximately 86 two-way vehicular trips per day (43 inbound and 43 outbound).

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 brake and tire wear particulates. The emissions estimates for travel on paved roads were calculated using CalEEMod.

3.5.4 REGIONAL OPERATIONAL EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

As previously stated, CalEEMod utilizes summer and winter EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season. The estimated operational-source emissions are summarized on Tables 3-6. Detailed operation model outputs for the Project are presented in Appendix 3.1. As shown on Table 3-6, the Project's daily regional emissions from on-going operations will not exceed any of the thresholds of significance.

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

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Area Source	4.38	0.16	0.81	9.90E-04	0.02	0.02
Energy Source	4.67E-03	0.04	0.02	2.50E-04	3.23E-03	3.23E-03
Mobile Source	0.24	0.72	2.42	7.36E-03	0.63	0.17
Total Maximum Daily Emissions	**4.63**	**0.91**	**3.24**	**8.60E-03**	**0.65**	**0.19**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Winter						
Area Source	4.38	0.16	0.81	9.90E-04	0.02	0.02
Energy Source	4.67E-03	0.04	0.02	2.50E-04	3.23E-03	3.23E-03
Mobile Source	0.23	0.74	2.13	6.96E-03	0.63	0.17
Total Maximum Daily Emissions	**4.61**	**0.94**	**2.95**	**8.20E-03**	**0.65**	**0.19**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod operational-source emissions are presented in Appendix 3.1.

3.6 LOCALIZED SIGNIFICANCE

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (25). 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 SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4[3]. 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 *LST Methodology* (26).

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate SRA for the LST analysis is the SCAQMD Northwest San Bernardino Valley area (SRA 32). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. 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:

- Identify the maximum daily on-site emissions that will occur during construction activity:
    - The maximum daily on-site emissions could be based on information provided by the Project Applicant; or
    - The SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* can be used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod (27) (23).
- If the total acreage disturbed is less than or equal to 5 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 look-up tables establish a maximum daily emissions threshold in lbs/day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than 5 acres per day, then LST impacts may still be conservatively evaluated using the LST look-up tables for a 5-acre disturbance area. Use of the 5-acre disturbance area thresholds can be used to show that even if the daily emissions from all construction activity were emitted within a 5-acre area, and therefore concentrated over a smaller area which would result in greater site adjacent concentrations, the impacts would still be less than significant if the applicable 5-acre thresholds are utilized.
- The LST methodology presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the

[3] The purpose of SCAQMD's Environmental Justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Further, the SCAQMD defines Environmental Justice as "…equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution."

values given, or with receptors at distances between the given receptors, the methodology uses linear interpolation to determine the thresholds.

EMISSIONS CONSIDERED

SCAQMD's *LST Methodology* clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (25)." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

MAXIMUM DAILY DISTURBED-ACREAGE

As a conservative measure, it is assumed that a maximum of 4 acres per day can be actively disturbed. As such, the "Total Acres Graded" field in CalEEMod has been revised to 40 acres for site preparation (4 acres disturbed per day x 10 working days) and 80 acres for grading activities (4 acres disturbed per day x 20 working days).

SENSITIVE RECEPTORS

As previously stated, LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable NAAQS and CAAQS at the nearest residence or sensitive receptor. Receptor locations are off-site locations where individuals may be exposed to emissions from Project activities.

RESIDENTIAL 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". These structures typically include residences, hotels, hospitals, etc. as they are also known to be locations where an individual can remain for 24 hours. Consistent with the LST Methodology, the nearest land use where an individual could remain for 24 hours to the Project site (in this case the nearest residential land use) has been used to determine construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24 hour averaging time.

NON-RESIDENTIAL RECEPTORS

As per the *LST Methodology*, commercial and industrial facilities are not included in the definition of sensitive receptor because employees and patrons do not typically remain onsite for a full 24 hours but are typically onsite for 8 hours or less. The LST Methodology explicitly states that "*LSTs based 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* (25)." For purposes of analysis, if an industrial/commercial use is located at a closer distance to the Project site than the nearest residential use, the nearest industrial/commercial use will be utilized to determine construction

and operational LST air impacts for emissions of NO_2 and CO an individual could be present at these sites for periods of 1 to 8 hours.

PROJECT-RELATED SENSITIVE RECEPTORS

The SCAQMD recommends that the nearest sensitive receptor be considered when determining the Project's potential to cause an individual a cumulatively significant impact. The nearest land use where an individual could remain for 24 hours to the Project site has been used to determine localized construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$ (since PM_{10} and $PM_{2.5}$ thresholds are based on a 24 hour averaging time). The nearest receptor used for evaluation of localized impacts of PM_{10} and $PM_{2.5}$ is represented by the residential community located immediately adjacent north of the Project site.

As previously stated, and consistent with *LST Methodology*, the nearest industrial/commercial use to the Project site is used to determine construction and operational LST air impacts for emissions of NO_X and CO as the averaging periods for these pollutants are shorter (8 hours or less) and it is reasonable to assumed that an individual could be present at these sites for periods of one to 8 hours. It should be noted that the existing residence (R4) is located at a closer distance than the nearest industrial/commercial use. As such, same receptor will be used for evaluation of localized NO_X and CO.

It should be noted that the *LST Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters* (25)." As such a 25-meter receptor distance will be used for evaluation of localized PM_{10}, $PM_{2.5}$, NO_2, and CO.

3.7 CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

3.7.1 LOCALIZED THRESHOLDS FOR CONSTRUCTION ACTIVITY

As previously stated, it is anticipated that the maximum acreage disturbed is 4 acres per day for site preparation and grading activities, the *LST Methodology* provides look-up tables for sites with an area with daily disturbance of 5 acres or less. For the purposes of this analysis, the SCAQMD look-up tables for 4 acres are used to determine localized significance thresholds for site preparation and grading. The thresholds presented in Table 3-6 were calculated by interpolating the threshold values for a 4-acre site and a 25-meter distance for localized PM_{10}, $PM_{2.5}$, NO_X, and CO evaluation.

TABLE 3-6: MAXIMUM DAILY LOCALIZED CONSTRUCTION EMISSIONS THRESHOLDS

Pollutant	Construction Localized Thresholds
NO_X	237 lbs/day
CO	1,873 lbs/day
PM_{10}	13 lbs/day
$PM_{2.5}$	8 lbs/day

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

3.7.2 CONSTRUCTION-SOURCE LOCALIZED EMISSIONS

IMPACTS WITHOUT MITIGATION

Table 3-7 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. As shown, without mitigation, localized construction emissions would exceed the applicable SCAQMD LSTs for emissions of PM_{10} during site preparation activities. Outputs from the model runs for unmitigated construction LSTs are provided in Appendix 3.1.

TABLE 3-7: LOCALIZED SIGNIFICANCE SUMMARY OF CONSTRUCTION – WITHOUT MITIGATION

On-Site Emissions	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation				
Maximum Daily Emissions	**40.50**	**21.15**	**10.74**	**5.93**
SCAQMD Localized Threshold	237	1,873	13	8
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Grading				
Maximum Daily Emissions	**28.51**	**14.35**	**5.25**	**2.61**
SCAQMD Localized Threshold	237	1,873	13	8
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod localized construction-source emissions are presented in Appendix 3.1.

3.8 OPERATIONAL-SOURCE EMISSIONS LST ANALYSIS

The development of the proposed Project is located on 4.62 acres. As previously stated, the total development is proposed to consist of nine (9) single family residential DUs. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no long-term localized significance threshold analysis is needed.

3.9 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 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 SCAQMD's *CEQA Air Quality Handbook (1993)* (*1993 CEQA Handbook*), the SCAB was designated nonattainment under the CAAQS and NAAQS for CO (28).

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.

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 3-8.

TABLE 3-8: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	3.7
Sunset Boulevard/Highland Avenue	4	4.5	3.5
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.2
Long Beach Boulevard/Imperial Highway	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 Air Quality Management Plan (2003 AQMP)* and the *1992 Federal Attainment Plan for Carbon Monoxide* (*1992 CO Plan*), peak CO 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, 9.3 ppm 8-hour CO concentration measured at the Long Beach Boulevard and Imperial Highway 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 8.6 ppm were due to the ambient air measurements at the time the *2003 AQMP* was prepared (29). In contrast, the ambient 8-hour CO concentration within the Project study area is estimated at 1.4 ppm—1.6 ppm. Therefore, even if the traffic volumes for the Project were double or even triple of the traffic volumes generated at the Long Beach Boulevard and Imperial Highway 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 (vph)—or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (30). Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 3-9. The busiest intersection evaluated was that at Wilshire Blvd and Veteran Ave., which has a daily traffic volume of approximately 100,000 vph and AM/PM traffic volumes of 8,062 vph and 7,719 vph respectively (29). The *2003 AQMP* estimated that the 1-hour

concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm)[4]. At buildout of the Project, the highest daily traffic volumes generated at the roadways within the vicinity of the Project are expected to generate less than the highest daily traffic volumes generated at the busiest intersection in the CO "hot spot" analysis. As such, the Project would not likely exceed the most stringent 1-hour CO standard.

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.

TABLE 3-9: TRAFFIC VOLUMES

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

Source: 2003 AQMP

3.10 AQMP

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 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 SCAB. In response, the SCAQMD has adopted a series of 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 SCAQMD released the *Final 2016 AQMP* (*2016 AQMP*). The *2016 AQMP* continues to evaluate current integrated strategies and control measures to meet the NAAQS

[4] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm)

and explores 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 (31). Similar to the 2012 AQMP, the *2016 AQMP* incorporates scientific and technological information and planning assumptions, including the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (*2016-2040 RTP/SCS*), a planning document that supports the integration of land use and transportation to help the region meet the federal Clean Air Act requirements (19). The Project's consistency with the AQMP will be determined using the *2016 AQMP* as discussed below.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the *1993 CEQA Handbook* (32). These indicators are discussed below:

3.10.1 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.

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded.

Construction Impacts – Consistency Criterion 1

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. As such, a less than significant impact is expected.

Operational Impacts – Consistency Criterion 1

As evaluated, and when taking into consideration existing emissions, the Project's operational emissions 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.

3.10.2 CONSISTENCY CRITERION NO. 2

The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

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 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 City of Rancho Cucamonga General Plan is considered to be consistent with the AQMP.

Construction Impacts – Consistency Criterion 2

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 – Consistency Criterion 2

Per the City's General Plan, the Project site is designated for Very Low (0.1-2.0 DU/acre) uses. The Very Low residential land use designation is characterized by detached, very low-density single residential units on 0.5-acre lots or larger, with private yards and private parking. This designation generally applies to the foothill areas north of Banyan Street and north of the Pacific Electric Trail in the Etiwanda area (33). The Project includes the development of nine (9) single family residential DUs. The uses proposed by the Project are consistent with and allowed under the site's current City's General Plan land use designation.

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 have the potential to result in or cause NAAQS or CAAQS violations. Additionally, Project construction and operational-source emissions would not exceed the regional or localized significance thresholds. The Project is therefore considered to be consistent with the AQMP.

3.11 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, childcare 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 exposed to substantial pollutant concentrations during Project construction.

Additionally, the Project will not exceed the SCAQMD localized significance thresholds during operational activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

3.11.1 FRIANT RANCH CASE

In December 2018, in the case of *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, California Supreme Court held that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (April 6, 2015, Appendix 3.3) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes (34).

The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence) (34). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s))[5] (34). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk--it does not necessarily mean anyone will contract cancer as a result of the Project (34). The Brief also cites the author of CARB methodology, which reported that a $PM_{2.5}$ methodology is not suited for small projects and may yield unreliable results (34). Similarly, SCAQMD staff does not currently know of a way to accurately quantify O_3-related health impacts caused by NO_X or VOC emissions from relatively small projects, due to photochemistry and regional model limitations (34). The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful (34).

On the other hand, for extremely large regional projects (unlike the proposed Project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 lbs/day of NO_X and 89,180 lbs/day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to O_3 (34).

The proposed Project does not generate anywhere near 6,620 lbs/day of NO_X or 89,190 lbs/day of VOC emissions. The proposed Project would generate 40.56 lbs/day of NO_X during construction and 0.94 lbs/day of NO_X during operations (0.61% and 0.01% of 6,620 lbs/day, respectively). The Project would also generate 63.34 lbs/day of VOC emissions during construction and 4.63 lbs/day of VOC emissions during operations (0.07% and 0.01% of 89,190 lbs/day, respectively). Therefore, the proposed Project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

[5] It should also be noted that the actual occurrence of specific health conditions is based on numerous other factors that are infeasible to quantify, such as an individual's genetic predisposition, diet, exercise regiment, stress, and other behavioral characteristics.

Notwithstanding, this AQIA does evaluate the proposed Project's localized impact to air quality for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$ by comparing the Proposed Project's on-site emissions to the SCAQMD's applicable LST thresholds. As evaluated in this AQIA, the proposed Project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed Project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$.

3.12 ODORS

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

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

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required (35).

3.13 CUMULATIVE IMPACTS

As previously shown in Table 2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (36). 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 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.

CONSTRUCTION IMPACTS

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that Project construction-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

OPERATIONAL IMPACTS

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that Project operational-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

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5 CERTIFICATIONS

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Banyan Avenue Residential 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 hqureshi@urbanxroads.com.

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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 – CARB • 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

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

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 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

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 CARB 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 CARB 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 CARB 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.

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Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 1

California Ambient Air Quality Standards
Area Designations for Ozone [1]

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTHEAST PLATEAU AIR BASIN				X
Alpine County			X		SACRAMENTO VALLEY AIR BASIN				
Inyo County	X				Colusa and Glenn Counties				X
Mono County	X				Sutter/Yuba Counties				
LAKE COUNTY AIR BASIN				X	Sutter Buttes	X			
LAKE TAHOE AIR BASIN				X	Remainder of Sutter County				X
MOJAVE DESERT AIR BASIN	X				Yuba County				X
MOUNTAIN COUNTIES AIR BASIN					Yolo/Solano Counties		X		
Amador County	X				Remainder of Air Basin	X			
Calaveras County	X				SALTON SEA AIR BASIN	X			
El Dorado County (portion)	X				SAN DIEGO AIR BASIN	X			
Mariposa County	X				SAN FRANCISCO BAY AREA AIR BASIN	X			
Nevada County	X				SAN JOAQUIN VALLEY AIR BASIN	X			
Placer County (portion)	X				SOUTH CENTRAL COAST AIR BASIN				
Plumas County			X		San Luis Obispo County	X			
Sierra County			X		Santa Barbara County		X		
Tuolumne County	X				Ventura County	X			
NORTH CENTRAL COAST AIR BASIN		X			SOUTH COAST AIR BASIN	X			
NORTH COAST AIR BASIN				X					

(1) AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2

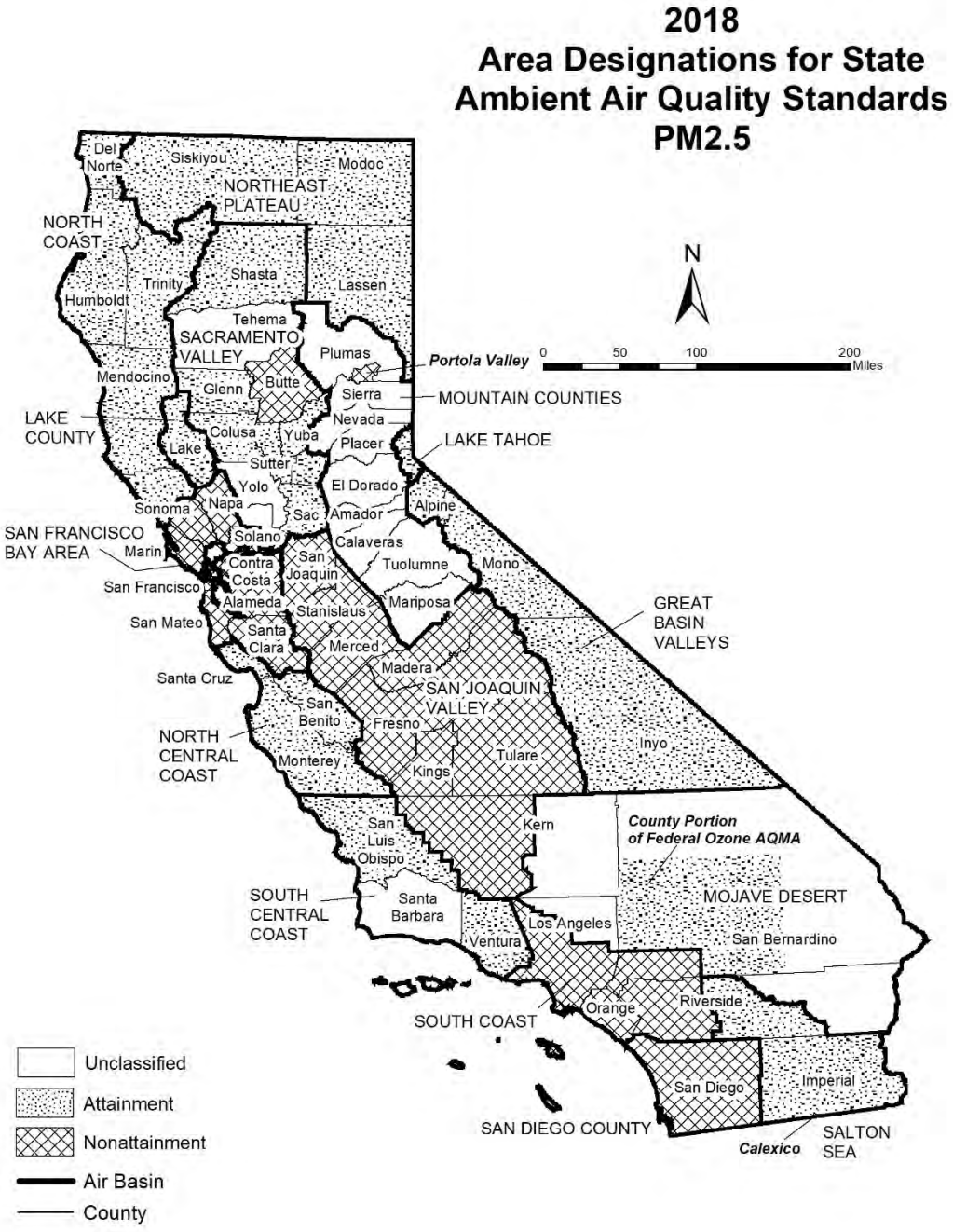
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM10)

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN	X			NORTH CENTRAL COAST AIR BASIN	X		
LAKE COUNTY AIR BASIN			X	NORTH COAST AIR BASIN			
LAKE TAHOE AIR BASIN	X			Del Norte, Sonoma (portion) and Trinity Counties			X
MOJAVE DESERT AIR BASIN	X			Remainder of Air Basin	X		
MOUNTAIN COUNTIES AIR BASIN				NORTHEAST PLATEAU AIR BASIN			
Amador County		X		Siskiyou County			X
Calaveras County	X			Remainder of Air Basin		X	
El Dorado County (portion)	X			SACRAMENTO VALLEY AIR BASIN			
Mariposa County				Shasta County			X
- Yosemite National Park	X			Remainder of Air Basin	X		
- Remainder of County		X		SALTON SEA AIR BASIN	X		
Nevada County	X			SAN DIEGO AIR BASIN	X		
Placer County (portion)	X			SAN FRANCISCO BAY AREA AIR BASIN	X		
Plumas County	X			SAN JOAQUIN VALLEY AIR BASIN	X		
Sierra County	X			SOUTH CENTRAL COAST AIR BASIN	X		
Tuolumne County		X		SOUTH COAST AIR BASIN	X		

FIGURE 3



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)

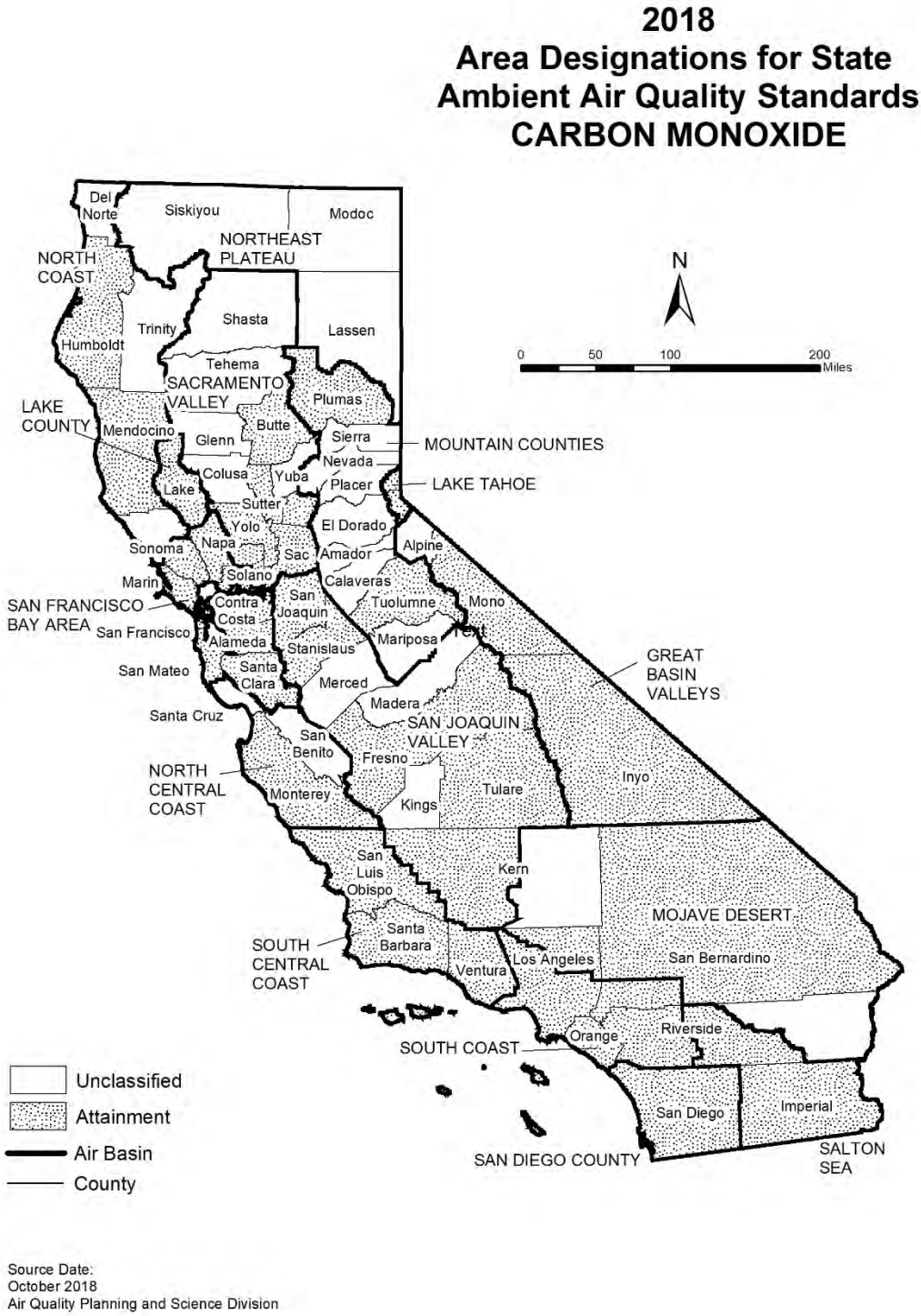
	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			
LAKE COUNTY AIR BASIN			X	Imperial County			
LAKE TAHOE AIR BASIN			X	- City of Calexico (3)	X		
MOJAVE DESERT AIR BASIN				Remainder of Air Basin			X
San Bernardino County				SAN DIEGO AIR BASIN	X		
- County portion of federal Southeast Desert Modified AQMA for Ozone (1)			X	SAN FRANCISCO BAY AREA AIR BASIN	X		
				SAN JOAQUIN VALLEY AIR BASIN	X		
Remainder of Air Basin		X		SOUTH CENTRAL COAST AIR BASIN			
MOUNTAIN COUNTIES AIR BASIN				San Luis Obispo County			X
Plumas County				Santa Barbara County		X	
- Portola Valley (2)	X			Ventura County			X
Remainder of Air Basin		X		SOUTH COAST AIR BASIN	X		
NORTH CENTRAL COAST AIR BASIN			X				
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN							
Butte County	X						
Colusa County			X				
Glenn County			X				
Placer County (portion)			X				
Sacramento County			X				
Shasta County			X				
Sutter and Yuba Counties			X				
Remainder of Air Basin		X					

(1) California Code of Regulations, title 17, section 60200(b)

(2) California Code of Regulations, title 17, section 60200(c)

(3) California Code of Regulations, title 17, section 60200(a)

FIGURE 4



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					SACRAMENTO VALLEY AIR BASIN				
Alpine County			X		Butte County				X
Inyo County				X	Colusa County			X	
Mono County				X	Glenn County			X	
LAKE COUNTY AIR BASIN				X	Placer County (portion)				X
LAKE TAHOE AIR BASIN				X	Sacramento County				X
MOJAVE DESERT AIR BASIN					Shasta County			X	
Kern County (portion)			X		Solano County (portion)				X
Los Angeles County (portion)				X	Sutter County				X
Riverside County (portion)			X		Tehama County			X	
San Bernardino County (portion)				X	Yolo County				X
MOUNTAIN COUNTIES AIR BASIN					Yuba County			X	
Amador County			X		SALTON SEA AIR BASIN				X
Calaveras County			X		SAN DIEGO AIR BASIN				X
El Dorado County (portion)			X		SAN FRANCISCO BAY AREA AIR BASIN				X
Mariposa County			X		SAN JOAQUIN VALLEY AIR BASIN				
Nevada County			X		Fresno County				X
Placer County (portion)			X		Kern County (portion)				X
Plumas County				X	Kings County			X	
Sierra County			X		Madera County			X	
Tuolumne County				X	Merced County			X	
NORTH CENTRAL COAST AIR BASIN					San Joaquin County				X
Monterey County				X	Stanislaus County				X
San Benito County			X		Tulare County				X
Santa Cruz County			X		SOUTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN					SOUTH COAST AIR BASIN				X
Del Norte County			X						
Humboldt County				X					
Mendocino County				X					
Sonoma County (portion)			X						
Trinity County			X						
NORTHEAST PLATEAU AIR BASIN			X						

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 5

California Ambient Air Quality Standards
Area Designation for Nitrogen Dioxide

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			
NORTHEAST PLATEAU AIR BASIN			X	CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
				Remainder of Air Basin			X

FIGURE 6

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SALTON SEA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN DIEGO AIR BASIN		X
MOJAVE DESERT AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X			

* The area designated for sulfur dioxide is a county or portion of a county

FIGURE 7

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 8

Source Date:
October 2018
Air Quality Planning and Science Division

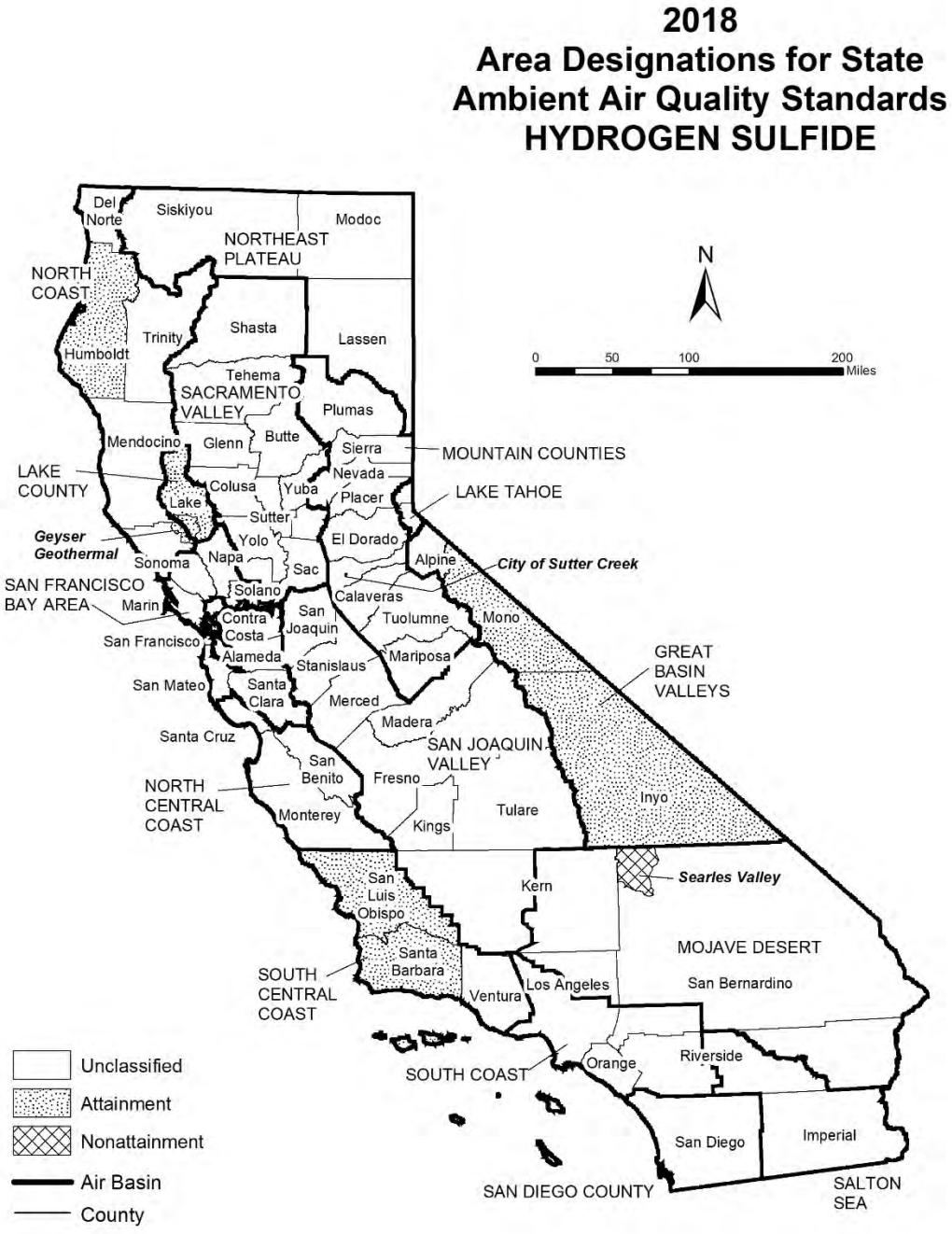
TABLE 8

California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SAN DIEGO AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN			X				

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH CENTRAL COAST AIR BASIN			X	
Alpine County			X		NORTH COAST AIR BASIN				
Inyo County				X	Del Norte County			X	
Mono County				X	Humboldt County				X
LAKE COUNTY AIR BASIN				X	Mendocino County			X	
LAKE TAHOE AIR BASIN			X		Sonoma County (portion)				
MOJAVE DESERT AIR BASIN					- Geyser Geothermal Area (2)				X
Kern County (portion)			X		- Remainder of County			X	
Los Angeles County (portion)			X		Trinity County			X	
Riverside County (portion)			X		NORTHEAST PLATEAU AIR BASIN			X	
San Bernardino County (portion)					SACRAMENTO VALLEY AIR BASIN			X	
- Searles Valley Planning Area (1)	X				SALTON SEA AIR BASIN			X	
- Remainder of County			X		SAN DIEGO AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN					SAN FRANCISCO BAY AREA AIR BASIN			X	
Amador County					SAN JOAQUIN VALLEY AIR BASIN			X	
- City of Sutter Creek	X				SOUTH CENTRAL COAST AIR BASIN				
- Remainder of County			X		San Luis Obispo County				X
Calaveras County			X		Santa Barbara County				X
El Dorado County (portion)			X		Ventura County			X	
Mariposa County			X		SOUTH COAST AIR BASIN			X	
Nevada County			X						
Placer County (portion)			X						
Plumas County			X						
Sierra County			X						
Tuolumne County			X						

* The area designated for hydrogen sulfide is a county or portion of a county

(1) 52 Federal Register 29384 (August 7, 1987)

(2) California Code of Regulations, title 17, section 60200(d)

FIGURE 10

2018
Area Designations for State Ambient Air Quality Standards
VISIBILITY REDUCING PARTICLES

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X		SACRAMENTO VALLEY AIR BASIN			X	
LAKE COUNTY AIR BASIN				X	SALTON SEA AIR BASIN			X	
LAKE TAHOE AIR BASIN			X		SAN DIEGO AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X		SAN FRANCISCO BAY AREA AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X		SAN JOAQUIN VALLEY AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X		SOUTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X		SOUTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X						

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment
- Nonattainment
- Unclassifiable

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment
- Unclassifiable/Attainment

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Original designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 $\mu g/m^3$. New area designations reflecting this revised standard became final in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 $\mu g/m^3$ as well as the 24-hour standard of 35 $\mu g/m^3$, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment,
- Unclassifiable, and
- Attainment/Unclassifiable.

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual

average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11

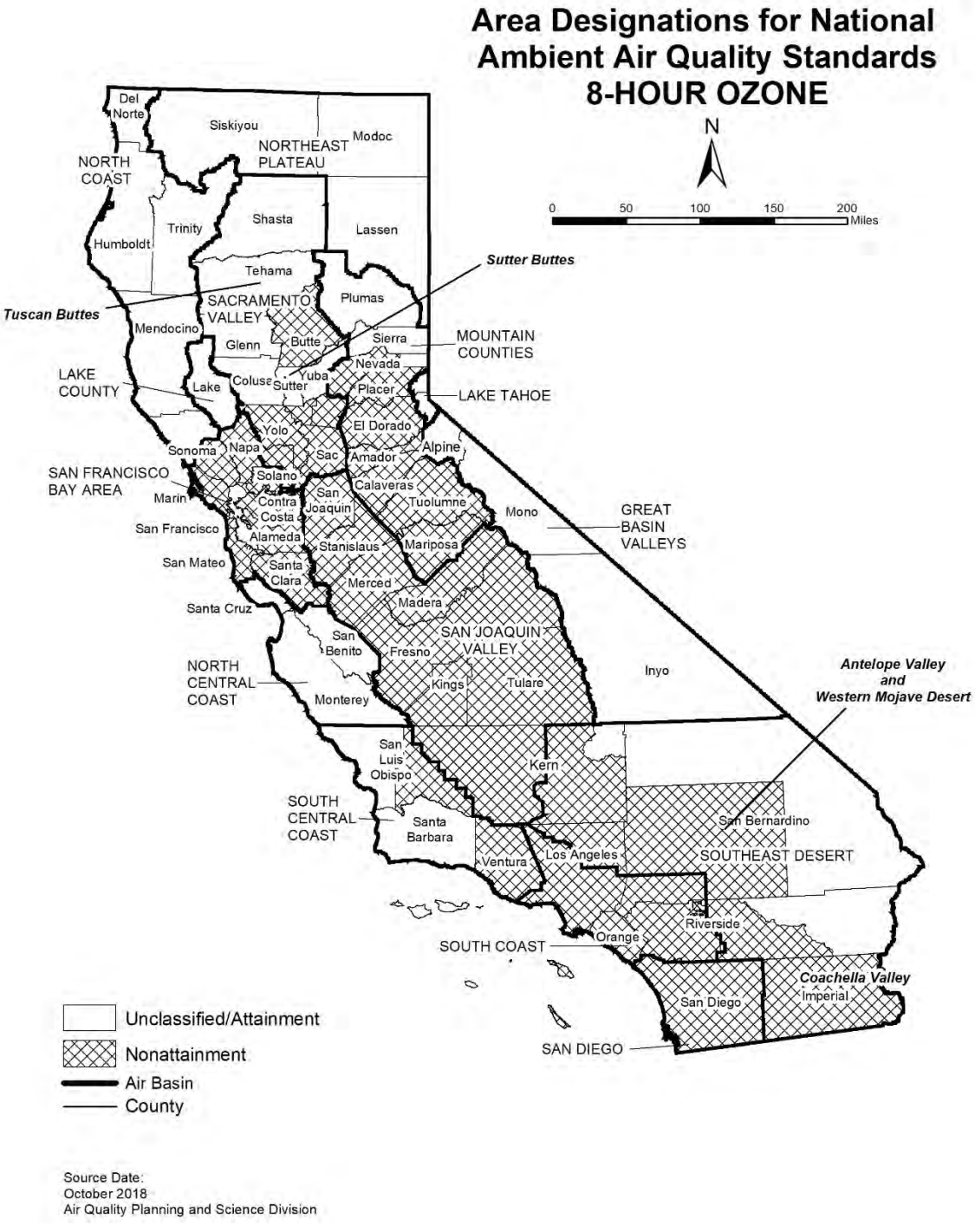

Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehama
Sutter Buttes
Tuscan Buttes
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Sutter
Yuba
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Marin
Contra Costa
San Joaquin
Calaveras
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
San Benito
SAN JOAQUIN VALLEY
Fresno
Inyo
Antelope Valley and Western Mojave Desert
NORTH CENTRAL COAST
Monterey
Kings
Tulare
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Orange
SOUTH COAST
Coachella Valley
Imperial
San Diego
SAN DIEGO
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN (cont.)		
LAKE COUNTY AIR BASIN		X	Yolo County (2)	X	
LAKE TAHOE AIR BASIN		X	Yuba County		X
MOUNTAIN COUNTIES AIR BASIN			SAN DIEGO COUNTY	X	
Amador County	X		SAN FRANCISCO BAY AREA AIR BASIN	X	
Calaveras County	X		SAN JOAQUIN VALLEY AIR BASIN	X	
El Dorado County (portion) (2)	X		SOUTH CENTRAL COAST AIR BASIN (1)		
Mariposa County	X		San Luis Obispo County		
Nevada County			- Eastern San Luis Obispo County	X	
- Western Nevada County	X		- Remainder of County		X
- Remainder of County		X	Santa Barbara County		X
Placer County (portion) (2)	X		Ventura County		
Plumas County		X	- Area excluding Anacapa and San Nicolas Islands	X	
Sierra County		X	- Channel Islands (1)		X
Tuolumne County	X		SOUTH COAST AIR BASIN (1)	X	
NORTH CENTRAL COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTH COAST AIR BASIN		X	Kern County (portion)	X	
NORTHEAST PLATEAU AIR BASIN		X	- Indian Wells Valley		X
SACRAMENTO VALLEY AIR BASIN			Imperial County	X	
Butte County	X		Los Angeles County (portion)	X	
Colusa County		X	Riverside County (portion)		
Glenn County		X	- Coachella Valley	X	
Sacramento Metro Area (2)	X		- Non-AQMA portion		X
Shasta County		X	San Bernardino County		
Sutter County			- Western portion (AQMA)	X	
- Sutter Buttes	X		- Eastern portion (non-AQMA)		X
- Southern portion of Sutter County (2)	X				
- Remainder of Sutter County		X			
Tehama County					
- Tuscan Buttes	X				
- Remainder of Tehama County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

(1) South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.

South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

(2) For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

FIGURE 12


Area Designations for National Ambient Air Quality Standards PM10
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
LAKE TAHOE
Lake
Sutter
Yolo
El Dorado
Alpine
Sacramento County
Sonoma
Napa
Sac
Amador
Mono
Mono Basin
SAN FRANCISCO BAY AREA
Marin
Solano
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mammoth Lake
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Inyo
Santa Cruz
San Benito
Fresno
SAN JOAQUIN VALLEY
Owens Valley
Coso Junction
Trona
NORTH CENTRAL COAST
Monterey
Kings
Tulare
San Luis Obispo
Kern
Indian Wells Valley
San Bernardino
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Coachella Valley
Orange
SOUTH COAST
Imperial
San Diego
SAN DIEGO COUNTY
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM10)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN				SAN DIEGO COUNTY		X	
Alpine County		X		SAN FRANCISCO BAY AREA AIR BASIN		X	
Inyo County				SAN JOAQUIN VALLEY AIR BASIN			X
- Owens Valley Planning Area	X			SOUTH CENTRAL COAST AIR BASIN		X	
- Coso Junction			X	SOUTH COAST AIR BASIN			X
- Remainder of County		X		SOUTHEAST DESERT AIR BASIN			
Mono County				Eastern Kern County			
- Mammoth Lake Planning Area			X	- Indian Wells Valley			X
- Mono Lake Basin	X			- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X		- Remainder of County		X	
LAKE COUNTY AIR BASIN		X		Imperial County			
LAKE TAHOE AIR BASIN		X		- Imperial Valley Planning Area	X		
MOUNTAIN COUNTIES AIR BASIN				- Remainder of County		X	
Placer County (portion) (2)		X		Los Angeles County (portion)		X	
Remainder of Air Basin		X		Riverside County (portion)			
NORTH CENTRAL COAST AIR BASIN		X		- Coachella Valley (3)	X		
NORTH COAST AIR BASIN		X		- Non-AQMA portion		X	
NORTHEAST PLATEAU AIR BASIN		X		San Bernardino County			
SACRAMENTO VALLEY AIR BASIN				- Trona	X		
Butte County		X		- Remainder of County	X		
Colusa County		X					
Glenn County		X					
Placer County (portion) (2)		X					
Sacramento County (1)			X				
Shasta County		X					
Solano County (portion)		X					
Sutter County		X					
Tehama County		X					
Yolo County		X					
Yuba County		X					

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
(1) Air quality in Sacramento County meets the national PM10 standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.
(2) U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.
(3) Air quality in Coachella Valley meets the national PM10 standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13


Area Designations for National Ambient Air Quality Standards PM2.5
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTH COAST
NORTHEAST PLATEAU
Humboldt
Trinity
Shasta
Lassen
Tehama
SACRAMENTO VALLEY
Plumas
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Mendocino
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
El Dorado
Yolo
Sonoma
Napa
Sacramento
Alpine
Amador
Solano
Calaveras
SAN FRANCISCO BAY AREA
Marin
Tuolumne
GREAT BASIN VALLEYS
Contra Costa
San Joaquin
Mono
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
NORTH CENTRAL COAST
San Benito
SAN JOAQUIN VALLEY
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
SOUTHEAST DESERT
Ventura
Los Angeles
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN (2)	X	
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN	X	
MOUNTAIN COUNTIES AIR BASIN			SOUTH CENTRAL COAST AIR BASIN		X
Plumas County			SOUTH COAST AIR BASIN (3)	X	
- Portola Valley Portion of Plumas	X		SOUTHEAST DESERT AIR BASIN		
- Remainder of Plumas County		X	Imperial County (portion) (4)	X	
Remainder of Air Basin		X	Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X			
NORTH COAST AIR BASIN		X			
NORTHEAST PLATEAU AIR BASIN		X			
SACRAMENTO VALLEY AIR BASIN					
Sacramento Metro Area (1)	X				
Sutter County		X			
Yuba County (portion)		X			
Remainder of Air Basin		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour PM2.5 standard as well as the 1997 and 2012 PM2.5 annual standards.

(1) For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(2) Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(3) Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

(4) That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

FIGURE 14

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15


Area Designations for National Ambient Air Quality Standards
NITROGEN DIOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
Plumas
SACRAMENTO VALLEY
Mendocino
Glenn
Butte
Sierra
Nevada
MOUNTAIN COUNTIES
Colusa
Yuba
Placer
LAKE COUNTY
Lake
Sutter
LAKE TAHOE
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Tulare
Inyo
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
SOUTHEAST DESERT
Los Angeles
San Bernardino
Ventura
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

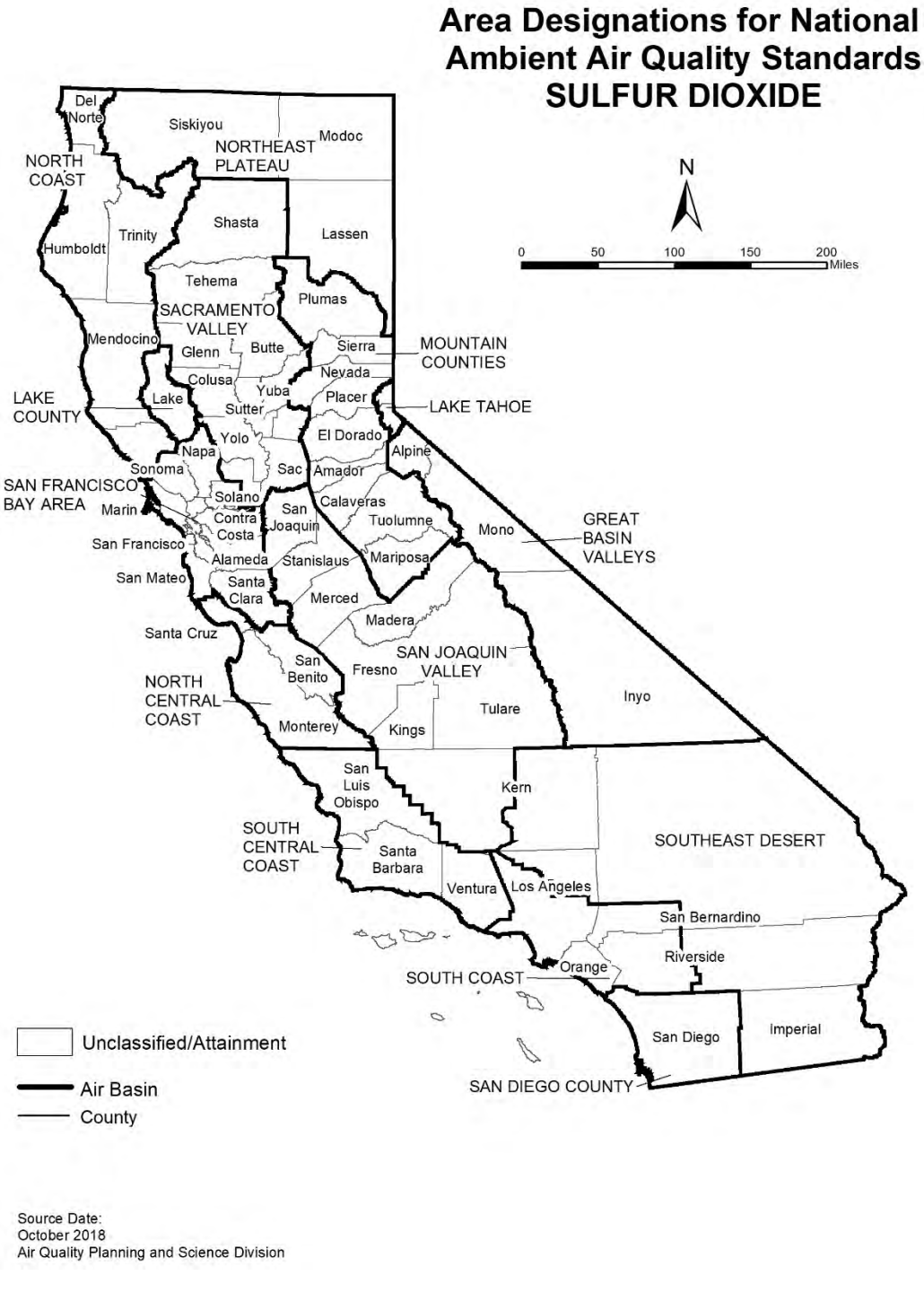
TABLE 15

National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		
LAKE COUNTY AIR BASIN		X	San Luis Obispo County		X
LAKE TAHOE AIR BASIN		X	Santa Barbara County		X
MOUNTAIN COUNTIES AIR BASIN		X	Ventura County		X
NORTH CENTRAL COAST AIR BASIN		X	Channel Islands (1)		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
SACRAMENTO VALLEY AIR BASIN		X	Imperial County		X
SAN DIEGO COUNTY		X	Remainder of Air Basin		X
SAN FRANCISCO BAY AREA AIR BASIN		X			
SAN JOAQUIN VALLEY AIR BASIN					
Fresno County		X			
Kern County (portion)		X			
Kings County		X			
Madera County		X			
Merced County		X			
San Joaquin County		X			
Stanislaus County		X			
Tulare County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

(1) South Central Coast Air Basin Channel Islands:

Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.

Ventura County includes Anacapa and San Nicolas Islands.

Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17

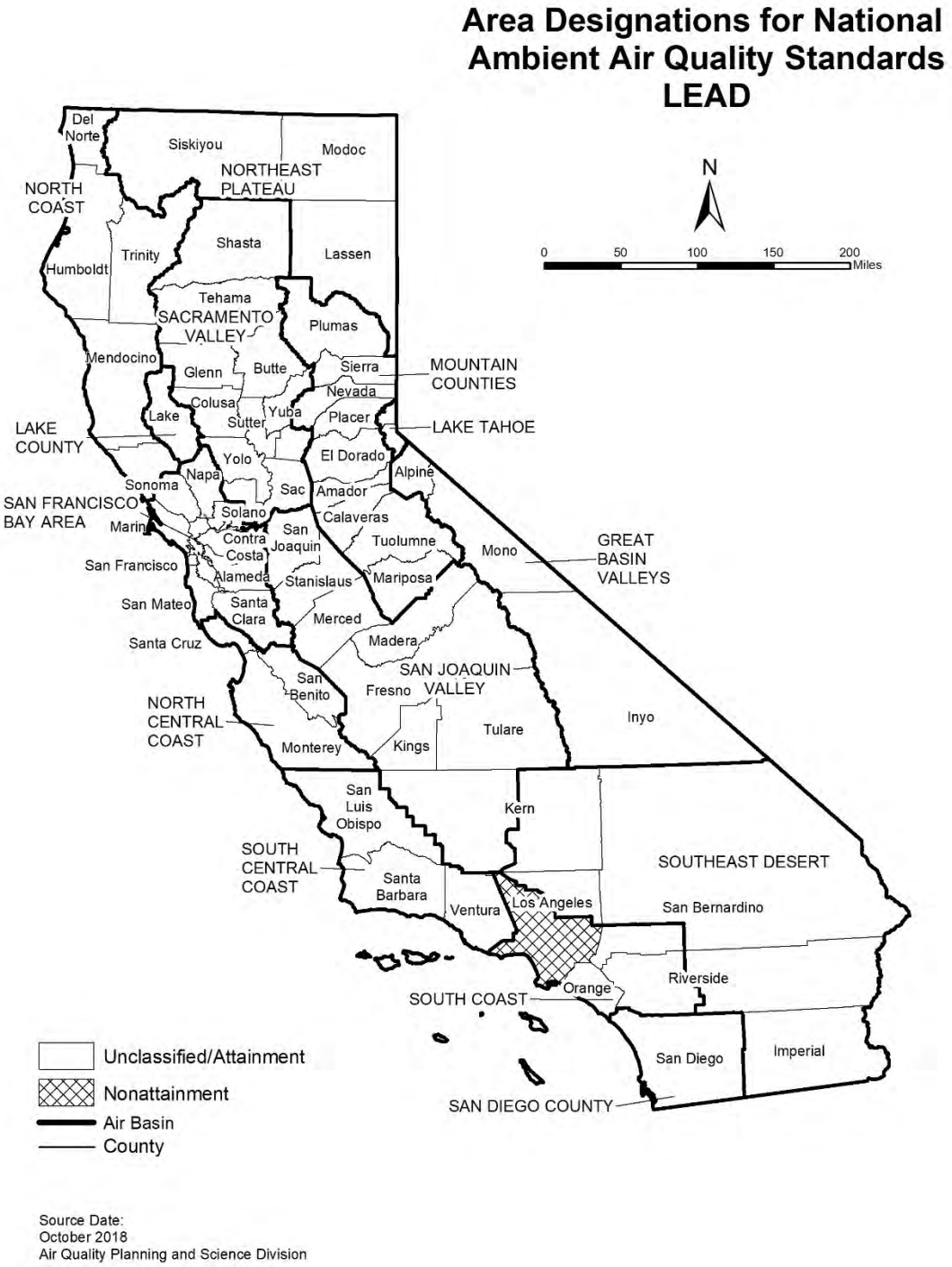

Area Designations for National Ambient Air Quality Standards
LEAD
N
0 50 100 150 200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Lake
Sutter
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN		
NORTH COAST AIR BASIN		X	Los Angeles County (portion) (1)	X	
NORTHEAST PLATEAU AIR BASIN		X	Remainder of Air Basin		X
SACRAMENTO VALLEY AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

(1) Portion of County in Air Basin, not including Channel Islands

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APPENDIX 3.1:

CALEEMOD PROJECT EMISSIONS MODEL OUTPUTS (UNMITIGATED)

Banyan Avenue Residential

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	9.00	Dwelling Unit	4.62	201,564.00	26

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	509.79	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Banyan Avenue Residential - San Bernardino-South Coast County, Summer

Project Characteristics - CO2 Intensity Factor adjusted for the 2022 Opening Year

Land Use - Based on the Site Plan, the Net Land Area is 201,564 SF (4.62 Acres)

Construction Phase - Construction Schedule adjusted to reflect the number of days identified in the 2016 Study.

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

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

Off-road Equipment - Construction Equipment consistent with the equipment identified in the 2016 Study.

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

Grading - For purposes of analysis, it assumed that 4 acres will be disturbed per day.

Vehicle Trips - Trip Rates based on 10th Edition ITE

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Woodstoves - Rule 445

Energy Use - The Project will design building shells and building components to meet 2019 Title 24 Standards which expects 53% less energy for residential use.

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	8.00	20.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	18.00	20.00
tblEnergyUse	LightingElect	1,608.84	756.15
tblEnergyUse	T24E	951.67	447.28
tblEnergyUse	T24NG	24,566.15	11,546.09
tblFireplaces	NumberGas	7.65	9.00
tblFireplaces	NumberNoFireplace	0.90	0.00
tblFireplaces	NumberWood	0.45	0.00

tblGrading	AcresOfGrading	20.00	80.00
tblGrading	AcresOfGrading	0.00	40.00
tblLandUse	LandUseSquareFeet	16,200.00	201,564.00
tblLandUse	LotAcreage	2.92	4.62
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	509.79
tblVehicleEF	HHD	1.21	0.03
tblVehicleEF	HHD	0.04	0.14
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	3.29	5.95
tblVehicleEF	HHD	0.57	0.67
tblVehicleEF	HHD	1.82	3.7880e-003
tblVehicleEF	HHD	6,933.41	1,124.17
tblVehicleEF	HHD	1,475.79	1,484.27
tblVehicleEF	HHD	5.54	0.03
tblVehicleEF	HHD	26.50	6.08
tblVehicleEF	HHD	2.50	3.42

tblVehicleEF	HHD	20.21	2.10
tblVehicleEF	HHD	9.7780e-003	3.6280e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	9.3550e-003	3.4710e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.8310e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.1910e-003	1.6000e-004
tblVehicleEF	HHD	0.84	0.43
tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.08	0.08
tblVehicleEF	HHD	2.1700e-004	7.9100e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.6000e-005	0.00
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.1910e-003	1.6000e-004
tblVehicleEF	HHD	0.97	0.50
tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.13	0.23
tblVehicleEF	HHD	2.1700e-004	7.9100e-004

tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.14	0.03
tblVehicleEF	HHD	0.04	0.14
tblVehicleEF	HHD	0.09	0.00
tblVehicleEF	HHD	2.39	5.82
tblVehicleEF	HHD	0.57	0.67
tblVehicleEF	HHD	1.70	3.5770e-003
tblVehicleEF	HHD	7,345.18	1,121.04
tblVehicleEF	HHD	1,475.79	1,484.27
tblVehicleEF	HHD	5.54	0.03
tblVehicleEF	HHD	27.35	5.90
tblVehicleEF	HHD	2.36	3.23
tblVehicleEF	HHD	20.20	2.10
tblVehicleEF	HHD	8.2750e-003	3.1750e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	7.9170e-003	3.0380e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.8310e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
tblVehicleEF	HHD	1.6800e-004	1.0000e-005
tblVehicleEF	HHD	3.5970e-003	1.8200e-004
tblVehicleEF	HHD	0.79	0.45
tblVehicleEF	HHD	1.1700e-004	7.0000e-006

tblVehicleEF	HHD	0.08	0.08
tblVehicleEF	HHD	2.2100e-004	8.1200e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.4000e-005	0.00
tblVehicleEF	HHD	1.6800e-004	1.0000e-005
tblVehicleEF	HHD	3.5970e-003	1.8200e-004
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tblVehicleEF	HHD	1.1700e-004	7.0000e-006
tblVehicleEF	HHD	0.13	0.23
tblVehicleEF	HHD	2.2100e-004	8.1200e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.31	0.02
tblVehicleEF	HHD	0.04	3.3680e-003
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	4.53	5.98
tblVehicleEF	HHD	0.57	0.33
tblVehicleEF	HHD	1.79	3.7590e-003
tblVehicleEF	HHD	6,364.76	1,097.48
tblVehicleEF	HHD	1,475.79	1,393.36
tblVehicleEF	HHD	5.54	0.03
tblVehicleEF	HHD	25.32	6.13
tblVehicleEF	HHD	2.46	3.28
tblVehicleEF	HHD	20.20	2.10
tblVehicleEF	HHD	0.01	3.8650e-003
tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	0.01	3.6980e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.6000e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.4760e-003	1.8700e-004
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tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	2.3300e-004	8.2900e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.5000e-005	0.00
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.4760e-003	1.8700e-004
tblVehicleEF	HHD	1.05	0.46
tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.13	0.08
tblVehicleEF	HHD	2.3300e-004	8.2900e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	LDA	4.2030e-003	2.5110e-003
tblVehicleEF	LDA	5.6230e-003	0.05

tblVehicleEF	LDA	0.57	0.67
tblVehicleEF	LDA	1.19	2.11
tblVehicleEF	LDA	251.29	265.15
tblVehicleEF	LDA	57.15	54.12
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.18
tblVehicleEF	LDA	1.6780e-003	1.5210e-003
tblVehicleEF	LDA	2.2790e-003	1.8570e-003
tblVehicleEF	LDA	1.5460e-003	1.4000e-003
tblVehicleEF	LDA	2.0960e-003	1.7080e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	9.5370e-003
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.08	0.22
tblVehicleEF	LDA	2.5170e-003	2.6060e-003
tblVehicleEF	LDA	5.9200e-004	5.3200e-004
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.08	0.24
tblVehicleEF	LDA	4.7900e-003	2.8350e-003
tblVehicleEF	LDA	4.6890e-003	0.04
tblVehicleEF	LDA	0.71	0.81

tblVehicleEF	LDA	0.99	1.78
tblVehicleEF	LDA	274.94	287.11
tblVehicleEF	LDA	57.15	53.48
tblVehicleEF	LDA	0.05	0.03
tblVehicleEF	LDA	0.07	0.17
tblVehicleEF	LDA	1.6780e-003	1.5210e-003
tblVehicleEF	LDA	2.2790e-003	1.8570e-003
tblVehicleEF	LDA	1.5460e-003	1.4000e-003
tblVehicleEF	LDA	2.0960e-003	1.7080e-003
tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	0.12	0.11
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.06	0.19
tblVehicleEF	LDA	2.7550e-003	2.8220e-003
tblVehicleEF	LDA	5.8800e-004	5.2600e-004
tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	0.12	0.11
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	4.0860e-003	2.4600e-003
tblVehicleEF	LDA	5.5870e-003	0.05
tblVehicleEF	LDA	0.54	0.64
tblVehicleEF	LDA	1.18	2.12

tblVehicleEF	LDA	245.70	261.06
tblVehicleEF	LDA	57.15	54.13
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.18
tblVehicleEF	LDA	1.6780e-003	1.5210e-003
tblVehicleEF	LDA	2.2790e-003	1.8570e-003
tblVehicleEF	LDA	1.5460e-003	1.4000e-003
tblVehicleEF	LDA	2.0960e-003	1.7080e-003
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	9.3400e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.22
tblVehicleEF	LDA	2.4600e-003	2.5660e-003
tblVehicleEF	LDA	5.9100e-004	5.3200e-004
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.24
tblVehicleEF	LDT1	0.01	7.5760e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.54	1.52
tblVehicleEF	LDT1	3.61	2.39
tblVehicleEF	LDT1	313.68	314.63

tblVehicleEF	LDT1	70.93	65.70
tblVehicleEF	LDT1	0.16	0.13
tblVehicleEF	LDT1	0.22	0.30
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.20	0.86
tblVehicleEF	LDT1	0.26	0.42
tblVehicleEF	LDT1	3.1570e-003	3.0930e-003
tblVehicleEF	LDT1	7.7300e-004	6.4600e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.20	0.86
tblVehicleEF	LDT1	0.28	0.47
tblVehicleEF	LDT1	0.02	8.4650e-003
tblVehicleEF	LDT1	0.02	0.07
tblVehicleEF	LDT1	1.85	1.81
tblVehicleEF	LDT1	2.97	2.00
tblVehicleEF	LDT1	341.75	337.48
tblVehicleEF	LDT1	70.93	64.87

tblVehicleEF	LDT1	0.14	0.11
tblVehicleEF	LDT1	0.20	0.28
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.37	0.36
tblVehicleEF	LDT1	0.41	0.31
tblVehicleEF	LDT1	0.27	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.20	0.85
tblVehicleEF	LDT1	0.21	0.36
tblVehicleEF	LDT1	3.4420e-003	3.3180e-003
tblVehicleEF	LDT1	7.6200e-004	6.3800e-004
tblVehicleEF	LDT1	0.37	0.36
tblVehicleEF	LDT1	0.41	0.31
tblVehicleEF	LDT1	0.27	0.26
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.20	0.85
tblVehicleEF	LDT1	0.23	0.40
tblVehicleEF	LDT1	0.01	7.4310e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.47	1.47
tblVehicleEF	LDT1	3.55	2.39
tblVehicleEF	LDT1	307.06	310.38
tblVehicleEF	LDT1	70.93	65.71
tblVehicleEF	LDT1	0.15	0.12

tblVehicleEF	LDT1	0.21	0.29
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.19	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.00
tblVehicleEF	LDT1	0.25	0.43
tblVehicleEF	LDT1	3.0890e-003	3.0520e-003
tblVehicleEF	LDT1	7.7200e-004	6.4600e-004
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tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.23	1.00
tblVehicleEF	LDT1	0.28	0.47
tblVehicleEF	LDT2	6.3270e-003	4.4090e-003
tblVehicleEF	LDT2	8.1990e-003	0.07
tblVehicleEF	LDT2	0.80	1.00
tblVehicleEF	LDT2	1.67	2.71
tblVehicleEF	LDT2	351.15	335.59
tblVehicleEF	LDT2	79.39	70.25
tblVehicleEF	LDT2	0.09	0.09
tblVehicleEF	LDT2	0.14	0.30

tblVehicleEF	LDT2	1.7270e-003	1.6020e-003
tblVehicleEF	LDT2	2.4170e-003	1.9240e-003
tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.11	0.33
tblVehicleEF	LDT2	3.5180e-003	3.2990e-003
tblVehicleEF	LDT2	8.2200e-004	6.9100e-004
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.12	0.36
tblVehicleEF	LDT2	7.1840e-003	4.9540e-003
tblVehicleEF	LDT2	6.8290e-003	0.06
tblVehicleEF	LDT2	0.97	1.20
tblVehicleEF	LDT2	1.38	2.28
tblVehicleEF	LDT2	383.36	357.71
tblVehicleEF	LDT2	79.39	69.39
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.13	0.28
tblVehicleEF	LDT2	1.7270e-003	1.6020e-003

tblVehicleEF	LDT2	2.4170e-003	1.9240e-003
tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.11	0.15
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8420e-003	3.5160e-003
tblVehicleEF	LDT2	8.1700e-004	6.8200e-004
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.11	0.15
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.10	0.31
tblVehicleEF	LDT2	6.1560e-003	4.3220e-003
tblVehicleEF	LDT2	8.1410e-003	0.07
tblVehicleEF	LDT2	0.75	0.96
tblVehicleEF	LDT2	1.64	2.72
tblVehicleEF	LDT2	343.55	331.47
tblVehicleEF	LDT2	79.39	70.27
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.14	0.30
tblVehicleEF	LDT2	1.7270e-003	1.6020e-003
tblVehicleEF	LDT2	2.4170e-003	1.9240e-003

tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.52
tblVehicleEF	LDT2	0.11	0.33
tblVehicleEF	LDT2	3.4410e-003	3.2580e-003
tblVehicleEF	LDT2	8.2200e-004	6.9100e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.52
tblVehicleEF	LDT2	0.12	0.37
tblVehicleEF	LHD1	5.2170e-003	5.0850e-003
tblVehicleEF	LHD1	0.01	6.1020e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.07	0.75
tblVehicleEF	LHD1	2.60	1.03
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.45
tblVehicleEF	LHD1	30.40	11.21
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	2.12	1.25

tblVehicleEF	LHD1	0.99	0.32
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003
tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	3.7070e-003	3.0390e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8240e-003	1.5810e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.35	0.55
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.9760e-003	6.3570e-003
tblVehicleEF	LHD1	3.5300e-004	1.1100e-004
tblVehicleEF	LHD1	3.7070e-003	3.0390e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8240e-003	1.5810e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.35	0.55
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	5.2170e-003	5.0990e-003

tblVehicleEF	LHD1	0.01	6.2280e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.09	0.76
tblVehicleEF	LHD1	2.43	0.98
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.47
tblVehicleEF	LHD1	30.40	11.12
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	1.98	1.17
tblVehicleEF	LHD1	0.94	0.31
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003
tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	7.3080e-003	5.4780e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.1220e-003	3.0450e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.36	0.56
tblVehicleEF	LHD1	0.25	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005

tblVehicleEF	LHD1	5.9770e-003	6.3570e-003
tblVehicleEF	LHD1	3.5000e-004	1.1000e-004
tblVehicleEF	LHD1	7.3080e-003	5.4780e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.1220e-003	3.0450e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.36	0.56
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.2170e-003	5.0870e-003
tblVehicleEF	LHD1	0.01	6.1100e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.07	0.75
tblVehicleEF	LHD1	2.55	1.02
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.45
tblVehicleEF	LHD1	30.40	11.20
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	2.08	1.23
tblVehicleEF	LHD1	0.97	0.31
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003

tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	4.0430e-003	3.1520e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7940e-003	1.6100e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.38	0.60
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.9760e-003	6.3570e-003
tblVehicleEF	LHD1	3.5200e-004	1.1100e-004
tblVehicleEF	LHD1	4.0430e-003	3.1520e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7940e-003	1.6100e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.38	0.60
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD2	3.5950e-003	3.6950e-003
tblVehicleEF	LHD2	4.6110e-003	4.1040e-003
tblVehicleEF	LHD2	8.1370e-003	0.01
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.50	0.50
tblVehicleEF	LHD2	1.20	0.67
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25

tblVehicleEF	LHD2	24.46	8.76
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	1.49	1.36
tblVehicleEF	LHD2	0.53	0.22
tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	1.3070e-003	1.7040e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.0300e-004	9.2000e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
tblVehicleEF	LHD2	2.6700e-004	8.7000e-005
tblVehicleEF	LHD2	1.3070e-003	1.7040e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0300e-004	9.2000e-004
tblVehicleEF	LHD2	0.07	0.07

tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.12	0.06
tblVehicleEF	LHD2	3.5950e-003	3.7050e-003
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tblVehicleEF	LHD2	7.7630e-003	0.01
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tblVehicleEF	LHD2	1.13	0.64
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25
tblVehicleEF	LHD2	24.46	8.70
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tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	2.5220e-003	3.0730e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.5220e-003	1.7630e-003
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.10	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
tblVehicleEF	LHD2	2.6500e-004	8.6000e-005
tblVehicleEF	LHD2	2.5220e-003	3.0730e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5220e-003	1.7630e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	3.5950e-003	3.6960e-003
tblVehicleEF	LHD2	4.6180e-003	4.1080e-003
tblVehicleEF	LHD2	8.0640e-003	0.01
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.50	0.50
tblVehicleEF	LHD2	1.19	0.67
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25
tblVehicleEF	LHD2	24.46	8.75
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	1.46	1.33
tblVehicleEF	LHD2	0.52	0.22
tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01

tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	1.3460e-003	1.7140e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.8700e-004	9.2200e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.34
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
tblVehicleEF	LHD2	2.6600e-004	8.7000e-005
tblVehicleEF	LHD2	1.3460e-003	1.7140e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.8700e-004	9.2200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.34
tblVehicleEF	LHD2	0.12	0.06
tblVehicleEF	MCY	0.43	0.34
tblVehicleEF	MCY	0.16	0.24
tblVehicleEF	MCY	20.55	19.26
tblVehicleEF	MCY	9.93	8.60
tblVehicleEF	MCY	167.73	212.03

tblVehicleEF	MCY	46.45	60.73
tblVehicleEF	MCY	1.16	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	1.45	1.42
tblVehicleEF	MCY	0.84	0.80
tblVehicleEF	MCY	0.80	0.78
tblVehicleEF	MCY	2.23	2.33
tblVehicleEF	MCY	0.49	1.91
tblVehicleEF	MCY	2.16	1.84
tblVehicleEF	MCY	2.0770e-003	2.0980e-003
tblVehicleEF	MCY	6.9000e-004	6.0100e-004
tblVehicleEF	MCY	1.45	1.42
tblVehicleEF	MCY	0.84	0.80
tblVehicleEF	MCY	0.80	0.78
tblVehicleEF	MCY	2.74	2.87
tblVehicleEF	MCY	0.49	1.91
tblVehicleEF	MCY	2.35	2.01
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.14	0.21
tblVehicleEF	MCY	20.68	19.28
tblVehicleEF	MCY	9.05	7.90
tblVehicleEF	MCY	167.73	211.90
tblVehicleEF	MCY	46.45	58.88

tblVehicleEF	MCY	0.99	0.97
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	3.14	2.77
tblVehicleEF	MCY	1.27	1.11
tblVehicleEF	MCY	2.13	1.77
tblVehicleEF	MCY	2.17	2.28
tblVehicleEF	MCY	0.49	1.88
tblVehicleEF	MCY	1.86	1.62
tblVehicleEF	MCY	2.0770e-003	2.0970e-003
tblVehicleEF	MCY	6.6700e-004	5.8300e-004
tblVehicleEF	MCY	3.14	2.77
tblVehicleEF	MCY	1.27	1.11
tblVehicleEF	MCY	2.13	1.77
tblVehicleEF	MCY	2.67	2.81
tblVehicleEF	MCY	0.49	1.88
tblVehicleEF	MCY	2.02	1.76
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.63	18.76
tblVehicleEF	MCY	9.55	8.44
tblVehicleEF	MCY	167.73	211.17
tblVehicleEF	MCY	46.45	60.38
tblVehicleEF	MCY	1.12	1.09

tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	1.71	1.57
tblVehicleEF	MCY	1.13	1.06
tblVehicleEF	MCY	0.72	0.74
tblVehicleEF	MCY	2.19	2.31
tblVehicleEF	MCY	0.56	2.18
tblVehicleEF	MCY	2.08	1.81
tblVehicleEF	MCY	2.0610e-003	2.0900e-003
tblVehicleEF	MCY	6.8200e-004	5.9800e-004
tblVehicleEF	MCY	1.71	1.57
tblVehicleEF	MCY	1.13	1.06
tblVehicleEF	MCY	0.72	0.74
tblVehicleEF	MCY	2.69	2.84
tblVehicleEF	MCY	0.56	2.18
tblVehicleEF	MCY	2.27	1.98
tblVehicleEF	MDV	0.01	5.5200e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.35	1.14
tblVehicleEF	MDV	3.25	3.25
tblVehicleEF	MDV	483.94	415.10
tblVehicleEF	MDV	107.92	87.32
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.32	0.38

tblVehicleEF	MDV	1.8260e-003	1.6850e-003
tblVehicleEF	MDV	2.5170e-003	2.0310e-003
tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.44
tblVehicleEF	MDV	4.8500e-003	4.0780e-003
tblVehicleEF	MDV	1.1370e-003	8.5900e-004
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.28	0.48
tblVehicleEF	MDV	0.01	6.2110e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.64	1.35
tblVehicleEF	MDV	2.69	2.72
tblVehicleEF	MDV	526.85	438.45
tblVehicleEF	MDV	107.92	86.27
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.30	0.35
tblVehicleEF	MDV	1.8260e-003	1.6850e-003

tblVehicleEF	MDV	2.5170e-003	2.0310e-003
tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.20	0.21
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.19
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.21	0.38
tblVehicleEF	MDV	5.2830e-003	4.3080e-003
tblVehicleEF	MDV	1.1260e-003	8.4800e-004
tblVehicleEF	MDV	0.20	0.21
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.19
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.23	0.41
tblVehicleEF	MDV	0.01	5.4050e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.28	1.09
tblVehicleEF	MDV	3.20	3.26
tblVehicleEF	MDV	473.93	410.75
tblVehicleEF	MDV	107.92	87.35
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.32	0.38
tblVehicleEF	MDV	1.8260e-003	1.6850e-003
tblVehicleEF	MDV	2.5170e-003	2.0310e-003

tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.22	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.44
tblVehicleEF	MDV	4.7490e-003	4.0360e-003
tblVehicleEF	MDV	1.1360e-003	8.5900e-004
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.22	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.27	0.48
tblVehicleEF	MH	0.04	3.6580e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.07	0.35
tblVehicleEF	MH	6.43	0.00
tblVehicleEF	MH	1,045.05	970.21
tblVehicleEF	MH	59.49	0.00
tblVehicleEF	MH	1.54	4.24
tblVehicleEF	MH	0.91	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.1740e-003	0.00

tblVehicleEF	MH	3.2230e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.0790e-003	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	9.1720e-003
tblVehicleEF	MH	7.0700e-004	0.00
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tblVehicleEF	MH	0.14	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.04	3.6580e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.19	0.35
tblVehicleEF	MH	5.84	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.11

tblVehicleEF	MH	1.1740e-003	0.00
tblVehicleEF	MH	3.2230e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.0790e-003	0.00
tblVehicleEF	MH	2.91	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.21	0.00
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.01	9.1720e-003
tblVehicleEF	MH	6.9700e-004	0.00
tblVehicleEF	MH	2.91	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.21	0.00
tblVehicleEF	MH	0.15	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.38	0.00
tblVehicleEF	MH	0.04	3.6580e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.08	0.35
tblVehicleEF	MH	6.36	0.00
tblVehicleEF	MH	1,045.05	970.21
tblVehicleEF	MH	59.49	0.00
tblVehicleEF	MH	1.51	4.17
tblVehicleEF	MH	0.89	0.00
tblVehicleEF	MH	0.01	0.02

tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.1740e-003	0.00
tblVehicleEF	MH	3.2230e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.0790e-003	0.00
tblVehicleEF	MH	1.75	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	9.1720e-003
tblVehicleEF	MH	7.0600e-004	0.00
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tblVehicleEF	MH	0.15	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MHD	0.02	2.5070e-003
tblVehicleEF	MHD	3.5160e-003	3.3210e-003
tblVehicleEF	MHD	0.05	6.4670e-003
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tblVehicleEF	MHD	3.8600e-004	1.2310e-003
tblVehicleEF	MHD	5.0030e-003	0.04
tblVehicleEF	MHD	7.6400e-004	7.5000e-005
tblVehicleEF	MHD	3.6900e-004	1.1780e-003
tblVehicleEF	MHD	4.7830e-003	0.03
tblVehicleEF	MHD	7.0300e-004	6.9000e-005
tblVehicleEF	MHD	1.2800e-003	4.5300e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	6.5100e-004	2.4000e-004
tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.32	0.03
tblVehicleEF	MHD	1.5080e-003	6.5300e-004
tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.1700e-004	6.3000e-005
tblVehicleEF	MHD	1.2800e-003	4.5300e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.5100e-004	2.4000e-004
tblVehicleEF	MHD	0.04	0.07
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.35	0.04

tblVehicleEF	MHD	0.02	2.3860e-003
tblVehicleEF	MHD	3.5800e-003	3.3450e-003
tblVehicleEF	MHD	0.05	6.2100e-003
tblVehicleEF	MHD	0.24	0.26
tblVehicleEF	MHD	0.28	0.33
tblVehicleEF	MHD	4.97	0.70
tblVehicleEF	MHD	166.20	69.59
tblVehicleEF	MHD	1,101.52	974.58
tblVehicleEF	MHD	52.43	6.28
tblVehicleEF	MHD	0.62	0.52
tblVehicleEF	MHD	0.92	1.52
tblVehicleEF	MHD	11.85	1.49
tblVehicleEF	MHD	3.2500e-004	1.0410e-003
tblVehicleEF	MHD	5.0030e-003	0.04
tblVehicleEF	MHD	7.6400e-004	7.5000e-005
tblVehicleEF	MHD	3.1100e-004	9.9600e-004
tblVehicleEF	MHD	4.7830e-003	0.03
tblVehicleEF	MHD	7.0300e-004	6.9000e-005
tblVehicleEF	MHD	2.5300e-003	8.2800e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5010e-003	4.7800e-004
tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.30	0.03
tblVehicleEF	MHD	1.5950e-003	6.5900e-004
tblVehicleEF	MHD	0.01	9.2620e-003

tblVehicleEF	MHD	6.1100e-004	6.2000e-005
tblVehicleEF	MHD	2.5300e-003	8.2800e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.5010e-003	4.7800e-004
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tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.33	0.04
tblVehicleEF	MHD	0.02	2.6830e-003
tblVehicleEF	MHD	3.5220e-003	3.3210e-003
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tblVehicleEF	MHD	4.7000e-004	1.4940e-003
tblVehicleEF	MHD	5.0030e-003	0.04
tblVehicleEF	MHD	7.6400e-004	7.5000e-005
tblVehicleEF	MHD	4.4900e-004	1.4300e-003
tblVehicleEF	MHD	4.7830e-003	0.03
tblVehicleEF	MHD	7.0300e-004	6.9000e-005
tblVehicleEF	MHD	1.3890e-003	4.7100e-004

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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.4000e-004	2.4400e-004
tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.09
tblVehicleEF	MHD	0.32	0.03
tblVehicleEF	MHD	1.3860e-003	6.4400e-004
tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.1600e-004	6.3000e-005
tblVehicleEF	MHD	1.3890e-003	4.7100e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	6.4000e-004	2.4400e-004
tblVehicleEF	MHD	0.04	0.07
tblVehicleEF	MHD	0.02	0.09
tblVehicleEF	MHD	0.35	0.04
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tblVehicleEF	OBUS	9.9110e-003	6.5960e-003
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tblVehicleEF	OBUS	0.26	0.52
tblVehicleEF	OBUS	0.63	0.77
tblVehicleEF	OBUS	6.27	2.45
tblVehicleEF	OBUS	70.35	76.06
tblVehicleEF	OBUS	1,121.50	1,406.90
tblVehicleEF	OBUS	70.70	20.49
tblVehicleEF	OBUS	0.28	0.34
tblVehicleEF	OBUS	0.97	1.24

tblVehicleEF	OBUS	1.93	0.68
tblVehicleEF	OBUS	6.4000e-005	5.8900e-004
tblVehicleEF	OBUS	4.6440e-003	0.01
tblVehicleEF	OBUS	9.2900e-004	2.1800e-004
tblVehicleEF	OBUS	6.1000e-005	5.6400e-004
tblVehicleEF	OBUS	4.4220e-003	0.01
tblVehicleEF	OBUS	8.5400e-004	2.0100e-004
tblVehicleEF	OBUS	2.1800e-003	2.6020e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.3100e-004	1.1160e-003
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.05	0.29
tblVehicleEF	OBUS	0.38	0.12
tblVehicleEF	OBUS	6.8400e-004	7.2500e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1700e-004	2.0300e-004
tblVehicleEF	OBUS	2.1800e-003	2.6020e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.3100e-004	1.1160e-003
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tblVehicleEF	OBUS	4.6440e-003	0.01
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tblVehicleEF	OBUS	5.1000e-005	4.7900e-004
tblVehicleEF	OBUS	4.4220e-003	0.01
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tblVehicleEF	OBUS	0.05	0.29
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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	OBUS	4.2350e-003	4.6860e-003
tblVehicleEF	OBUS	0.02	0.03

tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1330e-003	2.2090e-003
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tblVehicleEF	OBUS	0.05	0.29
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tblVehicleEF	OBUS	1.91	0.68
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tblVehicleEF	OBUS	9.2900e-004	2.1800e-004
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tblVehicleEF	OBUS	9.4100e-004	1.1660e-003

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1600e-004	2.0300e-004
tblVehicleEF	OBUS	2.3200e-003	2.7390e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4100e-004	1.1660e-003
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tblVehicleEF	OBUS	0.05	0.30
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tblVehicleEF	SBUS	0.01	8.5840e-003
tblVehicleEF	SBUS	0.07	6.1570e-003
tblVehicleEF	SBUS	5.71	2.50
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tblVehicleEF	SBUS	5.33	0.82
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tblVehicleEF	SBUS	1,136.31	1,112.17
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tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	4.1690e-003
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tblVehicleEF	SBUS	9.3510e-003	0.06
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tblVehicleEF	SBUS	0.01	8.7140e-003
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tblVehicleEF	SBUS	3.65	0.60
tblVehicleEF	SBUS	1,322.00	352.98
tblVehicleEF	SBUS	1,136.31	1,112.20
tblVehicleEF	SBUS	37.11	4.41
tblVehicleEF	SBUS	12.08	3.36
tblVehicleEF	SBUS	4.47	4.88
tblVehicleEF	SBUS	14.99	0.90
tblVehicleEF	SBUS	0.01	3.6810e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	9.6490e-003	3.5220e-003
tblVehicleEF	SBUS	2.7560e-003	2.7010e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.7500e-004	3.6000e-005
tblVehicleEF	SBUS	5.6170e-003	2.2080e-003
tblVehicleEF	SBUS	0.02	9.9850e-003
tblVehicleEF	SBUS	0.67	0.28
tblVehicleEF	SBUS	2.8800e-003	1.1130e-003
tblVehicleEF	SBUS	0.11	0.11
tblVehicleEF	SBUS	8.5310e-003	0.06
tblVehicleEF	SBUS	0.22	0.03
tblVehicleEF	SBUS	0.01	3.3640e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.3500e-004	4.4000e-005
tblVehicleEF	SBUS	5.6170e-003	2.2080e-003

tblVehicleEF	SBUS	0.02	9.9850e-003
tblVehicleEF	SBUS	0.97	0.40
tblVehicleEF	SBUS	2.8800e-003	1.1130e-003
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	8.5310e-003	0.06
tblVehicleEF	SBUS	0.24	0.03
tblVehicleEF	SBUS	0.84	0.06
tblVehicleEF	SBUS	0.01	8.5770e-003
tblVehicleEF	SBUS	0.07	6.3440e-003
tblVehicleEF	SBUS	5.91	2.56
tblVehicleEF	SBUS	0.65	0.78
tblVehicleEF	SBUS	5.37	0.86
tblVehicleEF	SBUS	1,169.92	334.13
tblVehicleEF	SBUS	1,136.31	1,112.17
tblVehicleEF	SBUS	37.11	4.85
tblVehicleEF	SBUS	11.19	3.19
tblVehicleEF	SBUS	4.69	5.12
tblVehicleEF	SBUS	15.02	0.91
tblVehicleEF	SBUS	0.01	5.2920e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	5.0630e-003
tblVehicleEF	SBUS	2.7560e-003	2.7010e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.7500e-004	3.6000e-005
tblVehicleEF	SBUS	2.9580e-003	1.2070e-003

tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	0.68	0.28
tblVehicleEF	SBUS	1.2820e-003	6.0100e-004
tblVehicleEF	SBUS	0.11	0.11
tblVehicleEF	SBUS	0.01	0.08
tblVehicleEF	SBUS	0.28	0.04
tblVehicleEF	SBUS	0.01	3.1850e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.6400e-004	4.8000e-005
tblVehicleEF	SBUS	2.9580e-003	1.2070e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	0.98	0.40
tblVehicleEF	SBUS	1.2820e-003	6.0100e-004
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	0.01	0.08
tblVehicleEF	SBUS	0.31	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	0.01
tblVehicleEF	UBUS	9.26	34.75
tblVehicleEF	UBUS	14.34	0.89
tblVehicleEF	UBUS	1,846.39	1,692.13
tblVehicleEF	UBUS	136.37	11.77
tblVehicleEF	UBUS	5.87	0.38
tblVehicleEF	UBUS	13.57	0.14
tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003

tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	8.0860e-003	1.6780e-003
tblVehicleEF	UBUS	0.11	9.5390e-003
tblVehicleEF	UBUS	3.9450e-003	7.3700e-004
tblVehicleEF	UBUS	0.61	0.07
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.15	0.04
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.6240e-003	1.1700e-004
tblVehicleEF	UBUS	8.0860e-003	1.6780e-003
tblVehicleEF	UBUS	0.11	9.5390e-003
tblVehicleEF	UBUS	3.9450e-003	7.3700e-004
tblVehicleEF	UBUS	2.50	4.54
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.25	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	9.2350e-003
tblVehicleEF	UBUS	9.36	34.75
tblVehicleEF	UBUS	11.74	0.76
tblVehicleEF	UBUS	1,846.39	1,692.13
tblVehicleEF	UBUS	136.37	11.55
tblVehicleEF	UBUS	5.45	0.38
tblVehicleEF	UBUS	13.45	0.13

tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003
tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	0.02	3.0610e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.3320e-003	1.4840e-003
tblVehicleEF	UBUS	0.62	0.07
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.02	0.03
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.5790e-003	1.1400e-004
tblVehicleEF	UBUS	0.02	3.0610e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.3320e-003	1.4840e-003
tblVehicleEF	UBUS	2.52	4.54
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.12	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	0.01
tblVehicleEF	UBUS	9.27	34.75
tblVehicleEF	UBUS	13.86	0.90
tblVehicleEF	UBUS	1,846.39	1,692.13

tblVehicleEF	UBUS	136.37	11.80
tblVehicleEF	UBUS	5.76	0.38
tblVehicleEF	UBUS	13.55	0.14
tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003
tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	9.2250e-003	1.6870e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	4.1190e-003	7.4500e-004
tblVehicleEF	UBUS	0.61	0.07
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.13	0.04
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.6160e-003	1.1700e-004
tblVehicleEF	UBUS	9.2250e-003	1.6870e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	4.1190e-003	7.4500e-004
tblVehicleEF	UBUS	2.50	4.54
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.24	0.04
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	8.62	8.55

tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	0.45	0.00
tblWoodstoves	NumberNoncatalytic	0.45	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					
2021	3.9796	40.5536	21.8994	0.0400	22.5095	2.0458	24.5552	10.4421	1.8821	12.3242	0.0000	3,882.5914	3,882.5914	1.1976	0.0000	3,912.5319
2022	63.3393	16.8670	17.5700	0.0294	0.1677	0.8649	0.9048	0.0445	0.8126	0.8233	0.0000	2,797.0208	2,797.0208	0.7182	0.0000	2,813.8620
Maximum	**63.3393**	**40.5536**	**21.8994**	**0.0400**	**22.5095**	**2.0458**	**24.5552**	**10.4421**	**1.8821**	**12.3242**	**0.0000**	**3,882.5914**	**3,882.5914**	**1.1976**	**0.0000**	**3,912.5319**

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					
2021	3.9796	40.5536	21.8994	0.0400	8.9014	2.0458	10.9472	4.1050	1.8821	5.9870	0.0000	3,882.5914	3,882.5914	1.1976	0.0000	3,912.5319
2022	63.3393	16.8670	17.5700	0.0294	0.1677	0.8649	0.9048	0.0445	0.8126	0.8233	0.0000	2,797.0208	2,797.0208	0.7182	0.0000	2,813.8620
Maximum	**63.3393**	**40.5536**	**21.8994**	**0.0400**	**8.9014**	**2.0458**	**10.9472**	**4.1050**	**1.8821**	**5.9870**	**0.0000**	**3,882.5914**	**3,882.5914**	**1.1976**	**0.0000**	**3,912.5319**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.01**	**0.00**	**53.45**	**60.43**	**0.00**	**48.20**	**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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Energy	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Mobile	0.2449	0.7169	2.4155	7.3600e-003	0.6243	7.9400e-003	0.6322	0.1668	7.4900e-003	0.1743		771.7469	771.7469	0.0474		772.9324
Total	**4.6260**	**0.9147**	**3.2393**	**8.6000e-003**	**0.6243**	**0.0274**	**0.6516**	**0.1668**	**0.0269**	**0.1937**	**0.0000**	**1,014.6583**	**1,014.6583**	**0.0533**	**4.4200e-003**	**1,017.3116**

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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Energy	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Mobile	0.2449	0.7169	2.4155	7.3600e-003	0.6243	7.9400e-003	0.6322	0.1668	7.4900e-003	0.1743		771.7469	771.7469	0.0474		772.9324
Total	**4.6260**	**0.9147**	**3.2393**	**8.6000e-003**	**0.6243**	**0.0274**	**0.6516**	**0.1668**	**0.0269**	**0.1937**	**0.0000**	**1,014.6583**	**1,014.6583**	**0.0533**	**4.4200e-003**	**1,017.3116**

	ROG	NOx	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	5/3/2021	5/14/2021	5	10	
2	Grading	Grading	5/15/2021	6/11/2021	5	20	
3	Building Construction	Building Construction	6/12/2021	4/29/2022	5	230	
4	Paving	Paving	4/30/2022	5/27/2022	5	20	
5	Architectural Coating	Architectural Coating	5/28/2022	6/24/2022	5	20	

Acres of Grading (Site Preparation Phase): 40

Acres of Grading (Grading Phase): 80

Acres of Paving: 0

Residential Indoor: 408,167; Residential Outdoor: 136,056; 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	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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	3.00	1.00	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	1.00	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 - 2021

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					22.3083	0.0000	22.3083	10.3887	0.0000	10.3887			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**22.3083**	**2.0445**	**24.3527**	**10.3887**	**1.8809**	**12.2696**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0915	0.0565	0.7452	1.9800e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.0915**	**0.0565**	**0.7452**	**1.9800e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**196.9345**	**196.9345**	**5.6000e-003**		**197.0746**

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					8.7002	0.0000	8.7002	4.0516	0.0000	4.0516			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.7002**	**2.0445**	**10.7447**	**4.0516**	**1.8809**	**5.9325**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0915	0.0565	0.7452	1.9800e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		196.9345	196.9345	5.6000e-003		197.0746
Total	**0.0915**	**0.0565**	**0.7452**	**1.9800e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**196.9345**	**196.9345**	**5.6000e-003**		**197.0746**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.2641	0.0000	10.2641	3.7683	0.0000	3.7683			0.0000			0.0000
Off-Road	2.5141	28.5079	14.3529	0.0311		1.2432	1.2432		1.1437	1.1437		3,013.4206	3,013.4206	0.9746		3,037.7857
Total	**2.5141**	**28.5079**	**14.3529**	**0.0311**	**10.2641**	**1.2432**	**11.5073**	**3.7683**	**1.1437**	**4.9120**		**3,013.4206**	**3,013.4206**	**0.9746**		**3,037.7857**

3.3 Grading - 2021

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	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.0030	0.0000	4.0030	1.4696	0.0000	1.4696			0.0000			0.0000
Off-Road	2.5141	28.5079	14.3529	0.0311		1.2432	1.2432		1.1437	1.1437	0.0000	3,013.4206	3,013.4206	0.9746		3,037.7857
Total	**2.5141**	**28.5079**	**14.3529**	**0.0311**	**4.0030**	**1.2432**	**5.2462**	**1.4696**	**1.1437**	**2.6133**	**0.0000**	**3,013.4206**	**3,013.4206**	**0.9746**		**3,037.7857**

3.3 Grading - 2021

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	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

3.4 Building Construction - 2021

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625		2,736.0438	2,736.0438	0.6751		2,752.9212
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**		**2,736.0438**	**2,736.0438**	**0.6751**		**2,752.9212**

3.4 Building Construction - 2021

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	2.5900e-003	0.0964	0.0182	2.7000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		28.4589	28.4589	1.8000e-003		28.5039
Worker	0.0152	9.4200e-003	0.1242	3.3000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		32.8224	32.8224	9.3000e-004		32.8458
Total	**0.0178**	**0.1059**	**0.1424**	**6.0000e-004**	**0.0399**	**3.8000e-004**	**0.0403**	**0.0107**	**3.6000e-004**	**0.0111**		**61.2814**	**61.2814**	**2.7300e-003**		**61.3497**

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625	0.0000	2,736.0438	2,736.0438	0.6751		2,752.9212
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**	**0.0000**	**2,736.0438**	**2,736.0438**	**0.6751**		**2,752.9212**

3.4 Building Construction - 2021

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	2.5900e-003	0.0964	0.0182	2.7000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0000e-003		28.4589	28.4589	1.8000e-003		28.5039
Worker	0.0152	9.4200e-003	0.1242	3.3000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		32.8224	32.8224	9.3000e-004		32.8458
Total	**0.0178**	**0.1059**	**0.1424**	**6.0000e-004**	**0.0399**	**3.8000e-004**	**0.0403**	**0.0107**	**3.6000e-004**	**0.0111**		**61.2814**	**61.2814**	**2.7300e-003**		**61.3497**

3.4 Building Construction - 2022

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	1.8146	16.7670	17.4392	0.0288		0.8645	0.8645		0.8122	0.8122		2,737.1520	2,737.1520	0.6711		2,753.9288
Total	**1.8146**	**16.7670**	**17.4392**	**0.0288**		**0.8645**	**0.8645**		**0.8122**	**0.8122**		**2,737.1520**	**2,737.1520**	**0.6711**		**2,753.9288**

3.4 Building Construction - 2022

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	2.4100e-003	0.0915	0.0168	2.7000e-004	6.4000e-003	1.4000e-004	6.5400e-003	1.8400e-003	1.3000e-004	1.9800e-003		28.2308	28.2308	1.7400e-003		28.2742
Worker	0.0142	8.4700e-003	0.1141	3.2000e-004	0.0335	2.1000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		31.6381	31.6381	8.4000e-004		31.6590
Total	**0.0166**	**0.0999**	**0.1309**	**5.9000e-004**	**0.0399**	**3.5000e-004**	**0.0403**	**0.0107**	**3.2000e-004**	**0.0111**		**59.8688**	**59.8688**	**2.5800e-003**		**59.9332**

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	1.8146	16.7670	17.4392	0.0288		0.8645	0.8645		0.8122	0.8122	0.0000	2,737.1520	2,737.1520	0.6711		2,753.9288
Total	**1.8146**	**16.7670**	**17.4392**	**0.0288**		**0.8645**	**0.8645**		**0.8122**	**0.8122**	**0.0000**	**2,737.1520**	**2,737.1520**	**0.6711**		**2,753.9288**

3.4 Building Construction - 2022

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	2.4100e-003	0.0915	0.0168	2.7000e-004	6.4000e-003	1.4000e-004	6.5400e-003	1.8400e-003	1.3000e-004	1.9800e-003		28.2308	28.2308	1.7400e-003		28.2742
Worker	0.0142	8.4700e-003	0.1141	3.2000e-004	0.0335	2.1000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		31.6381	31.6381	8.4000e-004		31.6590
Total	**0.0166**	**0.0999**	**0.1309**	**5.9000e-004**	**0.0399**	**3.5000e-004**	**0.0403**	**0.0107**	**3.2000e-004**	**0.0111**		**59.8688**	**59.8688**	**2.5800e-003**		**59.9332**

3.5 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0712	0.0424	0.5705	1.5900e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		158.1904	158.1904	4.1900e-003		158.2951
Total	**0.0712**	**0.0424**	**0.5705**	**1.5900e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**158.1904**	**158.1904**	**4.1900e-003**		**158.2951**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0712	0.0424	0.5705	1.5900e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		158.1904	158.1904	4.1900e-003		158.2951
Total	**0.0712**	**0.0424**	**0.5705**	**1.5900e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**158.1904**	**158.1904**	**4.1900e-003**		**158.2951**

3.6 Architectural Coating - 2022

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	63.0618					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**63.3346**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.6 Architectural Coating - 2022

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	4.7400e-003	2.8200e-003	0.0380	1.1000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		10.5460	10.5460	2.8000e-004		10.5530
Total	**4.7400e-003**	**2.8200e-003**	**0.0380**	**1.1000e-004**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**6.0000e-005**	**3.0300e-003**		**10.5460**	**10.5460**	**2.8000e-004**		**10.5530**

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	63.0618					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**63.3346**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.6 Architectural Coating - 2022

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	4.7400e-003	2.8200e-003	0.0380	1.1000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		10.5460	10.5460	2.8000e-004		10.5530
Total	**4.7400e-003**	**2.8200e-003**	**0.0380**	**1.1000e-004**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**6.0000e-005**	**3.0300e-003**		**10.5460**	**10.5460**	**2.8000e-004**		**10.5530**

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	0.2449	0.7169	2.4155	7.3600e-003	0.6243	7.9400e-003	0.6322	0.1668	7.4900e-003	0.1743		771.7469	771.7469	0.0474		772.9324
Unmitigated	0.2449	0.7169	2.4155	7.3600e-003	0.6243	7.9400e-003	0.6322	0.1668	7.4900e-003	0.1743		771.7469	771.7469	0.0474		772.9324

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	84.96	85.86	76.95	286,850	286,850
Total	84.96	85.86	76.95	286,850	286,850

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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

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	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
NaturalGas Unmitigated	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892

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					
Single Family Housing	433.383	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Total		**4.6700e-003**	**0.0399**	**0.0170**	**2.5000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**		**50.9862**	**50.9862**	**9.8000e-004**	**9.3000e-004**	**51.2892**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.433383	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Total		**4.6700e-003**	**0.0399**	**0.0170**	**2.5000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**		**50.9862**	**50.9862**	**9.8000e-004**	**9.3000e-004**	**51.2892**

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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Unmitigated	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900

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	0.3455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0175	0.1493	0.0635	9.5000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	190.5882	190.5882	3.6500e-003	3.4900e-003	191.7208
Landscaping	0.0225	8.5700e-003	0.7433	4.0000e-005		4.1100e-003	4.1100e-003		4.1100e-003	4.1100e-003		1.3370	1.3370	1.2900e-003		1.3692
Total	**4.3764**	**0.1579**	**0.8068**	**9.9000e-004**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**191.9252**	**191.9252**	**4.9400e-003**	**3.4900e-003**	**193.0900**

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	0.3455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0175	0.1493	0.0635	9.5000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	190.5882	190.5882	3.6500e-003	3.4900e-003	191.7208
Landscaping	0.0225	8.5700e-003	0.7433	4.0000e-005		4.1100e-003	4.1100e-003		4.1100e-003	4.1100e-003		1.3370	1.3370	1.2900e-003		1.3692
Total	**4.3764**	**0.1579**	**0.8068**	**9.9000e-004**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**191.9252**	**191.9252**	**4.9400e-003**	**3.4900e-003**	**193.0900**

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

Banyan Avenue Residential

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	9.00	Dwelling Unit	4.62	201,564.00	26

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	509.79	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor adjusted for the 2022 Opening Year

Land Use - Based on the Site Plan, the Net Land Area is 201,564 SF (4.62 Acres)

Construction Phase - Construction Schedule adjusted to reflect the number of days identified in the 2016 Study.

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

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

Off-road Equipment - Construction Equipment consistent with the equipment identified in the 2016 Study.

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

Grading - For purposes of analysis, it assumed that 4 acres will be disturbed per day.

Vehicle Trips - Trip Rates based on 10th Edition ITE

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Woodstoves - Rule 445

Energy Use - The Project will design building shells and building components to meet 2019 Title 24 Standards which expects 53% less energy for residential use.

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	8.00	20.00
tblConstructionPhase	NumDays	18.00	20.00
tblConstructionPhase	NumDays	18.00	20.00
tblEnergyUse	LightingElect	1,608.84	756.15
tblEnergyUse	T24E	951.67	447.28
tblEnergyUse	T24NG	24,566.15	11,546.09
tblFireplaces	NumberGas	7.65	9.00
tblFireplaces	NumberNoFireplace	0.90	0.00
tblFireplaces	NumberWood	0.45	0.00

tblGrading	AcresOfGrading	20.00	80.00
tblGrading	AcresOfGrading	0.00	40.00
tblLandUse	LandUseSquareFeet	16,200.00	201,564.00
tblLandUse	LotAcreage	2.92	4.62
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	509.79
tblVehicleEF	HHD	1.21	0.03
tblVehicleEF	HHD	0.04	0.14
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	3.29	5.95
tblVehicleEF	HHD	0.57	0.67
tblVehicleEF	HHD	1.82	3.7880e-003
tblVehicleEF	HHD	6,933.41	1,124.17
tblVehicleEF	HHD	1,475.79	1,484.27
tblVehicleEF	HHD	5.54	0.03
tblVehicleEF	HHD	26.50	6.08
tblVehicleEF	HHD	2.50	3.42

tblVehicleEF	HHD	20.21	2.10
tblVehicleEF	HHD	9.7780e-003	3.6280e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	9.3550e-003	3.4710e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.8310e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.1910e-003	1.6000e-004
tblVehicleEF	HHD	0.84	0.43
tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.08	0.08
tblVehicleEF	HHD	2.1700e-004	7.9100e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.6000e-005	0.00
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.1910e-003	1.6000e-004
tblVehicleEF	HHD	0.97	0.50
tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.13	0.23
tblVehicleEF	HHD	2.1700e-004	7.9100e-004

tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.14	0.03
tblVehicleEF	HHD	0.04	0.14
tblVehicleEF	HHD	0.09	0.00
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tblVehicleEF	HHD	7,345.18	1,121.04
tblVehicleEF	HHD	1,475.79	1,484.27
tblVehicleEF	HHD	5.54	0.03
tblVehicleEF	HHD	27.35	5.90
tblVehicleEF	HHD	2.36	3.23
tblVehicleEF	HHD	20.20	2.10
tblVehicleEF	HHD	8.2750e-003	3.1750e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	7.9170e-003	3.0380e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.8310e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
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tblVehicleEF	HHD	3.5970e-003	1.8200e-004
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tblVehicleEF	HHD	1.1700e-004	7.0000e-006

tblVehicleEF	HHD	0.08	0.08
tblVehicleEF	HHD	2.2100e-004	8.1200e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.07	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.4000e-005	0.00
tblVehicleEF	HHD	1.6800e-004	1.0000e-005
tblVehicleEF	HHD	3.5970e-003	1.8200e-004
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tblVehicleEF	HHD	1.1700e-004	7.0000e-006
tblVehicleEF	HHD	0.13	0.23
tblVehicleEF	HHD	2.2100e-004	8.1200e-004
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tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	5.1000e-005	1.0000e-006
tblVehicleEF	HHD	0.01	3.6980e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8810e-003	8.6000e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	4.7000e-005	1.0000e-006
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
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tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	2.3300e-004	8.2900e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.5000e-005	0.00
tblVehicleEF	HHD	8.5000e-005	5.0000e-006
tblVehicleEF	HHD	3.4760e-003	1.8700e-004
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tblVehicleEF	HHD	5.2000e-005	3.0000e-006
tblVehicleEF	HHD	0.13	0.08
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tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.05
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tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.08	0.24
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tblVehicleEF	LDA	0.12	0.11
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.06	0.19
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tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	0.12	0.11
tblVehicleEF	LDA	0.07	0.09
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tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	0.07	0.21
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tblVehicleEF	LDA	0.08	0.18
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tblVehicleEF	LDA	2.2790e-003	1.8570e-003
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tblVehicleEF	LDA	2.0960e-003	1.7080e-003
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	9.3400e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.22
tblVehicleEF	LDA	2.4600e-003	2.5660e-003
tblVehicleEF	LDA	5.9100e-004	5.3200e-004
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.24
tblVehicleEF	LDT1	0.01	7.5760e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.54	1.52
tblVehicleEF	LDT1	3.61	2.39
tblVehicleEF	LDT1	313.68	314.63

tblVehicleEF	LDT1	70.93	65.70
tblVehicleEF	LDT1	0.16	0.13
tblVehicleEF	LDT1	0.22	0.30
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.20	0.86
tblVehicleEF	LDT1	0.26	0.42
tblVehicleEF	LDT1	3.1570e-003	3.0930e-003
tblVehicleEF	LDT1	7.7300e-004	6.4600e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.33	0.26
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.20	0.86
tblVehicleEF	LDT1	0.28	0.47
tblVehicleEF	LDT1	0.02	8.4650e-003
tblVehicleEF	LDT1	0.02	0.07
tblVehicleEF	LDT1	1.85	1.81
tblVehicleEF	LDT1	2.97	2.00
tblVehicleEF	LDT1	341.75	337.48
tblVehicleEF	LDT1	70.93	64.87

tblVehicleEF	LDT1	0.14	0.11
tblVehicleEF	LDT1	0.20	0.28
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.37	0.36
tblVehicleEF	LDT1	0.41	0.31
tblVehicleEF	LDT1	0.27	0.26
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.20	0.85
tblVehicleEF	LDT1	0.21	0.36
tblVehicleEF	LDT1	3.4420e-003	3.3180e-003
tblVehicleEF	LDT1	7.6200e-004	6.3800e-004
tblVehicleEF	LDT1	0.37	0.36
tblVehicleEF	LDT1	0.41	0.31
tblVehicleEF	LDT1	0.27	0.26
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.20	0.85
tblVehicleEF	LDT1	0.23	0.40
tblVehicleEF	LDT1	0.01	7.4310e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.47	1.47
tblVehicleEF	LDT1	3.55	2.39
tblVehicleEF	LDT1	307.06	310.38
tblVehicleEF	LDT1	70.93	65.71
tblVehicleEF	LDT1	0.15	0.12

tblVehicleEF	LDT1	0.21	0.29
tblVehicleEF	LDT1	2.7050e-003	2.3430e-003
tblVehicleEF	LDT1	3.6920e-003	2.8390e-003
tblVehicleEF	LDT1	2.4910e-003	2.1560e-003
tblVehicleEF	LDT1	3.3960e-003	2.6100e-003
tblVehicleEF	LDT1	0.19	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.00
tblVehicleEF	LDT1	0.25	0.43
tblVehicleEF	LDT1	3.0890e-003	3.0520e-003
tblVehicleEF	LDT1	7.7200e-004	6.4600e-004
tblVehicleEF	LDT1	0.19	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.23	1.00
tblVehicleEF	LDT1	0.28	0.47
tblVehicleEF	LDT2	6.3270e-003	4.4090e-003
tblVehicleEF	LDT2	8.1990e-003	0.07
tblVehicleEF	LDT2	0.80	1.00
tblVehicleEF	LDT2	1.67	2.71
tblVehicleEF	LDT2	351.15	335.59
tblVehicleEF	LDT2	79.39	70.25
tblVehicleEF	LDT2	0.09	0.09
tblVehicleEF	LDT2	0.14	0.30

tblVehicleEF	LDT2	1.7270e-003	1.6020e-003
tblVehicleEF	LDT2	2.4170e-003	1.9240e-003
tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.11	0.33
tblVehicleEF	LDT2	3.5180e-003	3.2990e-003
tblVehicleEF	LDT2	8.2200e-004	6.9100e-004
tblVehicleEF	LDT2	0.06	0.10
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.12	0.36
tblVehicleEF	LDT2	7.1840e-003	4.9540e-003
tblVehicleEF	LDT2	6.8290e-003	0.06
tblVehicleEF	LDT2	0.97	1.20
tblVehicleEF	LDT2	1.38	2.28
tblVehicleEF	LDT2	383.36	357.71
tblVehicleEF	LDT2	79.39	69.39
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.13	0.28
tblVehicleEF	LDT2	1.7270e-003	1.6020e-003

tblVehicleEF	LDT2	2.4170e-003	1.9240e-003
tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.11	0.15
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8420e-003	3.5160e-003
tblVehicleEF	LDT2	8.1700e-004	6.8200e-004
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.11	0.15
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.45
tblVehicleEF	LDT2	0.10	0.31
tblVehicleEF	LDT2	6.1560e-003	4.3220e-003
tblVehicleEF	LDT2	8.1410e-003	0.07
tblVehicleEF	LDT2	0.75	0.96
tblVehicleEF	LDT2	1.64	2.72
tblVehicleEF	LDT2	343.55	331.47
tblVehicleEF	LDT2	79.39	70.27
tblVehicleEF	LDT2	0.08	0.08
tblVehicleEF	LDT2	0.14	0.30
tblVehicleEF	LDT2	1.7270e-003	1.6020e-003
tblVehicleEF	LDT2	2.4170e-003	1.9240e-003

tblVehicleEF	LDT2	1.5880e-003	1.4740e-003
tblVehicleEF	LDT2	2.2220e-003	1.7690e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.52
tblVehicleEF	LDT2	0.11	0.33
tblVehicleEF	LDT2	3.4410e-003	3.2580e-003
tblVehicleEF	LDT2	8.2200e-004	6.9100e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.52
tblVehicleEF	LDT2	0.12	0.37
tblVehicleEF	LHD1	5.2170e-003	5.0850e-003
tblVehicleEF	LHD1	0.01	6.1020e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.07	0.75
tblVehicleEF	LHD1	2.60	1.03
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.45
tblVehicleEF	LHD1	30.40	11.21
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	2.12	1.25

tblVehicleEF	LHD1	0.99	0.32
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003
tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	3.7070e-003	3.0390e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8240e-003	1.5810e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.35	0.55
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.9760e-003	6.3570e-003
tblVehicleEF	LHD1	3.5300e-004	1.1100e-004
tblVehicleEF	LHD1	3.7070e-003	3.0390e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8240e-003	1.5810e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.35	0.55
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD1	5.2170e-003	5.0990e-003

tblVehicleEF	LHD1	0.01	6.2280e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.09	0.76
tblVehicleEF	LHD1	2.43	0.98
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.47
tblVehicleEF	LHD1	30.40	11.12
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	1.98	1.17
tblVehicleEF	LHD1	0.94	0.31
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003
tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	7.3080e-003	5.4780e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.1220e-003	3.0450e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.36	0.56
tblVehicleEF	LHD1	0.25	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005

tblVehicleEF	LHD1	5.9770e-003	6.3570e-003
tblVehicleEF	LHD1	3.5000e-004	1.1000e-004
tblVehicleEF	LHD1	7.3080e-003	5.4780e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.1220e-003	3.0450e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.36	0.56
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.2170e-003	5.0870e-003
tblVehicleEF	LHD1	0.01	6.1100e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	1.07	0.75
tblVehicleEF	LHD1	2.55	1.02
tblVehicleEF	LHD1	9.23	9.25
tblVehicleEF	LHD1	609.20	652.45
tblVehicleEF	LHD1	30.40	11.20
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	2.08	1.23
tblVehicleEF	LHD1	0.97	0.31
tblVehicleEF	LHD1	9.6500e-004	8.9000e-004
tblVehicleEF	LHD1	0.01	9.8770e-003
tblVehicleEF	LHD1	0.01	9.8260e-003
tblVehicleEF	LHD1	9.5800e-004	2.6000e-004
tblVehicleEF	LHD1	9.2400e-004	8.5100e-004
tblVehicleEF	LHD1	2.5390e-003	2.4690e-003

tblVehicleEF	LHD1	0.01	9.3760e-003
tblVehicleEF	LHD1	8.8100e-004	2.3900e-004
tblVehicleEF	LHD1	4.0430e-003	3.1520e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7940e-003	1.6100e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.38	0.60
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	5.9760e-003	6.3570e-003
tblVehicleEF	LHD1	3.5200e-004	1.1100e-004
tblVehicleEF	LHD1	4.0430e-003	3.1520e-003
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7940e-003	1.6100e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.38	0.60
tblVehicleEF	LHD1	0.29	0.09
tblVehicleEF	LHD2	3.5950e-003	3.6950e-003
tblVehicleEF	LHD2	4.6110e-003	4.1040e-003
tblVehicleEF	LHD2	8.1370e-003	0.01
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.50	0.50
tblVehicleEF	LHD2	1.20	0.67
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25

tblVehicleEF	LHD2	24.46	8.76
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	1.49	1.36
tblVehicleEF	LHD2	0.53	0.22
tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	1.3070e-003	1.7040e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.0300e-004	9.2000e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
tblVehicleEF	LHD2	2.6700e-004	8.7000e-005
tblVehicleEF	LHD2	1.3070e-003	1.7040e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0300e-004	9.2000e-004
tblVehicleEF	LHD2	0.07	0.07

tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.12	0.06
tblVehicleEF	LHD2	3.5950e-003	3.7050e-003
tblVehicleEF	LHD2	4.6760e-003	4.1460e-003
tblVehicleEF	LHD2	7.7630e-003	0.01
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.50	0.50
tblVehicleEF	LHD2	1.13	0.64
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25
tblVehicleEF	LHD2	24.46	8.70
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	1.40	1.28
tblVehicleEF	LHD2	0.50	0.21
tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	2.5220e-003	3.0730e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.5220e-003	1.7630e-003
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.10	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
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tblVehicleEF	LHD2	2.5220e-003	3.0730e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5220e-003	1.7630e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.32
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	3.5950e-003	3.6960e-003
tblVehicleEF	LHD2	4.6180e-003	4.1080e-003
tblVehicleEF	LHD2	8.0640e-003	0.01
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.50	0.50
tblVehicleEF	LHD2	1.19	0.67
tblVehicleEF	LHD2	14.27	14.14
tblVehicleEF	LHD2	608.52	665.25
tblVehicleEF	LHD2	24.46	8.75
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	1.46	1.33
tblVehicleEF	LHD2	0.52	0.22
tblVehicleEF	LHD2	1.2830e-003	1.3100e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01

tblVehicleEF	LHD2	4.0000e-004	1.3700e-004
tblVehicleEF	LHD2	1.2280e-003	1.2540e-003
tblVehicleEF	LHD2	2.6860e-003	2.6560e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.2600e-004
tblVehicleEF	LHD2	1.3460e-003	1.7140e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.8700e-004	9.2200e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.10	0.34
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	1.3900e-004	1.3500e-004
tblVehicleEF	LHD2	5.9200e-003	6.4300e-003
tblVehicleEF	LHD2	2.6600e-004	8.7000e-005
tblVehicleEF	LHD2	1.3460e-003	1.7140e-003
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.8700e-004	9.2200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.10	0.34
tblVehicleEF	LHD2	0.12	0.06
tblVehicleEF	MCY	0.43	0.34
tblVehicleEF	MCY	0.16	0.24
tblVehicleEF	MCY	20.55	19.26
tblVehicleEF	MCY	9.93	8.60
tblVehicleEF	MCY	167.73	212.03

tblVehicleEF	MCY	46.45	60.73
tblVehicleEF	MCY	1.16	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	1.45	1.42
tblVehicleEF	MCY	0.84	0.80
tblVehicleEF	MCY	0.80	0.78
tblVehicleEF	MCY	2.23	2.33
tblVehicleEF	MCY	0.49	1.91
tblVehicleEF	MCY	2.16	1.84
tblVehicleEF	MCY	2.0770e-003	2.0980e-003
tblVehicleEF	MCY	6.9000e-004	6.0100e-004
tblVehicleEF	MCY	1.45	1.42
tblVehicleEF	MCY	0.84	0.80
tblVehicleEF	MCY	0.80	0.78
tblVehicleEF	MCY	2.74	2.87
tblVehicleEF	MCY	0.49	1.91
tblVehicleEF	MCY	2.35	2.01
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.14	0.21
tblVehicleEF	MCY	20.68	19.28
tblVehicleEF	MCY	9.05	7.90
tblVehicleEF	MCY	167.73	211.90
tblVehicleEF	MCY	46.45	58.88

tblVehicleEF	MCY	0.99	0.97
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	3.14	2.77
tblVehicleEF	MCY	1.27	1.11
tblVehicleEF	MCY	2.13	1.77
tblVehicleEF	MCY	2.17	2.28
tblVehicleEF	MCY	0.49	1.88
tblVehicleEF	MCY	1.86	1.62
tblVehicleEF	MCY	2.0770e-003	2.0970e-003
tblVehicleEF	MCY	6.6700e-004	5.8300e-004
tblVehicleEF	MCY	3.14	2.77
tblVehicleEF	MCY	1.27	1.11
tblVehicleEF	MCY	2.13	1.77
tblVehicleEF	MCY	2.67	2.81
tblVehicleEF	MCY	0.49	1.88
tblVehicleEF	MCY	2.02	1.76
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.63	18.76
tblVehicleEF	MCY	9.55	8.44
tblVehicleEF	MCY	167.73	211.17
tblVehicleEF	MCY	46.45	60.38
tblVehicleEF	MCY	1.12	1.09

tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8610e-003	1.9650e-003
tblVehicleEF	MCY	3.6730e-003	2.9600e-003
tblVehicleEF	MCY	1.7420e-003	1.8380e-003
tblVehicleEF	MCY	3.4650e-003	2.7870e-003
tblVehicleEF	MCY	1.71	1.57
tblVehicleEF	MCY	1.13	1.06
tblVehicleEF	MCY	0.72	0.74
tblVehicleEF	MCY	2.19	2.31
tblVehicleEF	MCY	0.56	2.18
tblVehicleEF	MCY	2.08	1.81
tblVehicleEF	MCY	2.0610e-003	2.0900e-003
tblVehicleEF	MCY	6.8200e-004	5.9800e-004
tblVehicleEF	MCY	1.71	1.57
tblVehicleEF	MCY	1.13	1.06
tblVehicleEF	MCY	0.72	0.74
tblVehicleEF	MCY	2.69	2.84
tblVehicleEF	MCY	0.56	2.18
tblVehicleEF	MCY	2.27	1.98
tblVehicleEF	MDV	0.01	5.5200e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.35	1.14
tblVehicleEF	MDV	3.25	3.25
tblVehicleEF	MDV	483.94	415.10
tblVehicleEF	MDV	107.92	87.32
tblVehicleEF	MDV	0.17	0.11
tblVehicleEF	MDV	0.32	0.38

tblVehicleEF	MDV	1.8260e-003	1.6850e-003
tblVehicleEF	MDV	2.5170e-003	2.0310e-003
tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.44
tblVehicleEF	MDV	4.8500e-003	4.0780e-003
tblVehicleEF	MDV	1.1370e-003	8.5900e-004
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.28	0.48
tblVehicleEF	MDV	0.01	6.2110e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.64	1.35
tblVehicleEF	MDV	2.69	2.72
tblVehicleEF	MDV	526.85	438.45
tblVehicleEF	MDV	107.92	86.27
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.30	0.35
tblVehicleEF	MDV	1.8260e-003	1.6850e-003

tblVehicleEF	MDV	2.5170e-003	2.0310e-003
tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.20	0.21
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.19
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.21	0.38
tblVehicleEF	MDV	5.2830e-003	4.3080e-003
tblVehicleEF	MDV	1.1260e-003	8.4800e-004
tblVehicleEF	MDV	0.20	0.21
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.19
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.23	0.41
tblVehicleEF	MDV	0.01	5.4050e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.28	1.09
tblVehicleEF	MDV	3.20	3.26
tblVehicleEF	MDV	473.93	410.75
tblVehicleEF	MDV	107.92	87.35
tblVehicleEF	MDV	0.16	0.10
tblVehicleEF	MDV	0.32	0.38
tblVehicleEF	MDV	1.8260e-003	1.6850e-003
tblVehicleEF	MDV	2.5170e-003	2.0310e-003

tblVehicleEF	MDV	1.6830e-003	1.5540e-003
tblVehicleEF	MDV	2.3150e-003	1.8680e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.22	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.44
tblVehicleEF	MDV	4.7490e-003	4.0360e-003
tblVehicleEF	MDV	1.1360e-003	8.5900e-004
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.22	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.27	0.48
tblVehicleEF	MH	0.04	3.6580e-003
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tblVehicleEF	MH	3.07	0.35
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.1740e-003	0.00

tblVehicleEF	MH	3.2230e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.11
tblVehicleEF	MH	1.0790e-003	0.00
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tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	9.1720e-003
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tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.14	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.04	3.6580e-003
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tblVehicleEF	MH	3.19	0.35
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tblVehicleEF	MH	0.04	0.11

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tblVehicleEF	MH	3.2230e-003	4.0000e-003
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tblVehicleEF	MH	2.91	0.00
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tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	0.15	0.09
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tblVehicleEF	MH	0.04	3.6580e-003
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tblVehicleEF	MH	1.1740e-003	0.00
tblVehicleEF	MH	3.2230e-003	4.0000e-003
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tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.10	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	0.11	0.00
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tblVehicleEF	MHD	5.0030e-003	0.04
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tblVehicleEF	MHD	3.6900e-004	1.1780e-003
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tblVehicleEF	MHD	6.5100e-004	2.4000e-004
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tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.32	0.03
tblVehicleEF	MHD	1.5080e-003	6.5300e-004
tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.1700e-004	6.3000e-005
tblVehicleEF	MHD	1.2800e-003	4.5300e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.5100e-004	2.4000e-004
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tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.35	0.04

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tblVehicleEF	MHD	3.2500e-004	1.0410e-003
tblVehicleEF	MHD	5.0030e-003	0.04
tblVehicleEF	MHD	7.6400e-004	7.5000e-005
tblVehicleEF	MHD	3.1100e-004	9.9600e-004
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tblVehicleEF	MHD	7.0300e-004	6.9000e-005
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tblVehicleEF	MHD	1.5010e-003	4.7800e-004
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	1.5950e-003	6.5900e-004
tblVehicleEF	MHD	0.01	9.2620e-003

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tblVehicleEF	MHD	2.5300e-003	8.2800e-004
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.5010e-003	4.7800e-004
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tblVehicleEF	MHD	0.02	0.09
tblVehicleEF	MHD	0.32	0.03
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tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.1600e-004	6.3000e-005
tblVehicleEF	MHD	1.3890e-003	4.7100e-004
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tblVehicleEF	MHD	0.04	0.02
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tblVehicleEF	OBUS	9.2900e-004	2.1800e-004
tblVehicleEF	OBUS	6.1000e-005	5.6400e-004
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tblVehicleEF	OBUS	8.5400e-004	2.0100e-004
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tblVehicleEF	OBUS	9.3100e-004	1.1160e-003
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tblVehicleEF	OBUS	2.1800e-003	2.6020e-003
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tblVehicleEF	OBUS	5.1000e-005	4.7900e-004
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tblVehicleEF	OBUS	8.1600e-004	2.0300e-004
tblVehicleEF	OBUS	2.3200e-003	2.7390e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4100e-004	1.1660e-003
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	0.05	0.30
tblVehicleEF	OBUS	0.42	0.13
tblVehicleEF	SBUS	0.84	0.06
tblVehicleEF	SBUS	0.01	8.5840e-003
tblVehicleEF	SBUS	0.07	6.1570e-003
tblVehicleEF	SBUS	5.71	2.50
tblVehicleEF	SBUS	0.65	0.78
tblVehicleEF	SBUS	5.33	0.82
tblVehicleEF	SBUS	1,258.13	345.06
tblVehicleEF	SBUS	1,136.31	1,112.17
tblVehicleEF	SBUS	37.11	4.79
tblVehicleEF	SBUS	11.70	3.29
tblVehicleEF	SBUS	4.77	5.20
tblVehicleEF	SBUS	15.02	0.91
tblVehicleEF	SBUS	0.01	4.3580e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	4.1690e-003
tblVehicleEF	SBUS	2.7560e-003	2.7010e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.7500e-004	3.6000e-005
tblVehicleEF	SBUS	2.9260e-003	1.2420e-003
tblVehicleEF	SBUS	0.02	9.5120e-003
tblVehicleEF	SBUS	0.68	0.28
tblVehicleEF	SBUS	1.3050e-003	5.9000e-004
tblVehicleEF	SBUS	0.11	0.11
tblVehicleEF	SBUS	9.3510e-003	0.06
tblVehicleEF	SBUS	0.27	0.04
tblVehicleEF	SBUS	0.01	3.2890e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.6300e-004	4.7000e-005
tblVehicleEF	SBUS	2.9260e-003	1.2420e-003
tblVehicleEF	SBUS	0.02	9.5120e-003
tblVehicleEF	SBUS	0.97	0.40
tblVehicleEF	SBUS	1.3050e-003	5.9000e-004
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	9.3510e-003	0.06
tblVehicleEF	SBUS	0.30	0.04
tblVehicleEF	SBUS	0.84	0.06
tblVehicleEF	SBUS	0.01	8.7140e-003
tblVehicleEF	SBUS	0.06	5.1550e-003
tblVehicleEF	SBUS	5.56	2.47

tblVehicleEF	SBUS	0.66	0.80
tblVehicleEF	SBUS	3.65	0.60
tblVehicleEF	SBUS	1,322.00	352.98
tblVehicleEF	SBUS	1,136.31	1,112.20
tblVehicleEF	SBUS	37.11	4.41
tblVehicleEF	SBUS	12.08	3.36
tblVehicleEF	SBUS	4.47	4.88
tblVehicleEF	SBUS	14.99	0.90
tblVehicleEF	SBUS	0.01	3.6810e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	9.6490e-003	3.5220e-003
tblVehicleEF	SBUS	2.7560e-003	2.7010e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.7500e-004	3.6000e-005
tblVehicleEF	SBUS	5.6170e-003	2.2080e-003
tblVehicleEF	SBUS	0.02	9.9850e-003
tblVehicleEF	SBUS	0.67	0.28
tblVehicleEF	SBUS	2.8800e-003	1.1130e-003
tblVehicleEF	SBUS	0.11	0.11
tblVehicleEF	SBUS	8.5310e-003	0.06
tblVehicleEF	SBUS	0.22	0.03
tblVehicleEF	SBUS	0.01	3.3640e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.3500e-004	4.4000e-005
tblVehicleEF	SBUS	5.6170e-003	2.2080e-003

tblVehicleEF	SBUS	0.02	9.9850e-003
tblVehicleEF	SBUS	0.97	0.40
tblVehicleEF	SBUS	2.8800e-003	1.1130e-003
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	8.5310e-003	0.06
tblVehicleEF	SBUS	0.24	0.03
tblVehicleEF	SBUS	0.84	0.06
tblVehicleEF	SBUS	0.01	8.5770e-003
tblVehicleEF	SBUS	0.07	6.3440e-003
tblVehicleEF	SBUS	5.91	2.56
tblVehicleEF	SBUS	0.65	0.78
tblVehicleEF	SBUS	5.37	0.86
tblVehicleEF	SBUS	1,169.92	334.13
tblVehicleEF	SBUS	1,136.31	1,112.17
tblVehicleEF	SBUS	37.11	4.85
tblVehicleEF	SBUS	11.19	3.19
tblVehicleEF	SBUS	4.69	5.12
tblVehicleEF	SBUS	15.02	0.91
tblVehicleEF	SBUS	0.01	5.2920e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.1700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	5.0630e-003
tblVehicleEF	SBUS	2.7560e-003	2.7010e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.7500e-004	3.6000e-005
tblVehicleEF	SBUS	2.9580e-003	1.2070e-003

tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	0.68	0.28
tblVehicleEF	SBUS	1.2820e-003	6.0100e-004
tblVehicleEF	SBUS	0.11	0.11
tblVehicleEF	SBUS	0.01	0.08
tblVehicleEF	SBUS	0.28	0.04
tblVehicleEF	SBUS	0.01	3.1850e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.6400e-004	4.8000e-005
tblVehicleEF	SBUS	2.9580e-003	1.2070e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	0.98	0.40
tblVehicleEF	SBUS	1.2820e-003	6.0100e-004
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	0.01	0.08
tblVehicleEF	SBUS	0.31	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	0.01
tblVehicleEF	UBUS	9.26	34.75
tblVehicleEF	UBUS	14.34	0.89
tblVehicleEF	UBUS	1,846.39	1,692.13
tblVehicleEF	UBUS	136.37	11.77
tblVehicleEF	UBUS	5.87	0.38
tblVehicleEF	UBUS	13.57	0.14
tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003

tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	8.0860e-003	1.6780e-003
tblVehicleEF	UBUS	0.11	9.5390e-003
tblVehicleEF	UBUS	3.9450e-003	7.3700e-004
tblVehicleEF	UBUS	0.61	0.07
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.15	0.04
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.6240e-003	1.1700e-004
tblVehicleEF	UBUS	8.0860e-003	1.6780e-003
tblVehicleEF	UBUS	0.11	9.5390e-003
tblVehicleEF	UBUS	3.9450e-003	7.3700e-004
tblVehicleEF	UBUS	2.50	4.54
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.25	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	9.2350e-003
tblVehicleEF	UBUS	9.36	34.75
tblVehicleEF	UBUS	11.74	0.76
tblVehicleEF	UBUS	1,846.39	1,692.13
tblVehicleEF	UBUS	136.37	11.55
tblVehicleEF	UBUS	5.45	0.38
tblVehicleEF	UBUS	13.45	0.13

tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003
tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	0.02	3.0610e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.3320e-003	1.4840e-003
tblVehicleEF	UBUS	0.62	0.07
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.02	0.03
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.5790e-003	1.1400e-004
tblVehicleEF	UBUS	0.02	3.0610e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.3320e-003	1.4840e-003
tblVehicleEF	UBUS	2.52	4.54
tblVehicleEF	UBUS	0.02	0.04
tblVehicleEF	UBUS	1.12	0.04
tblVehicleEF	UBUS	1.83	4.45
tblVehicleEF	UBUS	0.08	0.01
tblVehicleEF	UBUS	9.27	34.75
tblVehicleEF	UBUS	13.86	0.90
tblVehicleEF	UBUS	1,846.39	1,692.13

tblVehicleEF	UBUS	136.37	11.80
tblVehicleEF	UBUS	5.76	0.38
tblVehicleEF	UBUS	13.55	0.14
tblVehicleEF	UBUS	0.52	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.07	2.6550e-003
tblVehicleEF	UBUS	1.4030e-003	1.4100e-004
tblVehicleEF	UBUS	0.22	0.03
tblVehicleEF	UBUS	3.0000e-003	6.6220e-003
tblVehicleEF	UBUS	0.06	2.5280e-003
tblVehicleEF	UBUS	1.2900e-003	1.3000e-004
tblVehicleEF	UBUS	9.2250e-003	1.6870e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	4.1190e-003	7.4500e-004
tblVehicleEF	UBUS	0.61	0.07
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.13	0.04
tblVehicleEF	UBUS	0.01	3.0250e-003
tblVehicleEF	UBUS	1.6160e-003	1.1700e-004
tblVehicleEF	UBUS	9.2250e-003	1.6870e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	4.1190e-003	7.4500e-004
tblVehicleEF	UBUS	2.50	4.54
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.24	0.04
tblVehicleTrips	ST_TR	9.91	9.54
tblVehicleTrips	SU_TR	8.62	8.55

tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	0.45	0.00
tblWoodstoves	NumberNoncatalytic	0.45	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					
2021	3.9798	40.5566	21.7655	0.0398	22.5095	2.0458	24.5552	10.4421	1.8821	12.3242	0.0000	3,862.3265	3,862.3265	1.1969	0.0000	3,892.2498
2022	63.3393	16.8663	17.5523	0.0294	0.1677	0.8649	0.9048	0.0445	0.8126	0.8233	0.0000	2,792.6620	2,792.6620	0.7177	0.0000	2,809.5054
Maximum	**63.3393**	**40.5566**	**21.7655**	**0.0398**	**22.5095**	**2.0458**	**24.5552**	**10.4421**	**1.8821**	**12.3242**	**0.0000**	**3,862.3265**	**3,862.3265**	**1.1969**	**0.0000**	**3,892.2498**

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					
2021	3.9798	40.5566	21.7655	0.0398	8.9014	2.0458	10.9472	4.1050	1.8821	5.9870	0.0000	3,862.3265	3,862.3265	1.1969	0.0000	3,892.2498
2022	63.3393	16.8663	17.5523	0.0294	0.1677	0.8649	0.9048	0.0445	0.8126	0.8233	0.0000	2,792.6620	2,792.6620	0.7177	0.0000	2,809.5054
Maximum	**63.3393**	**40.5566**	**21.7655**	**0.0398**	**8.9014**	**2.0458**	**10.9472**	**4.1050**	**1.8821**	**5.9870**	**0.0000**	**3,862.3265**	**3,862.3265**	**1.1969**	**0.0000**	**3,892.2498**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.01**	**0.00**	**53.45**	**60.43**	**0.00**	**48.20**	**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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Energy	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Mobile	0.2312	0.7397	2.1271	6.9600e-003	0.6240	7.9300e-003	0.6319	0.1667	7.4800e-003	0.1742		719.7849	719.7849	0.0329		720.6078
Total	**4.6123**	**0.9375**	**2.9509**	**8.2000e-003**	**0.6240**	**0.0273**	**0.6513**	**0.1667**	**0.0269**	**0.1936**	**0.0000**	**962.6963**	**962.6963**	**0.0388**	**4.4200e-003**	**964.9871**

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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Energy	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Mobile	0.2312	0.7397	2.1271	6.9600e-003	0.6240	7.9300e-003	0.6319	0.1667	7.4800e-003	0.1742		719.7849	719.7849	0.0329		720.6078
Total	**4.6123**	**0.9375**	**2.9509**	**8.2000e-003**	**0.6240**	**0.0273**	**0.6513**	**0.1667**	**0.0269**	**0.1936**	**0.0000**	**962.6963**	**962.6963**	**0.0388**	**4.4200e-003**	**964.9871**

	ROG	NOx	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	5/3/2021	5/14/2021	5	10	
2	Grading	Grading	5/15/2021	6/11/2021	5	20	
3	Building Construction	Building Construction	6/12/2021	4/29/2022	5	230	
4	Paving	Paving	4/30/2022	5/27/2022	5	20	
5	Architectural Coating	Architectural Coating	5/28/2022	6/24/2022	5	20	

Acres of Grading (Site Preparation Phase): 40

Acres of Grading (Grading Phase): 80

Acres of Paving: 0

Residential Indoor: 408,167; Residential Outdoor: 136,056; 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	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	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	3.00	1.00	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	1.00	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 - 2021

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					22.3083	0.0000	22.3083	10.3887	0.0000	10.3887			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**22.3083**	**2.0445**	**24.3527**	**10.3887**	**1.8809**	**12.2696**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0917	0.0595	0.6112	1.7700e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.0917**	**0.0595**	**0.6112**	**1.7700e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**176.6696**	**176.6696**	**4.9200e-003**		**176.7925**

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					8.7002	0.0000	8.7002	4.0516	0.0000	4.0516			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.7002**	**2.0445**	**10.7447**	**4.0516**	**1.8809**	**5.9325**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

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	0.0917	0.0595	0.6112	1.7700e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		176.6696	176.6696	4.9200e-003		176.7925
Total	**0.0917**	**0.0595**	**0.6112**	**1.7700e-003**	**0.2012**	**1.2900e-003**	**0.2025**	**0.0534**	**1.1900e-003**	**0.0545**		**176.6696**	**176.6696**	**4.9200e-003**		**176.7925**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.2641	0.0000	10.2641	3.7683	0.0000	3.7683			0.0000			0.0000
Off-Road	2.5141	28.5079	14.3529	0.0311		1.2432	1.2432		1.1437	1.1437		3,013.4206	3,013.4206	0.9746		3,037.7857
Total	**2.5141**	**28.5079**	**14.3529**	**0.0311**	**10.2641**	**1.2432**	**11.5073**	**3.7683**	**1.1437**	**4.9120**		**3,013.4206**	**3,013.4206**	**0.9746**		**3,037.7857**

3.3 Grading - 2021

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	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.0030	0.0000	4.0030	1.4696	0.0000	1.4696			0.0000			0.0000
Off-Road	2.5141	28.5079	14.3529	0.0311		1.2432	1.2432		1.1437	1.1437	0.0000	3,013.4206	3,013.4206	0.9746		3,037.7857
Total	**2.5141**	**28.5079**	**14.3529**	**0.0311**	**4.0030**	**1.2432**	**5.2462**	**1.4696**	**1.1437**	**2.6133**	**0.0000**	**3,013.4206**	**3,013.4206**	**0.9746**		**3,037.7857**

3.3 Grading - 2021

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	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

3.4 Building Construction - 2021

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625		2,736.0438	2,736.0438	0.6751		2,752.9212
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**		**2,736.0438**	**2,736.0438**	**0.6751**		**2,752.9212**

3.4 Building Construction - 2021

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	2.7400e-003	0.0954	0.0212	2.6000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0100e-003		27.3535	27.3535	1.9900e-003		27.4034
Worker	0.0153	9.9100e-003	0.1019	3.0000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		29.4449	29.4449	8.2000e-004		29.4654
Total	**0.0180**	**0.1053**	**0.1231**	**5.6000e-004**	**0.0399**	**3.8000e-004**	**0.0403**	**0.0107**	**3.6000e-004**	**0.0111**		**56.7984**	**56.7984**	**2.8100e-003**		**56.8688**

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625	0.0000	2,736.0438	2,736.0438	0.6751		2,752.9212
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**	**0.0000**	**2,736.0438**	**2,736.0438**	**0.6751**		**2,752.9212**

3.4 Building Construction - 2021

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	2.7400e-003	0.0954	0.0212	2.6000e-004	6.4000e-003	1.7000e-004	6.5700e-003	1.8400e-003	1.6000e-004	2.0100e-003		27.3535	27.3535	1.9900e-003		27.4034
Worker	0.0153	9.9100e-003	0.1019	3.0000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		29.4449	29.4449	8.2000e-004		29.4654
Total	**0.0180**	**0.1053**	**0.1231**	**5.6000e-004**	**0.0399**	**3.8000e-004**	**0.0403**	**0.0107**	**3.6000e-004**	**0.0111**		**56.7984**	**56.7984**	**2.8100e-003**		**56.8688**

3.4 Building Construction - 2022

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	1.8146	16.7670	17.4392	0.0288		0.8645	0.8645		0.8122	0.8122		2,737.1520	2,737.1520	0.6711		2,753.9288
Total	**1.8146**	**16.7670**	**17.4392**	**0.0288**		**0.8645**	**0.8645**		**0.8122**	**0.8122**		**2,737.1520**	**2,737.1520**	**0.6711**		**2,753.9288**

3.4 Building Construction - 2022

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	2.5600e-003	0.0904	0.0197	2.6000e-004	6.4000e-003	1.4000e-004	6.5500e-003	1.8400e-003	1.4000e-004	1.9800e-003		27.1256	27.1256	1.9300e-003		27.1738
Worker	0.0143	8.9100e-003	0.0934	2.8000e-004	0.0335	2.1000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.3844	28.3844	7.4000e-004		28.4028
Total	**0.0169**	**0.0993**	**0.1131**	**5.4000e-004**	**0.0399**	**3.5000e-004**	**0.0403**	**0.0107**	**3.3000e-004**	**0.0111**		**55.5100**	**55.5100**	**2.6700e-003**		**55.5766**

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	1.8146	16.7670	17.4392	0.0288		0.8645	0.8645		0.8122	0.8122	0.0000	2,737.1520	2,737.1520	0.6711		2,753.9288
Total	**1.8146**	**16.7670**	**17.4392**	**0.0288**		**0.8645**	**0.8645**		**0.8122**	**0.8122**	**0.0000**	**2,737.1520**	**2,737.1520**	**0.6711**		**2,753.9288**

3.4 Building Construction - 2022

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	2.5600e-003	0.0904	0.0197	2.6000e-004	6.4000e-003	1.4000e-004	6.5500e-003	1.8400e-003	1.4000e-004	1.9800e-003		27.1256	27.1256	1.9300e-003		27.1738
Worker	0.0143	8.9100e-003	0.0934	2.8000e-004	0.0335	2.1000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.3844	28.3844	7.4000e-004		28.4028
Total	**0.0169**	**0.0993**	**0.1131**	**5.4000e-004**	**0.0399**	**3.5000e-004**	**0.0403**	**0.0107**	**3.3000e-004**	**0.0111**		**55.5100**	**55.5100**	**2.6700e-003**		**55.5766**

3.5 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0715	0.0445	0.4671	1.4200e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		141.9219	141.9219	3.6800e-003		142.0139
Total	**0.0715**	**0.0445**	**0.4671**	**1.4200e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**141.9219**	**141.9219**	**3.6800e-003**		**142.0139**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	0.0715	0.0445	0.4671	1.4200e-003	0.1677	1.0400e-003	0.1687	0.0445	9.6000e-004	0.0454		141.9219	141.9219	3.6800e-003		142.0139
Total	**0.0715**	**0.0445**	**0.4671**	**1.4200e-003**	**0.1677**	**1.0400e-003**	**0.1687**	**0.0445**	**9.6000e-004**	**0.0454**		**141.9219**	**141.9219**	**3.6800e-003**		**142.0139**

3.6 Architectural Coating - 2022

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	63.0618					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**63.3346**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.6 Architectural Coating - 2022

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	4.7700e-003	2.9700e-003	0.0311	9.0000e-005	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		9.4615	9.4615	2.5000e-004		9.4676
Total	**4.7700e-003**	**2.9700e-003**	**0.0311**	**9.0000e-005**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**6.0000e-005**	**3.0300e-003**		**9.4615**	**9.4615**	**2.5000e-004**		**9.4676**

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	63.0618					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**63.3346**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

3.6 Architectural Coating - 2022

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	4.7700e-003	2.9700e-003	0.0311	9.0000e-005	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		9.4615	9.4615	2.5000e-004		9.4676
Total	**4.7700e-003**	**2.9700e-003**	**0.0311**	**9.0000e-005**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**6.0000e-005**	**3.0300e-003**		**9.4615**	**9.4615**	**2.5000e-004**		**9.4676**

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	0.2312	0.7397	2.1271	6.9600e-003	0.6240	7.9300e-003	0.6319	0.1667	7.4800e-003	0.1742		719.7849	719.7849	0.0329		720.6078
Unmitigated	0.2312	0.7397	2.1271	6.9600e-003	0.6240	7.9300e-003	0.6319	0.1667	7.4800e-003	0.1742		719.7849	719.7849	0.0329		720.6078

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	84.96	85.86	76.95	286,850	286,850
Total	84.96	85.86	76.95	286,850	286,850

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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

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	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
NaturalGas Unmitigated	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892

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					
Single Family Housing	433.383	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Total		**4.6700e-003**	**0.0399**	**0.0170**	**2.5000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**		**50.9862**	**50.9862**	**9.8000e-004**	**9.3000e-004**	**51.2892**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.433383	4.6700e-003	0.0399	0.0170	2.5000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003		50.9862	50.9862	9.8000e-004	9.3000e-004	51.2892
Total		**4.6700e-003**	**0.0399**	**0.0170**	**2.5000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**		**50.9862**	**50.9862**	**9.8000e-004**	**9.3000e-004**	**51.2892**

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	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900
Unmitigated	4.3764	0.1579	0.8068	9.9000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	191.9252	191.9252	4.9400e-003	3.4900e-003	193.0900

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	0.3455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0175	0.1493	0.0635	9.5000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	190.5882	190.5882	3.6500e-003	3.4900e-003	191.7208
Landscaping	0.0225	8.5700e-003	0.7433	4.0000e-005		4.1100e-003	4.1100e-003		4.1100e-003	4.1100e-003		1.3370	1.3370	1.2900e-003		1.3692
Total	**4.3764**	**0.1579**	**0.8068**	**9.9000e-004**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**191.9252**	**191.9252**	**4.9400e-003**	**3.4900e-003**	**193.0900**

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	0.3455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.9910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0175	0.1493	0.0635	9.5000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	190.5882	190.5882	3.6500e-003	3.4900e-003	191.7208
Landscaping	0.0225	8.5700e-003	0.7433	4.0000e-005		4.1100e-003	4.1100e-003		4.1100e-003	4.1100e-003		1.3370	1.3370	1.2900e-003		1.3692
Total	**4.3764**	**0.1579**	**0.8068**	**9.9000e-004**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**191.9252**	**191.9252**	**4.9400e-003**	**3.4900e-003**	**193.0900**

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:

EMFAC2017 OUTPUTS

EMFAC2017 Derived CalEEMod Annual Emission Rates: Year 2022[1,2]

Season	Pollutant	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
Annual	CH4_IDLEX	0	0	0	0	0.0050851	0.003695113	0.002506877	0.029356376	0.0088195	0	0	0.0596216	0
Annual	CH4_RUNEX	0.002511	0.007576	0.0044093	0.0055203	0.0061022	0.004104298	0.003321213	0.13599332	0.0065956	4.4471247	0.3403666	0.0085844	0.0036581
Annual	CH4_STREX	0.0501486	0.0826572	0.0709165	0.0880071	0.0158535	0.010438222	0.006466798	1.99667E-07	0.0230531	0.0101717	0.2409502	0.0061574	0
Annual	CO_IDLEX	0	0	0	0	0.1781229	0.145213849	0.306081914	5.949976577	0.5193752	0	0	2.5047913	0
Annual	CO_RUNEX	0.6708625	1.5227713	1.0001954	1.1353959	0.7454201	0.496596346	0.32291321	0.670287286	0.770132	34.749389	19.259492	0.7810369	0.3456228
Annual	CO_STREX	2.1123197	2.3872575	2.7143849	3.2491728	1.0307795	0.672008973	0.742649102	0.003788439	2.4474186	0.8905121	8.5959988	0.8221453	0
Annual	CO2_NBIO_IDLEX	0	0	0	0	9.2507984	14.13711968	68.92121199	1124.174368	76.064645	0	0	345.06036	0
Annual	CO2_NBIO_RUNEX	265.14551	314.63378	335.587	415.0989	652.44765	665.2454714	974.5748282	1484.265464	1406.8974	1692.1273	212.03493	1112.1718	970.20504
Annual	CO2_NBIO_STREX	54.120585	65.695546	70.249733	87.324313	11.213673	8.759901098	6.352875619	0.034945266	20.488538	11.773881	60.730311	4.7905446	0
Annual	NOX_IDLEX	0	0	0	0	0.0732221	0.104688067	0.515800985	6.076375771	0.3431042	0	0	3.2862508	0
Annual	NOX_RUNEX	0.0373144	0.1275673	0.0857353	0.1078346	1.2509372	1.355503504	1.613798568	3.41682119	1.241885	0.3822291	1.129145	5.1952739	4.2439663
Annual	NOX_STREX[3]	0.1824467	0.2953594	0.2987658	0.3795807	0.3190663	0.222928046	1.496184373	2.104078617	0.6845205	0.137146	0.2629902	0.9057296	0
Annual	PM10_IDLEX	0	0	0	0	0.0008896	0.00131023	0.001231157	0.003628278	0.0005894	0	0	0.0043578	0
Annual	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.060589876	0.13034	0.0728339	0.01176	0.7448002	0.13034
Annual	PM10_PMTW	0.008	0.008	0.008	0.008	0.0098774	0.010622799	0.012000003	0.035325231	0.012	0.026486	0.004	0.0108041	0.016
Annual	PM10_RUNEX	0.0015205	0.0023434	0.0016015	0.001685	0.009826	0.012726783	0.035013591	0.028429484	0.0136136	0.0026547	0.0019647	0.0318947	0.1143325
Annual	PM10_STREX	0.0018572	0.0028386	0.0019239	0.0020314	0.0002596	0.000136886	7.52719E-05	9.44989E-07	0.0002182	0.0001414	0.0029599	3.955E-05	0
Annual	PM25_IDLEX	0	0	0	0	0.0008511	0.00125355	0.001177897	0.003471321	0.0005639	0	0	0.0041693	0
Annual	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.02596709	0.05586	0.0312145	0.00504	0.3192001	0.05586
Annual	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024693	0.0026557	0.003000001	0.008831308	0.003	0.0066215	0.001	0.002701	0.004
Annual	PM25_RUNEX	0.0014	0.0021564	0.0014738	0.0015536	0.0093755	0.012162576	0.033495968	0.02719962	0.0130075	0.0025281	0.0018375	0.0305039	0.1093865
Annual	PM25_STREX	0.0017076	0.0026102	0.001769	0.0018682	0.0002387	0.000125862	6.92098E-05	8.68883E-07	0.0002006	0.00013	0.0027874	3.636E-05	0
Annual	ROG_DIURN	0.059871	0.1905013	0.0973609	0.1146443	0.0030394	0.001704043	0.00045316	5.01984E-06	0.0026021	0.0016779	1.422935	0.0012417	0
Annual	ROG_HTSK	0.100942	0.2621956	0.1415757	0.1685955	0.0845705	0.05067803	0.014922369	0.000160226	0.0242391	0.0095389	0.7987129	0.009512	0
Annual	ROG_IDLEX	0	0	0	0	0.0212921	0.017503442	0.015546555	0.429500781	0.0507962	0	0	0.2803478	0
Annual	ROG_RESTL	0.0483407	0.1353491	0.082393	0.102915	0.0015811	0.000919578	0.000239893	2.97166E-06	0.0011161	0.0007372	0.779223	0.0005903	0
Annual	ROG_RUNEX	0.0095373	0.0335905	0.0181307	0.0233402	0.0620099	0.059206164	0.056447565	0.081711517	0.0504943	0.0652964	2.3253718	0.1052018	0.0787567
Annual	ROG_RUNLS	0.2112005	0.85791	0.4533448	0.4975767	0.5542081	0.315849786	0.082321313	0.00079103	0.2852933	0.0404931	1.9080744	0.0641423	0
Annual	ROG_STREX	0.2201927	0.4247746	0.3325826	0.4378158	0.078984	0.051325408	0.034288939	1.04239E-06	0.1185417	0.0367858	1.8431582	0.0357779	0
Annual	SO2_IDLEX	0	0	0	0	8.959E-05	0.00013534	0.000653127	0.010324735	0.0007253	0	0	0.0032887	0
Annual	SO2_RUNEX	0.0026063	0.0030934	0.0032988	0.0040782	0.0063567	0.006429896	0.009262186	0.013164048	0.0136725	0.0030254	0.0020983	0.0106261	0.0091719
Annual	SO2_STREX	0.0005321	0.0006459	0.0006907	0.0008586	0.000111	8.66863E-05	6.28669E-05	3.45812E-07	0.0002028	0.0001165	0.000601	4.741E-05	0
Annual	TOG_DIURN	0.059889	0.1905585	0.0973901	0.1146786	0.0030394	0.001704043	0.00045316	5.01984E-06	0.0026021	0.0016779	1.422935	0.0012417	0
Annual	TOG_HTSK	0.1009723	0.2622742	0.1416181	0.168646	0.0845705	0.05067803	0.014922369	0.000160226	0.0242391	0.0095389	0.7987129	0.009512	0
Annual	TOG_IDLEX	0	0	0	0	0.0299225	0.023875182	0.02032501	0.49842643	0.0671426	0	0	0.4018426	0
Annual	TOG_RESTL	0.0483552	0.1353897	0.0824178	0.1029459	0.0015811	0.000919578	0.000239893	2.97166E-06	0.0011161	0.0007372	0.779223	0.0005903	0
Annual	TOG_RUNEX	0.0138798	0.0489955	0.0264217	0.0339072	0.0770615	0.069802209	0.065660178	0.226286692	0.0657861	4.5405286	2.8661964	0.1274631	0.0896592
Annual	TOG_RUNLS	0.2112639	0.8581674	0.4534808	0.4977259	0.5542081	0.315849786	0.082321313	0.00079103	0.2852933	0.0404931	1.9080744	0.0641423	0
Annual	TOG_STREX	0.2411787	0.4652589	0.3642807	0.4795383	0.0864776	0.056194861	0.037542072	1.14128E-06	0.1297883	0.0402758	2.0056647	0.0391723	0
Summer	CH4_IDLEX	0	0	0	0	0.0050986	0.003704863	0.002386309	0.03048662	0.0088754	0	0	0.0596891	0
Summer	CH4_RUNEX	0.0028347	0.0084645	0.0049544	0.0062114	0.0062279	0.004145781	0.003344779	0.135994271	0.006735	4.4471413	0.3356313	0.0087142	0.0036581
Summer	CH4_STREX	0.0434955	0.0711812	0.0614118	0.0761678	0.0152418	0.010036258	0.006209855	1.90483E-07	0.0219973	0.0092353	0.2129044	0.0051553	0
Summer	CO_IDLEX	0	0	0	0	0.1781229	0.145213849	0.26224218	5.816581695	0.5090583	0	0	2.4671258	0
Summer	CO_RUNEX	0.8083333	1.8056027	1.1962497	1.3542329	0.7589257	0.501023893	0.325643268	0.67056103	0.7860478	34.750309	19.27555	0.7960042	0.3456228
Summer	CO_STREX	1.7780547	2.0017572	2.2770876	2.7169552	0.9773456	0.637543509	0.701106403	0.00357666	2.2775773	0.7595399	7.9007261	0.5954702	0
Summer	CO2_NBIO_IDLEX	0	0	0	0	9.2507984	14.13711968	69.58563032	1121.036532	75.89573	0	0	352.97835	0
Summer	CO2_NBIO_RUNEX	287.10567	337.48233	357.70983	438.44709	652.47198	665.2532681	974.5796378	1484.265926	1406.9255	1692.129	211.89805	1112.1983	970.20504
Summer	CO2_NBIO_STREX	53.483259	64.873239	69.393407	86.265898	11.117954	8.698115905	6.282062728	0.034609429	20.20014	11.554669	58.878141	4.4116044	0
Summer	NOX_IDLEX	0	0	0	0	0.0732221	0.104688067	0.515942988	5.901205034	0.3350715	0	0	3.355634	0
Summer	NOX_RUNEX	0.0338242	0.1145163	0.0773451	0.0972591	1.1748123	1.277373817	1.519381496	3.226107767	1.1565432	0.379286	0.9747712	4.8782779	4.0016033
Summer	NOX_STREX[3]	0.1702192	0.2754067	0.2786917	0.3540257	0.3063664	0.214074275	1.493647722	2.104058715	0.6739387	0.1304061	0.24763	0.9021888	0
Summer	PM10_IDLEX	0	0	0	0	0.0008896	0.00131023	0.00104068	0.00317522	0.000501	0	0	0.0036811	0
Summer	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.060589876	0.13034	0.0728339	0.01176	0.7448002	0.13034
Summer	PM10_PMTW	0.008	0.008	0.008	0.008	0.0098774	0.010622799	0.012000003	0.035325231	0.012	0.026486	0.004	0.0108041	0.016
Summer	PM10_RUNEX	0.0015205	0.0023434	0.0016015	0.001685	0.009826	0.012726783	0.035013591	0.028429484	0.0136136	0.0026547	0.0019647	0.0318947	0.1143325
Summer	PM10_STREX	0.0018572	0.0028386	0.0019239	0.0020314	0.0002596	0.000136886	7.52719E-05	9.44989E-07	0.0002182	0.0001414	0.0029599	3.955E-05	0
Summer	PM25_IDLEX	0	0	0	0	0.0008511	0.00125355	0.000995661	0.003037861	0.0004793	0	0	0.0035218	0
Summer	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.02596709	0.05586	0.0312145	0.00504	0.3192001	0.05586
Summer	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024693	0.0026557	0.003000001	0.008831308	0.003	0.0066215	0.001	0.002701	0.004
Summer	PM25_RUNEX	0.0014	0.0021564	0.0014738	0.0015536	0.0093755	0.012162576	0.033495968	0.02719962	0.0130075	0.0025281	0.0018375	0.0305039	0.1093865
Summer	PM25_STREX	0.0017076	0.0026102	0.001769	0.0018682	0.0002387	0.000125862	6.92098E-05	8.68883E-07	0.0002006	0.00013	0.0027874	3.636E-05	0
Summer	ROG_DIURN	0.1122918	0.3591141	0.1821484	0.2137828	0.0054783	0.003072949	0.000828267	9.86032E-06	0.0046858	0.0030607	2.7723384	0.0022078	0
Summer	ROG_HTSK	0.1140598	0.3100856	0.1609587	0.1877817	0.0967417	0.058157686	0.017228668	0.000182083	0.0268913	0.0112667	1.1143267	0.0099848	0
Summer	ROG_IDLEX	0	0	0	0	0.0212921	0.017503442	0.015061577	0.44923775	0.0514955	0	0	0.2801428	0
Summer	ROG_RESTL	0.0898943	0.2556617	0.1514602	0.1873187	0.0030454	0.001762514	0.000477905	6.58099E-06	0.0022091	0.0014842	1.767628	0.0011133	0
Summer	ROG_RUNEX	0.0106709	0.0373635	0.0202234	0.0260596	0.0626863	0.059386739	0.056559393	0.081717877	0.051161	0.0653378	2.2793623	0.1058624	0.0787567
Summer	ROG_RUNLS	0.2081493	0.8455275	0.4463895	0.4906893	0.5561259	0.317065942	0.082837087	0.000811643	0.285656	0.0393984	1.8797624	0.0589704	0
Summer	ROG_STREX	0.1891739	0.3631622	0.2853268	0.3755016	0.0757002	0.049193815	0.032809885	9.97423E-07	0.1128257	0.0333265	1.6174351	0.0299258	0
Summer	SO2_IDLEX	0	0	0	0	8.959E-05	0.00013534	0.000659489	0.010293096	0.0007237	0	0	0.0033635	0
Summer	SO2_RUNEX	0.0028222	0.003318	0.0035163	0.0043078	0.0063569	0.006429973	0.009262234	0.013164052	0.0136728	0.0030254	0.0020969	0.0106263	0.0091719
Summer	SO2_STREX	0.0005258	0.0006378	0.0006823	0.0008482	0.00011	8.60749E-05	6.21661E-05	3.42488E-07	0.0001999	0.0001143	0.0005826	4.366E-05	0
Summer	TOG_DIURN	0.1123254	0.3592218	0.182203	0.2138469	0.0054783	0.003072949	0.000828267	9.86032E-06	0.0046858	0.0030607	2.7723384	0.0022078	0
Summer	TOG_HTSK	0.114094	0.3101786	0.161007	0.187838	0.0967417	0.058157686	0.017228668	0.000182083	0.0268913	0.0112667	1.1143267	0.0099848	0
Summer	TOG_IDLEX	0	0	0	0	0.0299225	0.023875182	0.019615323	0.521108923	0.0679387	0	0	0.4016093	0
Summer	TOG_RESTL	0.0899213	0.2557384	0.1515056	0.1873748	0.0030454	0.001762514	0.000477905	6.58099E-06	0.0022091	0.0014842	1.767628	0.0011133	0
Summer	TOG_RUNEX	0.0155337	0.0545006	0.0294751	0.0378671	0.0780484	0.070065703	0.065823358	0.226295973	0.0667589	4.540589	2.811637	0.1284269	0.0896592
Summer	TOG_RUNLS	0.2082118	0.8457811	0.4465235	0.4908365	0.5561259	0.317065942	0.082837087	0.000811643	0.285656	0.0393984	1.8797624	0.0589704	0
Summer	TOG_STREX	0.2072035	0.3977744	0.3125211	0.4112861	0.0828822	0.053861035	0.035922694	1.09205E-06	0.1235299	0.0364883	1.7600981	0.032765	0

Winter	CH4_IDLEX	0	0	0	0	0.0050868	0.003696273	0.002683152	0.018657615	0.0087745	0	0	0.0596174	0
Winter	CH4_RUNEX	0.0024595	0.0074306	0.0043219	0.0054045	0.0061097	0.004107724	0.003321206	0.003368303	0.0065995	4.4471251	0.3380167	0.0085765	0.0036581
Winter	CH4_STREX	0.0504766	0.083203	0.0713869	0.0885931	0.0157744	0.010387561	0.006419771	1.98536E-07	0.0230509	0.0102547	0.2376692	0.0063442	0
Winter	CO_IDLEX	0	0	0	0	0.1781229	0.145213849	0.367232024	5.981575427	0.5336223	0	0	2.5568054	0
Winter	CO_RUNEX	0.6442281	1.4669951	0.9619362	1.0918503	0.7461444	0.496899006	0.323004081	0.331191983	0.7706524	34.749434	18.757183	0.7800615	0.3456228
Winter	CO_STREX	2.1157183	2.3918644	2.7219145	3.2585443	1.0243206	0.668014244	0.736815593	0.003758766	2.4531242	0.9034492	8.4367304	0.8592352	0
Winter	CO2_NBIO_IDLEX	0	0	0	0	9.2507984	14.13711968	68.0001011	1097.477971	76.297908	0	0	334.12598	0
Winter	CO2_NBIO_RUNEX	261.05996	310.37973	331.47008	410.75231	652.44895	665.2460099	974.5749866	1393.364139	1406.8983	1692.1274	211.16891	1112.1701	970.20504
Winter	CO2_NBIO_STREX	54.130665	65.711463	70.268838	87.348496	11.201968	8.752640942	6.342989048	0.034898214	20.497557	11.795351	60.384313	4.8530132	0
Winter	NOX_IDLEX	0	0	0	0	0.0732221	0.104688067	0.515604396	6.134648763	0.3541969	0	0	3.1904359	0
Winter	NOX_RUNEX	0.0357144	0.1222929	0.0821108	0.1032983	1.2305484	1.334381677	1.586931331	3.279278901	1.219445	0.3815239	1.0949706	5.118713	4.1746013
Winter	NOX_STREX[3]	0.1812511	0.2935605	0.2968511	0.3771769	0.3149779	0.220060449	1.495548849	2.104073738	0.6818154	0.1361885	0.2609966	0.9061097	0
Winter	PM10_IDLEX	0	0	0	0	0.0008896	0.00131023	0.001494195	0.003864686	0.0007116	0	0	0.0052923	0
Winter	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.059002456	0.13034	0.0728339	0.01176	0.7448002	0.13034
Winter	PM10_PMTW	0.008	0.008	0.008	0.008	0.0098774	0.010622799	0.012000003	0.034399622	0.012	0.026486	0.004	0.0108041	0.016
Winter	PM10_RUNEX	0.0015205	0.0023434	0.0016015	0.001685	0.009826	0.012726783	0.035013591	0.028273632	0.0136136	0.0026547	0.0019647	0.0318947	0.1143325
Winter	PM10_STREX	0.0018572	0.0028386	0.0019239	0.0020314	0.0002596	0.000136886	7.52719E-05	9.44989E-07	0.0002182	0.0001414	0.0029599	3.955E-05	0
Winter	PM25_IDLEX	0	0	0	0	0.0008511	0.00125355	0.001429557	0.003697502	0.0006808	0	0	0.0050633	0
Winter	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.025286767	0.05586	0.0312145	0.00504	0.3192001	0.05586
Winter	PM25_PMTW	0.002	0.002	0.002	0.002	0.0024693	0.0026557	0.003000001	0.008599905	0.003	0.0066215	0.001	0.002701	0.004
Winter	PM25_RUNEX	0.0014	0.0021564	0.0014738	0.0015536	0.0093755	0.012162576	0.033495968	0.02705051	0.0130075	0.0025281	0.0018375	0.0305039	0.1093865
Winter	PM25_STREX	0.0017076	0.0026102	0.001769	0.0018682	0.0002387	0.000125862	6.92098E-05	8.68883E-07	0.0002006	0.00013	0.0027874	3.636E-05	0
Winter	ROG_DIURN	0.0571558	0.1879088	0.0914014	0.1055327	0.003152	0.001714328	0.000470673	5.32641E-06	0.002739	0.0016874	1.5735307	0.0012073	0
Winter	ROG_HTSK	0.1105587	0.3005524	0.1558745	0.182272	0.0990207	0.058382004	0.016659725	0.000186681	0.0263554	0.01068	1.0568137	0.0100766	0
Winter	ROG_IDLEX	0	0	0	0	0.0212921	0.017503442	0.016225643	0.401693337	0.0498305	0	0	0.2806308	0
Winter	ROG_RESTL	0.0461666	0.1287548	0.0787752	0.0986676	0.00161	0.00092205	0.000244015	3.16348E-06	0.0011655	0.0007448	0.7426775	0.0006013	0
Winter	ROG_RUNEX	0.0093396	0.0329181	0.0177631	0.0228284	0.0620448	0.059219786	0.056450881	0.071960973	0.0505139	0.0652984	2.3059588	0.1051667	0.0787567
Winter	ROG_RUNLS	0.2380793	1.0011481	0.5242295	0.5708384	0.5956469	0.340844353	0.089738272	0.000829096	0.3039547	0.0468464	2.1751002	0.0770407	0
Winter	ROG_STREX	0.2215737	0.4273136	0.3346868	0.4405544	0.0785469	0.051048872	0.034098264	1.03659E-06	0.1185343	0.0370728	1.8149853	0.0368737	0
Winter	SO2_IDLEX	0	0	0	0	8.959E-05	0.00013534	0.000644307	0.010368428	0.0007275	0	0	0.0031854	0
Winter	SO2_RUNEX	0.0025661	0.0030516	0.0032583	0.0040355	0.0063567	0.006429901	0.009262188	0.013164048	0.0136725	0.0030254	0.0020897	0.0106261	0.0091719
Winter	SO2_STREX	0.0005322	0.0006461	0.0006909	0.0008588	0.0001109	8.66145E-05	6.2769E-05	3.45346E-07	0.0002028	0.0001167	0.0005976	4.802E-05	0
Winter	TOG_DIURN	0.057173	0.1879652	0.0914289	0.1055644	0.003152	0.001714328	0.000470673	5.32641E-06	0.002739	0.0016874	1.5735307	0.0012073	0
Winter	TOG_HTSK	0.1105918	0.3006426	0.1559212	0.1823266	0.0990207	0.058382004	0.016659725	0.000186681	0.0263554	0.01068	1.0568137	0.0100766	0
Winter	TOG_IDLEX	0	0	0	0	0.0299225	0.023875182	0.021318707	0.457297286	0.0660432	0	0	0.4021648	0
Winter	TOG_RESTL	0.0461805	0.1287935	0.0787988	0.0986972	0.00161	0.00092205	0.000244015	3.16348E-06	0.0011655	0.0007448	0.7426775	0.0006013	0
Winter	TOG_RUNEX	0.0135913	0.0480151	0.0258856	0.0331639	0.0771124	0.069822086	0.065665017	0.081982635	0.0658146	4.5405315	2.8427129	0.1274118	0.0896592
Winter	TOG_RUNLS	0.2381508	1.0014484	0.5243868	0.5710097	0.5956469	0.340844353	0.089738272	0.000829096	0.3039547	0.0468464	2.1751002	0.0770407	0
Winter	TOG_STREX	0.2426913	0.4680399	0.3665856	0.4825381	0.085999	0.055892089	0.037333308	1.13494E-06	0.1297801	0.0405901	1.9750313	0.0403721	0

1 Source: California Air Resources Board. EMFAC2017 Web Database. https://www.arb.ca.gov/emfac/2017/; California Air Pollution Control Officers Association (CAPCOA). 2017, November. California Emissions Estimator Model User's Guide, Version 2016.3.2, Appendix A.

2 Unless otherwise noted, per CalEEMod methodology, the calculated CalEEMod emission rates are derived from the emission rates obtained using the EMFAC2017 Web Database for the San Bernardino (SC) region .

3 Because EMFAC2017 provides vehicle trips data for MHDT and HHDT diesel trucks, the formula provided in Appendix A of the CalEEMod User's Guide in calculating the NO_x STREX emission rates are utilized.

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APPENDIX 3.3:

SCAQMD AMICUS BRIEF

S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: Barbara Baird
Barbara Baird
Attorneys for [proposed] Amicus Curiae
SOUTH COAST AIR QUALITY
MANAGEMENT DISTICT

BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, *supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

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CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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