AIR QUALITY ASSESSMENT

Lone Oak Ranch
Residential Development

Lead Agency:

County of San Diego
Department of Planning and Land Use
Contact: Mark Slovick
5510 Overland Avenue, Suite 110
San Diego, CA 92123
858-495-5172

Prepared by:

Jeremy Louden
Ldn Consulting, Inc.
446 Crestcourt Lane
Fallbrook, CA 92028
760-473-1253

Project Proponent:

Marker Lone Oak, LLC
427 S. Cedros Avenue, Suite 201
Solana Beach, CA 92075

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EXECUTIVE SUMMARY

This air quality impact study has been completed to determine the air quality impacts associated with the development of the proposed Lone Oak Ranch residential development within the County of San Diego. The Project proposes to construct up to 26 single family residential dwelling units which would be completed in 2015.

Fugitive dust emissions will be expected during grading, however, no impacts are expected. No construction mitigation measures will be required according to CEQA. It should be noted however, the County will require the grading contractor to implement Best Management Practice (BMP) during grading and may require wetting of the soil.

A health risk assessment was conducted onsite and It was found that the cancer risk would be between one and ten per million exposed for the entire duration. Given this, the project would be required to utilize T-BACT equipment or equipment that has been retrofitted or designed to limit PM10 exhaust particles. This equipment has diesel particulate filters installed on the exhaust system.

- *In order to meet the T-BACT requirements, all heavy diesel construction equipment shall be classified as Tier II or higher or be retrofitted to include diesel particulate filters on the exhaust systems to limit diesel particulates.*

The project would not create any operational impacts and would not require mitigation measures for compliance with CEQA. The proposed project is designed to be consistent with the project site zoning and would therefore comply with both the RAQS and SIP.

The project traffic study did not indicate any cumulative projects within the vicinity of the proposed project. Therefore, no cumulative impacts are expected.

The proposed project would not generate or be exposed to offensive odors. Therefore no odor impacts would occur on or off-site.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality study is to determine potential air quality impacts (if any) that may be created by construction, area or operational emissions (short term or long term) from the proposed Project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to bring those impacts to a level that would be considered less than significant.

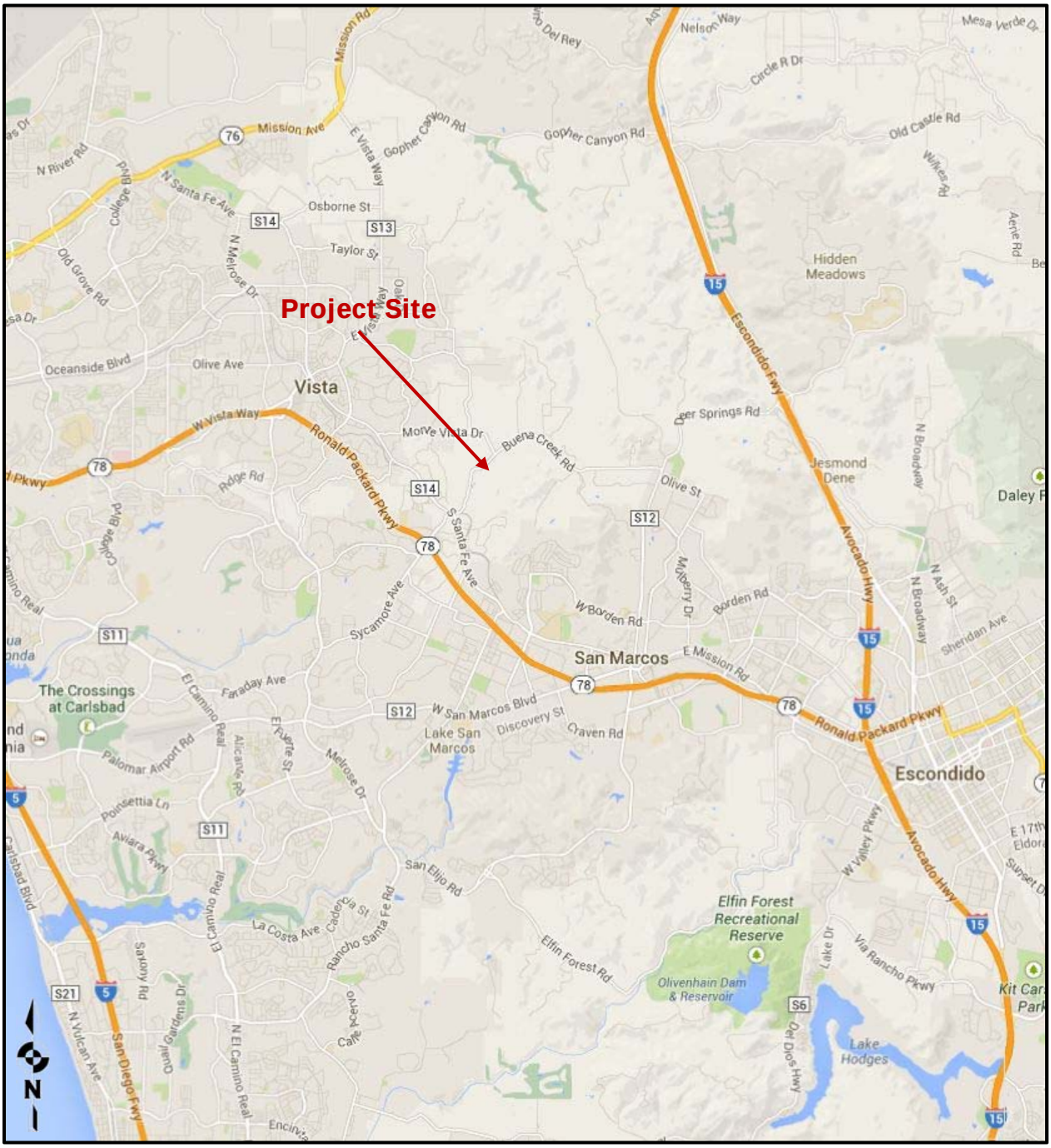
1.2 Project Location

The proposed development is located in an unincorporated area near the City of Vista within the County of San Diego. The Project is located east of Buena Creek Road, South of Cleveland Trail and east of Lone Oak Road. State Route 78 (SR 78) to the south provides regional access to the project site. A general project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

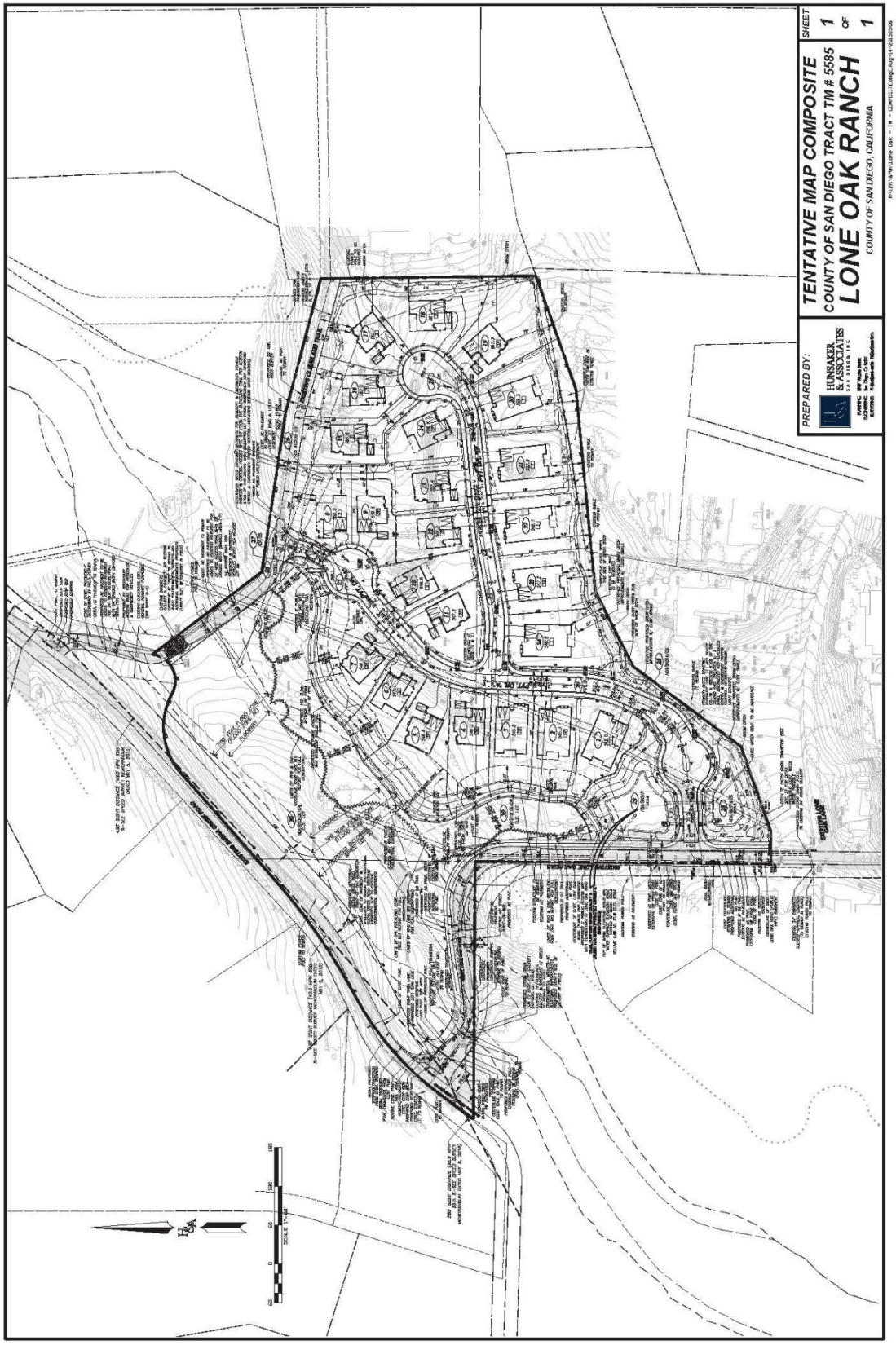
The Lone Oak Ranch site is proposed to be developed up to 26 single family residential dwelling units on approximately 13 net acre site. Construction is expected to start in January 2015 and be completed in the fall of 2015. The project earthwork will be balanced onsite.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 2014

Figure 1-B: Project Vicinity Map



2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The Project site lies within a somewhat mixed use rural residential area with some commercial activities surrounding the project site. The existing project area has four separate residential facilities onsite with a majority of the site dedicated to agricultural uses. The average elevation of the site ranges between 530 and 580-feet above mean sea level.

2.2 Climate and Meteorology

Climate within the San Diego Air Basin SDAB area varies dramatically over short geographical distances due to size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps the high desert mostly sunny and warm. Typically, during the winter months, the high pressure system drops to the south and brings cooler, moister weather from the north. Prevailing winds are generally flowing in an easterly direction for most of the year however during the autumn and winter, it's common for strong warm dry winds originating in the eastern desert areas to flow in a westerly direction.

Meteorological trends within Vista area generally mild with daytime highs typically ranging between 68ºF in the winter to approximately 83ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 56ºF in the winter to approximately 73ºF in the summer. The average humidity is approximately 63% in the winter and about 74% in the summer (Source: http://www.city-data.com). Vista usually receives approximately 13.24 inches of rain per year with February usually being the wettest month (Source: www.weather.com).

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits for the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly.

Secondary Standards set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 (µm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.*
5. ***Ozone (O_3)****: is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects*

such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.

6. ***Sulfur Dioxide (SO_2)**: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.*

2.3.2 State Standards and Definitions

The State of California Air Resources Board (ARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) are either the same as or more restrictive then the NAAQS and also restrict four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles**: Particles in the Air that obstruct the visibility.*
2. ***Sulfates**: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.*
3. ***Hydrogen Sulfide (H_2S)**: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death.*
4. ***Vinyl Chloride**: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.075 ppm (147 µg/m3)		
Respirable Particulate Matter (PM10)	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	24 Hour	No Separate State Standard		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)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[10]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07 -30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing articles, 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 averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 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 U.S. EPA for further clarification and current federal 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 procedure 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 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 EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
9. On June 2, 2010, a new 1-hour SO2 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 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board (6/4/13)

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as "non-attainment areas" for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the $PM_{2.5}$ standard and many areas are in non-attainment for PM_{10} as well. The state therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed for California Air basis to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within San Diego County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status. Currently, San Diego is in "non-attainment" status for federal O_3 and the State PM_{10} and $PM_{2.5}$ however, an attainment plan is only available of O_3. The RAQS was adopted in 1992 and has been updated as recently as 2009 which was the latest update incorporating minor changes to the prior 2004 update.

The 2009 update mostly clarifies and enhances emission reductions by implementing new VOC and NOX reduction measures. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status with respect to both federal and state nonattainment status by pollutants for San Diego County is shown in Table 2.2 on the following page.

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS and projects create more growth than projected by SANDAG may create a significant impact assuming the project either produces unmitagble emission generation in excess of the regional standards. Also the project would be considered a significant impact if the project produces cumulative impacts.

Table 2.2: San Diego County Air Basin Attainment Status by Pollutant

San Diego County Air Basin Attainment Status by Pollutant			
Pollutant	Average Time	California Standards	Federal Standards
Ozone (O_3)	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Basic Non-attainment
Respirable Particulate Matter (PM10)	24 Hour	Non-attainment	Unclassified[1]
	Annual Arithmetic Mean	No State Standard	Unclassified[2]
Fine Particulate Matter PM2.5	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 hour	Attainment	Maintenance Area[3]
	1 hour		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Visibility Reducing Particles	8 Hour (10AM to 6PM, PST)	Unclassified	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard

1. Data reflects status as of March 19, 2009.

2. Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3. Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

B: Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

C: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (PM10, PM2.5 or exceed quantitative thresholds for O3 precursors, oxides of nitrogen [NOX] and Volatile Organic Compounds [VOCs])?

D: Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

E: Create objectionable odors affecting a substantial number of people?

2.5 SDAPCD Rule 20.2 – Air Quality Impact Assessment Screening Thresholds

The SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources. The County's Guidelines for Determining Significance and Report Format and Content Requirements incorporate screening level thresholds from Rule 20.2 for use in all County related Air Quality Impact Assessments (AQIA) and for determining CEQA air quality impacts. These screening criteria can be used to demonstrate that a project's total emissions would not result in a significant impact as defined by CEQA. Also, since SDAPCD does not have AQI threshold for Volatile Organic Compounds (VOCs), it is acceptable to use the Coachella Valley VOC threshold from South Coast Air Quality Management District. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the project's total air quality impacts are below the state and federal ambient air quality standards. These screening thresholds for construction and daily operations are shown in Table 2.3 below.

Table 2.3: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55
Nitrogen Oxide (NO_x)	250
Sulfur Oxide (SO_x)	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75
Operational Emissions	
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55
Nitrogen Oxide (NO_x)	250
Sulfur Oxide (SO_x)	250
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75

Non Criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that propose to increase cancer risk to between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall the project increase the cancer risk to over 10 in one million. At no time shall the project increase the cancer risk to over 10 in one million or a health hazard index (chronic and acute) greater than one. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology.

The U.S. Environmental Protection Agency (U.S. EPA) uses the term Volatile Organic Compounds (VOC) and the California Air Resources Board's (CARB's) Emission Inventory Branch (EIB) uses the term Reactive Organic Gases (ROG) to essentially define the same thing. There are minor deviations between compounds that define each term however for purposes of this study we will assume they are essentially the same due to the fact SCAQMD interchanges these words and because CALLEEMOD 2013.2.2 (the air quality model used in this report) directly calculates ROG in place of VOC.

2.6 Local Air Quality

Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SDAPCD is responsible for monitoring and reporting monitoring data. The District operates 10 monitoring sites, which collect data on criteria pollutants. The proposed development project is closest to the Escondido Monitoring station which is located approximately 8.2 miles from the Project site. Table 2.4 on the following page identifies the criteria pollutants monitored at the aforementioned station.

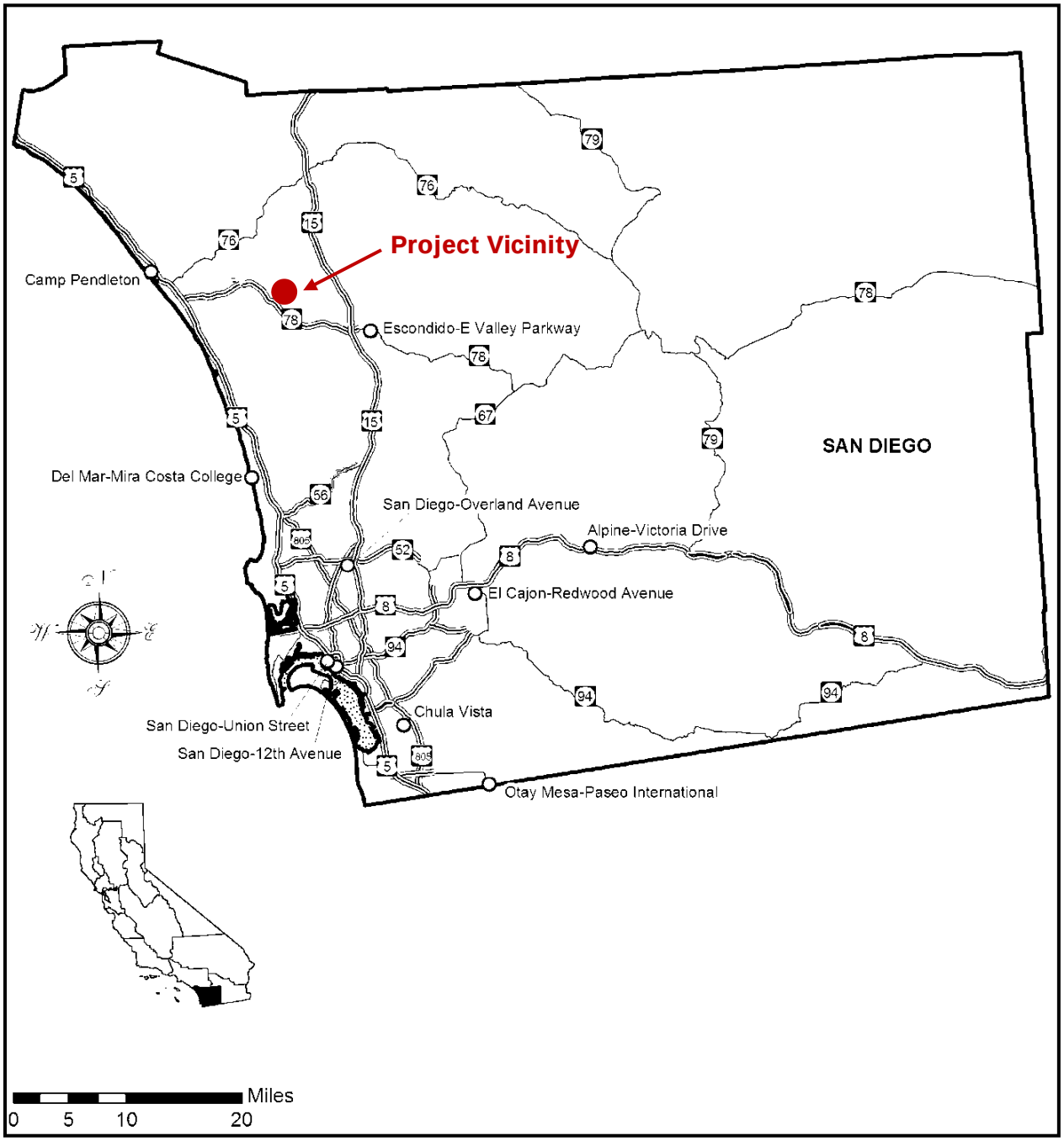
Four additional sites collect meteorological data which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport. SDAPCD published the five year air quality summary for all of the monitoring stations within the San Diego basin (Source: http://www.sdapcd.org/info/reports/5-year-summary.pdf). Figure 2-A below shows the relative locations of the monitoring sites.

Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2011	2012	2013
O_3 (ppm)	Escondido-E Valley Parkway	1 Hour	0.09 ppm	-	0.10	0.08	0.08
	Escondido-E Valley Parkway	8 Hour	0.070 ppm	0.075 ppm	0.90	0.70	0.70
PM_{10} (µg/m3)	Escondido-E Valley Parkway	24 Hour	50 µg/m3	150 µg/m3	40	33	80
	Escondido-E Valley Parkway	Annual Arithmetic Mean	20 µg/m3	-	18.8	18.0	23.1
$PM_{2.5}$ (µg/m3)	Escondido-E Valley Parkway	24 Hour	-	35 µg/m3	27	71	56.3
	Escondido-E Valley Parkway	Annual Arithmetic Mean	12 µg/m3	15 µg/m3	10.4	10.5	10.5
NO_2 (ppm)	Escondido-E Valley Parkway	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.013	0.012	0.012
	Escondido-E Valley Parkway	1 Hour	0.18 ppm	-	0.062	0.062	0.061
CO (ppm)	Escondido-E Valley Parkway	8 Hour	9 ppm	9 ppm	2.3	3.8	2.6
	Escondido-E Valley Parkway	1 Hour	35 ppm	20 ppm	3.5	4.4	3.2

All ambient emissions reported are assumed to be taken by the district in compliance with both the NAAQS and CAAQS. Methodologies for those measurements are discussed in Table 2.1 of this report.

Figure 2-A: Ambient Air Quality Monitoring Stations within SDAB – CARB



3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Air Quality impacts related to construction and daily operations were calculated using the latest CalEEMod air quality model, which was developed by ENVIRON International Corporation for South Coast Air Quality Management District (SCAQMD) in 2013. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the project and uses methodologies presented in the US EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in ***Attachment A*** to this report.

Construction emissions have several different types of sources which contribute to emissions of pollutants. These source types include off-road equipment usage, on-road vehicle travel, fugitive dust, architectural coating, and paving off-gassing. The CalEEMod construction module also uses OFFROAD2011 for default emission rates for construction equipment.

Cancer Risk will be determined for Diesel Particulate Matter (DPM) at the point of maximum exposure. The SCREEN3 dispersion model can be used to determine the concentration for air pollutants at any location near the pollutant generator. Additionally, the model will predict the maximum exposure distance and concentration. The SCREEN3 input/output files are shown in ***Attachment B*** of this report. The worst case exhaust emissions generated from the Project from construction equipment was utilized and calculated within the CalEE model. The worst case cancer risk if exposed to a DPM dose for 70 years is defined as:

$$CR_{DPM} = C_{DPM} \times URF_{DPM}$$

Where, CR_{DPM} = Cancer risk from diesel particulate matter (probability on an individual developing Cancer

C_{DPM} = Annual average DPM concentration in µg/m3 (SCREEN3 predicts a 1-hr concentration and is corrected to an annual average by multiplying the 1-hr average by 0.08 (Source: U.S. EPA, 1992; ARB, 1994)

URF_{DPM} = The inhalation unit risk factor for diesel particulate was established by ARB as 300 in one million per continuous exposure of 1 µg/m3 of DPM over a 70-year period (Source: Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling emissions for CEQA Air Quality Analysis (August 2003)).

Non-Cancer risks or risks defined as chronic or acute are also known with respect to DPM and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental

Health Hazard Assessment (Source: http://www.oehha.ca.gov/air/allrels.html). Diesel Exhaust has a REL of 5 µg/m3 and targets the respiratory system.

3.2 Construction Assumptions

The Project construction dates were estimated based on the proposed construction kickoff in January 2015 with Grading and trenching expected to last about three months, underground utilities would be expected to begin just after grading operations and would be expected to last about one month. Once underground utilities are completed, paving would begin which is expected to last no longer than one month as well. Finally building construction would begin around May of 2015 and would be completed roughly 5 months later towards the end of October 2015.

Table 3.1 below shows the expected timeframes for the construction processes for all the project infrastructure, facilities, improvements and residential structures at the proposed project location as well as the expected number of pieces of equipment.

Table 3.1: Expected Construction Equipment

Equipment Identification	Proposed Dates	Construction Days	Quantity
Mass Site Grading	01/05/2015 - 03/01/2015	40	
Excavators			2
Graders			1
Rubber Tired Dozers			2
Scrapers			2
Tractors/Loaders/Backhoes			1
Trenching	3/02/2015 - 3/31/2015	22	
Excavators			2
Tractors/Loaders/Backhoes			2
Paving	04/01/2015-04/30/2015	22	
Pavers			2
Paving Equipment			2
Rollers			2
Tractors/Loaders/Backhoes			1
Building Construction	5/1/2015-10/30/2015	131	
Cranes			1
Forklifts			3
Generator Sets			2
Tractors/Loaders/Backhoes			2
Welders			1
Architectural Coating	6/01/2015- 10/30/2015	110	
This equipment list is based upon equipment inventory within CALLEEMOD 2013.2.2. The quantity and types are based upon assumptions from Projects of similar size and scope in the County of San Diego.			

3.3 Operational Emissions

Once construction is completed the proposed project would generate emissions from daily operations which would include sources such as Area, Energy, Mobile, Waste and Water uses, which are also calculated within CalEEMod shown in aforementioned Attachment A to this report. Area Sources include consumer products, landscaping and architectural coatings as part of regular maintenance. Energy sources would be from uses such as electricity and natural gas. Finally, mobile or transportation related emissions are calculated in CalEEMod through the use of EMFAC2011. The Operational model is also shown in ***Attachment A*** at the end of this report.

The Project consists of 26 residential units having an estimated 260 daily trips, utilizing 10 trips per unit (Source: Lone Oak Ranch Traffic Impact Study, KOA 2014). These traffic numbers were utilized within the CalEEMod analysis. The model also estimates emission predictions for ROG, NOx, CO, SO2, PM10 and PM2.5 for area source assumptions. For purposes of modeling, all default settings were used within CalEEMod modeling for operational emission generation.

3.4 Odor Impacts (Onsite)

Potential onsite odor generators would include short term construction odors from activities such as paving and possibly painting. Given the fact that diesel fumes are highly distributive, odors are temporary in nature. Therefore, since construction odors would be considered short term no CEQA odor impacts would be expected.

4.0 FINDINGS

4.1 Construction Findings

The Project construction dates were estimated based on the proposed construction kickoff in January 2015 with Grading and trenching expected to last about three months, Underground utilities would be expected to begin just after grading operations and would be expected to last about one month. Once underground utilities are completed, paving would begin which is expected to last no longer than one month as well. Finally building construction would begin around May of 2015 and would be completed roughly 5 months later towards the end of October 2015. A summary of the construction emissions is shown in Table 4.1 below.

Table 4.1: Expected Construction Emissions Summary

Year	ROG	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2015 (lb/day) Unmitigated	17.85	90.09	60.38	0.07	12.55	4.21	16.76	6.70	3.87	10.57
Significance Threshold (lb/day)	75	250	550	250	-	-	100	-	-	55
Exceeds Screening Threshold	No	No	No	No	-	-	No	-	-	No

Given these findings, construction emissions would not exceed SDAPCD air quality standards and would not require mitigation to comply. It should be noted that construction assumptions are worst case with total grading concentration occurring within one phase only and the actual construction of the Project would be based on local business demands.

4.2 Health Risk

Based upon this air quality output files, we find out that the worst-case total PM_{10} emissions for the entire construction duration is 545.3 lbs (See Table 4.2 on the following page). Since the project construction duration is only 215 days, the project would produce 2.53 lbs per construction day (8-hours) or 0.0399 grams per second DPM on the 13 acre site.

Table 4.2: Daily PM_{10} Exhaust Emissions

Equipment	Exhaust PM_{10} (Ton/Construction Duration)*	Exhaust PM_{10} (lb/Construction Duration)*	Lb/Construction Day (215 Days)
Air Compressors	0.01215	24.3	0.113023
Cranes	0.02305	46.1	0.214419
Excavators	0.01489	29.78	0.138512
Forklifts	0.03421	68.42	0.318233
Generator Sets	0.04984	99.68	0.463628
Graders	0.01222	24.44	0.113674
Pavers	0.00565	11.3	0.052558
Paving Equipment	0.00440	8.8	0.04093
Rollers	0.00551	11.02	0.051256
Rubber Tired Dozers	0.02685	53.7	0.249767
Scrapers	0.03005	60.1	0.279535
Tractors Loaders Backhoe	0.04355	87.1	0.405116
Welders	0.01028	20.56	0.095628
Total	**0.27265**	**545.3**	**2.536279**
See Attachment A for emission numbers			

Converting pounds (lbs) per day to grams per second is shown below:

$$\frac{2.53\frac{lb}{day}*453\frac{grams}{lb}}{28{,}800\frac{\text{sec}onds}{Constructionday}}=0.0399\frac{grams}{\text{sec}ond}$$

The average emission rate over the grading area is $7.58\text{x}10^{-7}$ g/m^2/s, which was calculated as follows:

$$\frac{0.0399\frac{grams}{\text{sec}ond}}{13acres*4{,}046\frac{meters^2}{acre}}=7.58*10^{-7}\frac{\frac{grams}{meters^2}}{\text{sec}ond}$$

Utilizing the SCREEN3 dispersion model, we find that the peak maximum 1-hr concentration is 34.03 µg/m3 during the worst-case construction period. Converting the peak 1-hr concentration to an annual concentration reduces the concentration to 2.72 µg/m^3. Therefore, utilizing the risk equation identified above and calculating the cancer risk over a 70 year continuous dose would be:

CRDPM-70yr dose = 0.0003 x 2.72 = 0.000817

The proposed project would generate DPM during approximately 215 workdays. This would work out to 71.67-24 hr days out of 70 years or 71.76/25,550 or 0.0028 times the CRDPM. If one million people were exposed to the maximum DPM for only the duration of grading and diesel equipment use, the estimated increased cancer risk could be:

0.0028 x .000817 x 1,000,000 = 2.29 individuals per million

The maximum DPM is projected to occur approximately 191 meters from the geometric center of the project. The numerical number of individuals exposed to DPM of this concentration from the project would be greater than one in one million and would therefore be considered a significant impact and would require mitigation to comply. The project would be required to utilize equipment meeting requirements of T-BACT such as using diesel particulate filters or catalytic converters.

There are also known acute, chronic health risks associated with diesel exhaust which are considered non-cancer risks. This risk is calculated based on methods identified in Section 3.1. From this we find that the annual concentration of 2.72 µg/m^3 divided by the REL of 5 µg/m3 yields a Health Hazard Index of 0.544 which is less than one. Therefore no non-cancer risks are expected and all health risks are considered less than significant.

The project traffic study did not indicate any cumulative projects within the vicinity of the proposed project. Therefore, no cumulative impacts are expected.

4.3 Operational Findings

Based on the Project's traffic study the proposed Project could add as many as 260 daily trips once the proposed Project is fully operational towards the end of 2015. Project trip distribution and expected average trip distances were assumed default settings within CalEEMod. Average trip distances and mix ratios assumed within CalEEMod would be considered worst case.

The expected daily pollutant generation can be calculated utilizing the product of the average daily miles traveled and the expected emissions inventory calculated by EMFAC2011; CalEEMod performs this calculation. The daily pollutants calculated are shown for both winter and summer scenarios in Tables 4.3 and 4.4 on the following page.

Table 4.3: Expected Daily Pollutant Generation (Summer)

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area Source Emission Estimates (Lb/Day)	41.26	0.57	51.19	0.02	6.90	6.90
Energy Source Emissions (Lb/Day)	0.03	0.22	0.09	0.00	0.02	0.02
Operational Vehicle Emissions (Lb/Day)	1.00	2.29	10.59	0.02	1.61	0.45
Total (Lb/Day)	**42.29**	**3.08**	**61.88**	**0.04**	**8.53**	**7.37**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Daily pollutant generation assumes trip distances within CALLEEMOD 2013.2.2						

Table 4.4: Expected Daily Pollutant Generation (Winter)

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Winter Scenario						
Area Source Emission Estimates (Lb/Day)	41.26	0.57	51.19	0.02	6.90	6.90
Energy Source Emissions (Lb/Day)	0.03	0.22	0.09	0.00	0.02	0.02
Operational Vehicle Emissions (Lb/Day)	1.07	2.44	11.08	0.02	1.61	0.45
Total (Lb/Day)	**42.36**	**3.23**	**62.36**	**0.04**	**8.53**	**7.37**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Daily pollutant generation assumes trip distances within CALLEEMOD 2013.2.2						

Based upon these calculations, it was found that the Project would not generate operational emissions in excess of those established by the County of San Diego. Therefore, no operational impacts under CEQA would be expected. Mitigation measures would not be required. The proposed project is designed to be consistent with the project site zoning and would therefore comply with both the RAQS and SIP. No cumulative impacts are expected.

4.4 Odor Impact Findings

Odor impacts from construction operations would be considered short term events and would not be considered an impact. Long term operations will not create offensive odors and would not create any operational odor impacts.

4.5 Conclusion of Findings

Fugitive dust emissions will be expected during grading, however, no impacts are expected. No construction mitigation measures will be required according to CEQA. It should be noted however, the County will require the grading contractor to implement Best Management Practice (BMP) during grading and may require wetting of the soil.

A health risk assessment was conducted onsite and it was found that the cancer risk would be between one and ten per million exposed for the entire duration. Given this, the project would be required to utilize T-BACT equipment or equipment that has been retrofitted or designed to limit PM10 exhaust particles. This equipment has diesel particulate filters installed on the exhaust system.

- *In order to meet the T-BACT requirements, all heavy diesel construction equipment shall be classified as Tier II or higher or be retrofitted to include diesel particulate filters on the exhaust systems to limit diesel particulates.*

The project would not create any operational impacts and would not require mitigation measures for compliance with CEQA. The proposed project is designed to be consistent with the project site zoning and would therefore comply with both the RAQS and SIP.

The project traffic study did not indicate any cumulative projects within the vicinity of the proposed project. Therefore, no cumulative impacts are expected.

The proposed project would not generate or be exposed to offensive odors. Therefore no odor impacts would occur on or off-site.

5.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed Lone Oak Ranch development. This report was prepared utilizing the latest emission rates and reduction methodologies. This report was prepared by Jeremy Louden; a County approved CEQA Consultant for Air Quality.

DRAFT

Jeremy Louden, Principal
Ldn Consulting, Inc.
(760) 473-1253
jlouden@ldnconsulting.net

Date August 27, 2015

ATTACHMENT A

CALLEEMOD 2013.2.2

Loan Oaks Ranch

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	26.00	Dwelling Unit	13.00	46,800.00	74

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	10			**Operational Year**	2016
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage is approximatly 13 acres

Construction Phase - Construction was revised to show worst-case durations

Off-road Equipment -

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Trips and VMT - Trenching updated to be consistent with grading,paving,BC and AC

Demolition -

Grading - Site Acres

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	110.00
tblConstructionPhase	NumDays	300.00	131.00
tblConstructionPhase	NumDays	30.00	40.00
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	PhaseEndDate	4/1/2016	10/30/2015
tblConstructionPhase	PhaseEndDate	2/27/2015	3/1/2015
tblConstructionPhase	PhaseStartDate	10/31/2015	6/1/2015
tblGrading	AcresOfGrading	100.00	13.00
tblLandUse	LotAcreage	8.44	13.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2016

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.8525	90.0920	60.3796	0.0696	12.5531	4.2061	16.7592	6.7013	3.8696	10.5708	0.0000	7,272.6886	7,272.6886	2.1269	0.0000	7,317.3535
Total	**17.8525**	**90.0920**	**60.3796**	**0.0696**	**12.5531**	**4.2061**	**16.7592**	**6.7013**	**3.8696**	**10.5708**	**0.0000**	**7,272.6886**	**7,272.6886**	**2.1269**	**0.0000**	**7,317.3535**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.8525	90.0920	60.3796	0.0696	12.5531	4.2061	16.7592	6.7013	3.8696	10.5708	0.0000	7,272.6886	7,272.6886	2.1269	0.0000	7,317.3534
Total	**17.8525**	**90.0920**	**60.3796**	**0.0696**	**12.5531**	**4.2061**	**16.7592**	**6.7013**	**3.8696**	**10.5708**	**0.0000**	**7,272.6886**	**7,272.6886**	**2.1269**	**0.0000**	**7,317.3534**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Energy	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Mobile	1.0033	2.2946	10.5933	0.0235	1.5832	0.0306	1.6138	0.4226	0.0281	0.4507		2,044.9349	2,044.9349	0.0852		2,046.7233
Total	**42.2907**	**3.0816**	**61.8799**	**0.0441**	**1.5832**	**6.9469**	**8.5301**	**0.4226**	**6.9442**	**7.3668**	**722.0650**	**2,634.5990**	**3,356.6640**	**0.7609**	**0.0620**	**3,391.8573**

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	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Energy	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Mobile	1.0033	2.2946	10.5933	0.0235	1.5832	0.0306	1.6138	0.4226	0.0281	0.4507		2,044.9349	2,044.9349	0.0852		2,046.7233
Total	**42.2907**	**3.0816**	**61.8799**	**0.0441**	**1.5832**	**6.9469**	**8.5301**	**0.4226**	**6.9442**	**7.3668**	**722.0650**	**2,634.5990**	**3,356.6640**	**0.7609**	**0.0620**	**3,391.8573**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/5/2015	3/1/2015	5	40	
2	Trenching	Trenching	3/2/2015	3/31/2015	5	22	
3	Paving	Paving	4/1/2015	4/30/2015	5	22	
4	Building Construction	Building Construction	5/1/2015	10/30/2015	5	131	
5	Architectural Coating	Architectural Coating	6/1/2015	10/30/2015	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13

Acres of Paving: 0

Residential Indoor: 94,770; Residential Outdoor: 31,590; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	2	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	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
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3888	0.0000	12.3888	6.6577	0.0000	6.6577			0.0000			0.0000
Off-Road	7.6879	90.0016	59.3908	0.0675		4.2048	4.2048		3.8684	3.8684		7,092.6869	7,092.6869	2.1175		7,137.1536
Total	**7.6879**	**90.0016**	**59.3908**	**0.0675**	**12.3888**	**4.2048**	**16.5936**	**6.6577**	**3.8684**	**10.5261**		**7,092.6869**	**7,092.6869**	**2.1175**		**7,137.1536**

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	0.0767	0.0904	0.9888	2.0800e-003	0.1643	1.2900e-003	0.1656	0.0436	1.1800e-003	0.0448		180.0017	180.0017	9.4300e-003		180.1998
Total	**0.0767**	**0.0904**	**0.9888**	**2.0800e-003**	**0.1643**	**1.2900e-003**	**0.1656**	**0.0436**	**1.1800e-003**	**0.0448**		**180.0017**	**180.0017**	**9.4300e-003**		**180.1998**

3.2 Grading - 2015

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					12.3888	0.0000	12.3888	6.6577	0.0000	6.6577			0.0000			0.0000
Off-Road	7.6879	90.0016	59.3908	0.0675		4.2048	4.2048		3.8684	3.8684	0.0000	7,092.6869	7,092.6869	2.1175		7,137.1536
Total	**7.6879**	**90.0016**	**59.3908**	**0.0675**	**12.3888**	**4.2048**	**16.5936**	**6.6577**	**3.8684**	**10.5261**	**0.0000**	**7,092.6869**	**7,092.6869**	**2.1175**		**7,137.1536**

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	0.0767	0.0904	0.9888	2.0800e-003	0.1643	1.2900e-003	0.1656	0.0436	1.1800e-003	0.0448		180.0017	180.0017	9.4300e-003		180.1998
Total	**0.0767**	**0.0904**	**0.9888**	**2.0800e-003**	**0.1643**	**1.2900e-003**	**0.1656**	**0.0436**	**1.1800e-003**	**0.0448**		**180.0017**	**180.0017**	**9.4300e-003**		**180.1998**

3.3 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5539	16.5940	11.7296	0.0168		1.0175	1.0175		0.9361	0.9361		1,766.0854	1,766.0854	0.5273		1,777.1577
Total	**1.5539**	**16.5940**	**11.7296**	**0.0168**		**1.0175**	**1.0175**		**0.9361**	**0.9361**		**1,766.0854**	**1,766.0854**	**0.5273**		**1,777.1577**

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	0.0383	0.0452	0.4944	1.0400e-003	0.0822	6.4000e-004	0.0828	0.0218	5.9000e-004	0.0224		90.0008	90.0008	4.7200e-003		90.0999
Total	**0.0383**	**0.0452**	**0.4944**	**1.0400e-003**	**0.0822**	**6.4000e-004**	**0.0828**	**0.0218**	**5.9000e-004**	**0.0224**		**90.0008**	**90.0008**	**4.7200e-003**		**90.0999**

3.3 Trenching - 2015

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	1.5539	16.5940	11.7296	0.0168		1.0175	1.0175		0.9361	0.9361	0.0000	1,766.0854	1,766.0854	0.5273		1,777.1577
Total	**1.5539**	**16.5940**	**11.7296**	**0.0168**		**1.0175**	**1.0175**		**0.9361**	**0.9361**	**0.0000**	**1,766.0854**	**1,766.0854**	**0.5273**		**1,777.1577**

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	0.0383	0.0452	0.4944	1.0400e-003	0.0822	6.4000e-004	0.0828	0.0218	5.9000e-004	0.0224		90.0008	90.0008	4.7200e-003		90.0999
Total	**0.0383**	**0.0452**	**0.4944**	**1.0400e-003**	**0.0822**	**6.4000e-004**	**0.0828**	**0.0218**	**5.9000e-004**	**0.0224**		**90.0008**	**90.0008**	**4.7200e-003**		**90.0999**

3.4 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4974	26.8919	16.1909	0.0238		1.5491	1.5491		1.4252	1.4252		2,503.6422	2,503.6422	0.7474		2,519.3385
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4974**	**26.8919**	**16.1909**	**0.0238**		**1.5491**	**1.5491**		**1.4252**	**1.4252**		**2,503.6422**	**2,503.6422**	**0.7474**		**2,519.3385**

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	0.0690	0.0814	0.8900	1.8700e-003	0.1479	1.1600e-003	0.1490	0.0392	1.0600e-003	0.0403		162.0015	162.0015	8.4900e-003		162.1798
Total	**0.0690**	**0.0814**	**0.8900**	**1.8700e-003**	**0.1479**	**1.1600e-003**	**0.1490**	**0.0392**	**1.0600e-003**	**0.0403**		**162.0015**	**162.0015**	**8.4900e-003**		**162.1798**

3.4 Paving - 2015

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	2.4974	26.8919	16.1909	0.0238		1.5491	1.5491		1.4252	1.4252	0.0000	2,503.6422	2,503.6422	0.7474		2,519.3385
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4974**	**26.8919**	**16.1909**	**0.0238**		**1.5491**	**1.5491**		**1.4252**	**1.4252**	**0.0000**	**2,503.6422**	**2,503.6422**	**0.7474**		**2,519.3385**

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	0.0690	0.0814	0.8900	1.8700e-003	0.1479	1.1600e-003	0.1490	0.0392	1.0600e-003	0.0403		162.0015	162.0015	8.4900e-003		162.1798
Total	**0.0690**	**0.0814**	**0.8900**	**1.8700e-003**	**0.1479**	**1.1600e-003**	**0.1490**	**0.0392**	**1.0600e-003**	**0.0403**		**162.0015**	**162.0015**	**8.4900e-003**		**162.1798**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0574	32.2551	20.4581	0.0307		2.2621	2.2621		2.1546	2.1546		3,026.0600	3,026.0600	0.6529		3,039.7700
Total	**4.0574**	**32.2551**	**20.4581**	**0.0307**		**2.2621**	**2.2621**		**2.1546**	**2.1546**		**3,026.0600**	**3,026.0600**	**0.6529**		**3,039.7700**

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	0.0354	0.3272	0.3645	7.2000e-004	0.0199	5.3600e-003	0.0253	5.6800e-003	4.9300e-003	0.0106		72.4289	72.4289	6.3000e-004		72.4420
Worker	0.0345	0.0407	0.4450	9.4000e-004	0.0739	5.8000e-004	0.0745	0.0196	5.3000e-004	0.0201		81.0008	81.0008	4.2500e-003		81.0899
Total	**0.0699**	**0.3679**	**0.8094**	**1.6600e-003**	**0.0938**	**5.9400e-003**	**0.0998**	**0.0253**	**5.4600e-003**	**0.0308**		**153.4296**	**153.4296**	**4.8800e-003**		**153.5320**

3.5 Building Construction - 2015

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	4.0574	32.2551	20.4581	0.0307		2.2621	2.2621		2.1546	2.1546	0.0000	3,026.0600	3,026.0600	0.6529		3,039.7700
Total	**4.0574**	**32.2551**	**20.4581**	**0.0307**		**2.2621**	**2.2621**		**2.1546**	**2.1546**	**0.0000**	**3,026.0600**	**3,026.0600**	**0.6529**		**3,039.7700**

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	0.0354	0.3272	0.3645	7.2000e-004	0.0199	5.3600e-003	0.0253	5.6800e-003	4.9300e-003	0.0106		72.4289	72.4289	6.3000e-004		72.4420
Worker	0.0345	0.0407	0.4450	9.4000e-004	0.0739	5.8000e-004	0.0745	0.0196	5.3000e-004	0.0201		81.0008	81.0008	4.2500e-003		81.0899
Total	**0.0699**	**0.3679**	**0.8094**	**1.6600e-003**	**0.0938**	**5.9400e-003**	**0.0998**	**0.0253**	**5.4600e-003**	**0.0308**		**153.4296**	**153.4296**	**4.8800e-003**		**153.5320**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**13.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	7.6700e-003	9.0400e-003	0.0989	2.1000e-004	0.0164	1.3000e-004	0.0166	4.3600e-003	1.2000e-004	4.4800e-003		18.0002	18.0002	9.4000e-004		18.0200
Total	**7.6700e-003**	**9.0400e-003**	**0.0989**	**2.1000e-004**	**0.0164**	**1.3000e-004**	**0.0166**	**4.3600e-003**	**1.2000e-004**	**4.4800e-003**		**18.0002**	**18.0002**	**9.4000e-004**		**18.0200**

3.6 Architectural Coating - 2015

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	13.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**13.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	7.6700e-003	9.0400e-003	0.0989	2.1000e-004	0.0164	1.3000e-004	0.0166	4.3600e-003	1.2000e-004	4.4800e-003		18.0002	18.0002	9.4000e-004		18.0200
Total	**7.6700e-003**	**9.0400e-003**	**0.0989**	**2.1000e-004**	**0.0164**	**1.3000e-004**	**0.0166**	**4.3600e-003**	**1.2000e-004**	**4.4800e-003**		**18.0002**	**18.0002**	**9.4000e-004**		**18.0200**

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	1.0033	2.2946	10.5933	0.0235	1.5832	0.0306	1.6138	0.4226	0.0281	0.4507		2,044.9349	2,044.9349	0.0852		2,046.7233
Unmitigated	1.0033	2.2946	10.5933	0.0235	1.5832	0.0306	1.6138	0.4226	0.0281	0.4507		2,044.9349	2,044.9349	0.0852		2,046.7233

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	248.82	262.08	228.02	707,381	707,381
Total	248.82	262.08	228.02	707,381	707,381

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	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510118	0.073510	0.192396	0.133166	0.036737	0.005265	0.012605	0.021642	0.001847	0.002083	0.006548	0.000610	0.003471

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
NaturalGas Unmitigated	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004

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	2405.31	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Total		**0.0259**	**0.2217**	**0.0943**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**		**282.9782**	**282.9782**	**5.4200e-003**	**5.1900e-003**	**284.7004**

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	2.40531	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Total		**0.0259**	**0.2217**	**0.0943**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**		**282.9782**	**282.9782**	**5.4200e-003**	**5.1900e-003**	**284.7004**

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	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Unmitigated	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335

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	0.4012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0015					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	39.7903	0.5399	49.0173	0.0192		6.8866	6.8866		6.8864	6.8864	722.0650	302.8235	1,024.8885	0.6664	0.0568	1,056.4885
Landscaping	0.0685	0.0255	2.1749	1.1000e-004		0.0117	0.0117		0.0117	0.0117		3.8624	3.8624	3.9400e-003		3.9450
Total	**41.2614**	**0.5653**	**51.1923**	**0.0193**		**6.8984**	**6.8984**		**6.8982**	**6.8982**	**722.0650**	**306.6859**	**1,028.7509**	**0.6703**	**0.0568**	**1,060.4335**

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	0.4012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0015					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	39.7903	0.5399	49.0173	0.0192		6.8866	6.8866		6.8864	6.8864	722.0650	302.8235	1,024.8885	0.6664	0.0568	1,056.4885
Landscaping	0.0685	0.0255	2.1749	1.1000e-004		0.0117	0.0117		0.0117	0.0117		3.8624	3.8624	3.9400e-003		3.9450
Total	**41.2614**	**0.5653**	**51.1923**	**0.0193**		**6.8984**	**6.8984**		**6.8982**	**6.8982**	**722.0650**	**306.6859**	**1,028.7509**	**0.6703**	**0.0568**	**1,060.4335**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Loan Oaks Ranch

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	26.00	Dwelling Unit	13.00	46,800.00	74

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	10			**Operational Year**	2016
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage is approximatly 13 acres

Construction Phase - Construction was revised to show worst-case durations

Off-road Equipment -

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Off-road Equipment - Reflects estimated worst-case equipment

Trips and VMT - Trenching updated to be consistent with grading,paving,BC and AC

Demolition -

Grading - Site Acres

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	110.00
tblConstructionPhase	NumDays	300.00	131.00
tblConstructionPhase	NumDays	30.00	40.00
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	PhaseEndDate	4/1/2016	10/30/2015
tblConstructionPhase	PhaseEndDate	2/27/2015	3/1/2015
tblConstructionPhase	PhaseStartDate	10/31/2015	6/1/2015
tblGrading	AcresOfGrading	100.00	13.00
tblLandUse	LotAcreage	8.44	13.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2016

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.8608	90.1030	60.3555	0.0695	12.5531	4.2061	16.7592	6.7013	3.8696	10.5708	0.0000	7,261.7410	7,261.7410	2.1269	0.0000	7,306.4058
Total	**17.8608**	**90.1030**	**60.3555**	**0.0695**	**12.5531**	**4.2061**	**16.7592**	**6.7013**	**3.8696**	**10.5708**	**0.0000**	**7,261.7410**	**7,261.7410**	**2.1269**	**0.0000**	**7,306.4058**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.8608	90.1030	60.3555	0.0695	12.5531	4.2061	16.7592	6.7013	3.8696	10.5708	0.0000	7,261.7410	7,261.7410	2.1269	0.0000	7,306.4058
Total	**17.8608**	**90.1030**	**60.3555**	**0.0695**	**12.5531**	**4.2061**	**16.7592**	**6.7013**	**3.8696**	**10.5708**	**0.0000**	**7,261.7410**	**7,261.7410**	**2.1269**	**0.0000**	**7,306.4058**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Energy	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Mobile	1.0707	2.4388	11.0770	0.0223	1.5832	0.0307	1.6139	0.4226	0.0282	0.4509		1,945.7256	1,945.7256	0.0852		1,947.5150
Total	**42.3581**	**3.2258**	**62.3636**	**0.0430**	**1.5832**	**6.9470**	**8.5302**	**0.4226**	**6.9443**	**7.3670**	**722.0650**	**2,535.3897**	**3,257.4547**	**0.7609**	**0.0620**	**3,292.6489**

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	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Energy	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Mobile	1.0707	2.4388	11.0770	0.0223	1.5832	0.0307	1.6139	0.4226	0.0282	0.4509		1,945.7256	1,945.7256	0.0852		1,947.5150
Total	**42.3581**	**3.2258**	**62.3636**	**0.0430**	**1.5832**	**6.9470**	**8.5302**	**0.4226**	**6.9443**	**7.3670**	**722.0650**	**2,535.3897**	**3,257.4547**	**0.7609**	**0.0620**	**3,292.6489**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/5/2015	3/1/2015	5	40	
2	Trenching	Trenching	3/2/2015	3/31/2015	5	22	
3	Paving	Paving	4/1/2015	4/30/2015	5	22	
4	Building Construction	Building Construction	5/1/2015	10/30/2015	5	131	
5	Architectural Coating	Architectural Coating	6/1/2015	10/30/2015	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13

Acres of Paving: 0

Residential Indoor: 94,770; Residential Outdoor: 31,590; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	2	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	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
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.3888	0.0000	12.3888	6.6577	0.0000	6.6577			0.0000			0.0000
Off-Road	7.6879	90.0016	59.3908	0.0675		4.2048	4.2048		3.8684	3.8684		7,092.6869	7,092.6869	2.1175		7,137.1536
Total	**7.6879**	**90.0016**	**59.3908**	**0.0675**	**12.3888**	**4.2048**	**16.5936**	**6.6577**	**3.8684**	**10.5261**		**7,092.6869**	**7,092.6869**	**2.1175**		**7,137.1536**

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	0.0815	0.1015	0.9647	1.9600e-003	0.1643	1.2900e-003	0.1656	0.0436	1.1800e-003	0.0448		169.0541	169.0541	9.4300e-003		169.2522
Total	**0.0815**	**0.1015**	**0.9647**	**1.9600e-003**	**0.1643**	**1.2900e-003**	**0.1656**	**0.0436**	**1.1800e-003**	**0.0448**		**169.0541**	**169.0541**	**9.4300e-003**		**169.2522**

3.2 Grading - 2015

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					12.3888	0.0000	12.3888	6.6577	0.0000	6.6577			0.0000			0.0000
Off-Road	7.6879	90.0016	59.3908	0.0675		4.2048	4.2048		3.8684	3.8684	0.0000	7,092.6869	7,092.6869	2.1175		7,137.1536
Total	**7.6879**	**90.0016**	**59.3908**	**0.0675**	**12.3888**	**4.2048**	**16.5936**	**6.6577**	**3.8684**	**10.5261**	**0.0000**	**7,092.6869**	**7,092.6869**	**2.1175**		**7,137.1536**

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	0.0815	0.1015	0.9647	1.9600e-003	0.1643	1.2900e-003	0.1656	0.0436	1.1800e-003	0.0448		169.0541	169.0541	9.4300e-003		169.2522
Total	**0.0815**	**0.1015**	**0.9647**	**1.9600e-003**	**0.1643**	**1.2900e-003**	**0.1656**	**0.0436**	**1.1800e-003**	**0.0448**		**169.0541**	**169.0541**	**9.4300e-003**		**169.2522**

3.3 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5539	16.5940	11.7296	0.0168		1.0175	1.0175		0.9361	0.9361		1,766.0854	1,766.0854	0.5273		1,777.1577
Total	**1.5539**	**16.5940**	**11.7296**	**0.0168**		**1.0175**	**1.0175**		**0.9361**	**0.9361**		**1,766.0854**	**1,766.0854**	**0.5273**		**1,777.1577**

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	0.0408	0.0507	0.4823	9.8000e-004	0.0822	6.4000e-004	0.0828	0.0218	5.9000e-004	0.0224		84.5270	84.5270	4.7200e-003		84.6261
Total	**0.0408**	**0.0507**	**0.4823**	**9.8000e-004**	**0.0822**	**6.4000e-004**	**0.0828**	**0.0218**	**5.9000e-004**	**0.0224**		**84.5270**	**84.5270**	**4.7200e-003**		**84.6261**

3.3 Trenching - 2015

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	1.5539	16.5940	11.7296	0.0168		1.0175	1.0175		0.9361	0.9361	0.0000	1,766.0854	1,766.0854	0.5273		1,777.1577
Total	**1.5539**	**16.5940**	**11.7296**	**0.0168**		**1.0175**	**1.0175**		**0.9361**	**0.9361**	**0.0000**	**1,766.0854**	**1,766.0854**	**0.5273**		**1,777.1577**

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	0.0408	0.0507	0.4823	9.8000e-004	0.0822	6.4000e-004	0.0828	0.0218	5.9000e-004	0.0224		84.5270	84.5270	4.7200e-003		84.6261
Total	**0.0408**	**0.0507**	**0.4823**	**9.8000e-004**	**0.0822**	**6.4000e-004**	**0.0828**	**0.0218**	**5.9000e-004**	**0.0224**		**84.5270**	**84.5270**	**4.7200e-003**		**84.6261**

3.4 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4974	26.8919	16.1909	0.0238		1.5491	1.5491		1.4252	1.4252		2,503.6422	2,503.6422	0.7474		2,519.3385
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4974**	**26.8919**	**16.1909**	**0.0238**		**1.5491**	**1.5491**		**1.4252**	**1.4252**		**2,503.6422**	**2,503.6422**	**0.7474**		**2,519.3385**

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	0.0734	0.0913	0.8682	1.7600e-003	0.1479	1.1600e-003	0.1490	0.0392	1.0600e-003	0.0403		152.1487	152.1487	8.4900e-003		152.3270
Total	**0.0734**	**0.0913**	**0.8682**	**1.7600e-003**	**0.1479**	**1.1600e-003**	**0.1490**	**0.0392**	**1.0600e-003**	**0.0403**		**152.1487**	**152.1487**	**8.4900e-003**		**152.3270**

3.4 Paving - 2015

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	2.4974	26.8919	16.1909	0.0238		1.5491	1.5491		1.4252	1.4252	0.0000	2,503.6422	2,503.6422	0.7474		2,519.3385
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.4974**	**26.8919**	**16.1909**	**0.0238**		**1.5491**	**1.5491**		**1.4252**	**1.4252**	**0.0000**	**2,503.6422**	**2,503.6422**	**0.7474**		**2,519.3385**

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	0.0734	0.0913	0.8682	1.7600e-003	0.1479	1.1600e-003	0.1490	0.0392	1.0600e-003	0.0403		152.1487	152.1487	8.4900e-003		152.3270
Total	**0.0734**	**0.0913**	**0.8682**	**1.7600e-003**	**0.1479**	**1.1600e-003**	**0.1490**	**0.0392**	**1.0600e-003**	**0.0403**		**152.1487**	**152.1487**	**8.4900e-003**		**152.3270**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0574	32.2551	20.4581	0.0307		2.2621	2.2621		2.1546	2.1546		3,026.0600	3,026.0600	0.6529		3,039.7700
Total	**4.0574**	**32.2551**	**20.4581**	**0.0307**		**2.2621**	**2.2621**		**2.1546**	**2.1546**		**3,026.0600**	**3,026.0600**	**0.6529**		**3,039.7700**

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	0.0410	0.3353	0.4835	7.1000e-004	0.0199	5.4300e-003	0.0253	5.6800e-003	4.9900e-003	0.0107		71.8765	71.8765	6.4000e-004		71.8900
Worker	0.0367	0.0457	0.4341	8.8000e-004	0.0739	5.8000e-004	0.0745	0.0196	5.3000e-004	0.0201		76.0743	76.0743	4.2500e-003		76.1635
Total	**0.0777**	**0.3810**	**0.9176**	**1.5900e-003**	**0.0938**	**6.0100e-003**	**0.0999**	**0.0253**	**5.5200e-003**	**0.0308**		**147.9508**	**147.9508**	**4.8900e-003**		**148.0535**

3.5 Building Construction - 2015

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	4.0574	32.2551	20.4581	0.0307		2.2621	2.2621		2.1546	2.1546	0.0000	3,026.0600	3,026.0600	0.6529		3,039.7700
Total	**4.0574**	**32.2551**	**20.4581**	**0.0307**		**2.2621**	**2.2621**		**2.1546**	**2.1546**	**0.0000**	**3,026.0600**	**3,026.0600**	**0.6529**		**3,039.7700**

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	0.0410	0.3353	0.4835	7.1000e-004	0.0199	5.4300e-003	0.0253	5.6800e-003	4.9900e-003	0.0107		71.8765	71.8765	6.4000e-004		71.8900
Worker	0.0367	0.0457	0.4341	8.8000e-004	0.0739	5.8000e-004	0.0745	0.0196	5.3000e-004	0.0201		76.0743	76.0743	4.2500e-003		76.1635
Total	**0.0777**	**0.3810**	**0.9176**	**1.5900e-003**	**0.0938**	**6.0100e-003**	**0.0999**	**0.0253**	**5.5200e-003**	**0.0308**		**147.9508**	**147.9508**	**4.8900e-003**		**148.0535**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**13.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	8.1500e-003	0.0102	0.0965	2.0000e-004	0.0164	1.3000e-004	0.0166	4.3600e-003	1.2000e-004	4.4800e-003		16.9054	16.9054	9.4000e-004		16.9252
Total	**8.1500e-003**	**0.0102**	**0.0965**	**2.0000e-004**	**0.0164**	**1.3000e-004**	**0.0166**	**4.3600e-003**	**1.2000e-004**	**4.4800e-003**		**16.9054**	**16.9054**	**9.4000e-004**		**16.9252**

3.6 Architectural Coating - 2015

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	13.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**13.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	8.1500e-003	0.0102	0.0965	2.0000e-004	0.0164	1.3000e-004	0.0166	4.3600e-003	1.2000e-004	4.4800e-003		16.9054	16.9054	9.4000e-004		16.9252
Total	**8.1500e-003**	**0.0102**	**0.0965**	**2.0000e-004**	**0.0164**	**1.3000e-004**	**0.0166**	**4.3600e-003**	**1.2000e-004**	**4.4800e-003**		**16.9054**	**16.9054**	**9.4000e-004**		**16.9252**

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	1.0707	2.4388	11.0770	0.0223	1.5832	0.0307	1.6139	0.4226	0.0282	0.4509		1,945.7256	1,945.7256	0.0852		1,947.5150
Unmitigated	1.0707	2.4388	11.0770	0.0223	1.5832	0.0307	1.6139	0.4226	0.0282	0.4509		1,945.7256	1,945.7256	0.0852		1,947.5150

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	248.82	262.08	228.02	707,381	707,381
Total	248.82	262.08	228.02	707,381	707,381

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	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510118	0.073510	0.192396	0.133166	0.036737	0.005265	0.012605	0.021642	0.001847	0.002083	0.006548	0.000610	0.003471

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
NaturalGas Unmitigated	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004

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	2405.31	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Total		**0.0259**	**0.2217**	**0.0943**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**		**282.9782**	**282.9782**	**5.4200e-003**	**5.1900e-003**	**284.7004**

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	2.40531	0.0259	0.2217	0.0943	1.4100e-003		0.0179	0.0179		0.0179	0.0179		282.9782	282.9782	5.4200e-003	5.1900e-003	284.7004
Total		**0.0259**	**0.2217**	**0.0943**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**		**282.9782**	**282.9782**	**5.4200e-003**	**5.1900e-003**	**284.7004**

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	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335
Unmitigated	41.2614	0.5653	51.1923	0.0193		6.8984	6.8984		6.8982	6.8982	722.0650	306.6859	1,028.7509	0.6703	0.0568	1,060.4335

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	0.4012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0015					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	39.7903	0.5399	49.0173	0.0192		6.8866	6.8866		6.8864	6.8864	722.0650	302.8235	1,024.8885	0.6664	0.0568	1,056.4885
Landscaping	0.0685	0.0255	2.1749	1.1000e-004		0.0117	0.0117		0.0117	0.0117		3.8624	3.8624	3.9400e-003		3.9450
Total	**41.2614**	**0.5653**	**51.1923**	**0.0193**		**6.8984**	**6.8984**		**6.8982**	**6.8982**	**722.0650**	**306.6859**	**1,028.7509**	**0.6703**	**0.0568**	**1,060.4335**

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	0.4012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0015					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	39.7903	0.5399	49.0173	0.0192		6.8866	6.8866		6.8864	6.8864	722.0650	302.8235	1,024.8885	0.6664	0.0568	1,056.4885
Landscaping	0.0685	0.0255	2.1749	1.1000e-004		0.0117	0.0117		0.0117	0.0117		3.8624	3.8624	3.9400e-003		3.9450
Total	**41.2614**	**0.5653**	**51.1923**	**0.0193**		**6.8984**	**6.8984**		**6.8982**	**6.8982**	**722.0650**	**306.6859**	**1,028.7509**	**0.6703**	**0.0568**	**1,060.4335**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Loan Oaks Ranch

San Diego Air Basin, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	4	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Generator Sets	Diesel	No Change	0	2	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	2	No Change	0.00
Scrapers	Diesel	No Change	0	2	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	6	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	2.23600E-002	1.41370E-001	1.04600E-001	1.60000E-004	1.21500E-002	1.21500E-002	0.00000E+000	1.40429E+001	1.40429E+001	1.83000E-003	0.00000E+000	1.40813E+001
Cranes	4.25400E-002	5.04920E-001	1.75780E-001	3.20000E-004	2.30500E-002	2.12100E-002	0.00000E+000	3.07982E+001	3.07982E+001	9.19000E-003	0.00000E+000	3.09913E+001
Excavators	2.58300E-002	3.01620E-001	2.13230E-001	3.30000E-004	1.48900E-002	1.37000E-002	0.00000E+000	3.12475E+001	3.12475E+001	9.33000E-003	0.00000E+000	3.14434E+001
Forklifts	4.74000E-002	4.07200E-001	2.50670E-001	3.00000E-004	3.42100E-002	3.14700E-002	0.00000E+000	2.85873E+001	2.85873E+001	8.53000E-003	0.00000E+000	2.87665E+001
Generator Sets	9.34900E-002	6.84910E-001	5.02520E-001	8.60000E-004	4.98400E-002	4.98400E-002	0.00000E+000	7.40422E+001	7.40422E+001	7.56000E-003	0.00000E+000	7.42009E+001
Graders	2.12400E-002	2.17360E-001	9.96100E-002	1.20000E-004	1.22200E-002	1.12400E-002	0.00000E+000	1.19216E+001	1.19216E+001	3.56000E-003	0.00000E+000	1.19964E+001
Pavers	9.97000E-003	1.12790E-001	6.34600E-002	1.00000E-004	5.65000E-003	5.20000E-003	0.00000E+000	9.45521E+000	9.45521E+000	2.82000E-003	0.00000E+000	9.51449E+000
Paving Equipment	7.46000E-003	9.01700E-002	5.63700E-002	9.00000E-005	4.40000E-003	4.05000E-003	0.00000E+000	8.39979E+000	8.39979E+000	2.51000E-003	0.00000E+000	8.45245E+000
Rollers	8.06000E-003	7.39800E-002	4.49300E-002	6.00000E-005	5.51000E-003	5.07000E-003	0.00000E+000	5.49492E+000	5.49492E+000	1.64000E-003	0.00000E+000	5.52937E+000
Rubber Tired Dozers	5.09300E-002	5.75480E-001	4.39060E-001	3.60000E-004	2.68500E-002	2.47000E-002	0.00000E+000	3.38899E+001	3.38899E+001	1.01200E-002	0.00000E+000	3.41024E+001
Scrapers	5.77300E-002	7.43960E-001	4.63070E-001	6.00000E-004	3.00500E-002	2.76400E-002	0.00000E+000	5.67745E+001	5.67745E+001	1.69500E-002	0.00000E+000	5.71305E+001
Tractors/Loaders/ Backhoes	5.84300E-002	5.56440E-001	3.93250E-001	5.10000E-004	4.35500E-002	4.00700E-002	0.00000E+000	4.81660E+001	4.81660E+001	1.43800E-002	0.00000E+000	4.84680E+001
Welders	4.10100E-002	1.22270E-001	1.33000E-001	1.70000E-004	1.02800E-002	1.02800E-002	0.00000E+000	1.23285E+001	1.23285E+001	3.34000E-003	0.00000E+000	1.23986E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	2.23600E-002	1.41370E-001	1.04600E-001	1.60000E-004	1.21500E-002	1.21500E-002	0.00000E+000	1.40429E+001	1.40429E+001	1.83000E-003	0.00000E+000	1.40813E+001
Cranes	4.25400E-002	5.04920E-001	1.75780E-001	3.20000E-004	2.30500E-002	2.12100E-002	0.00000E+000	3.07982E+001	3.07982E+001	9.19000E-003	0.00000E+000	3.09913E+001
Excavators	2.58300E-002	3.01620E-001	2.13230E-001	3.30000E-004	1.48900E-002	1.37000E-002	0.00000E+000	3.12474E+001	3.12474E+001	9.33000E-003	0.00000E+000	3.14433E+001
Forklifts	4.74000E-002	4.07200E-001	2.50670E-001	3.00000E-004	3.42100E-002	3.14700E-002	0.00000E+000	2.85872E+001	2.85872E+001	8.53000E-003	0.00000E+000	2.87665E+001
Generator Sets	9.34900E-002	6.84910E-001	5.02520E-001	8.60000E-004	4.98400E-002	4.98400E-002	0.00000E+000	7.40421E+001	7.40421E+001	7.56000E-003	0.00000E+000	7.42008E+001
Graders	2.12400E-002	2.17360E-001	9.96100E-002	1.20000E-004	1.22200E-002	1.12400E-002	0.00000E+000	1.19216E+001	1.19216E+001	3.56000E-003	0.00000E+000	1.19963E+001
Pavers	9.97000E-003	1.12790E-001	6.34600E-002	1.00000E-004	5.65000E-003	5.20000E-003	0.00000E+000	9.45520E+000	9.45520E+000	2.82000E-003	0.00000E+000	9.51448E+000
Paving Equipment	7.46000E-003	9.01700E-002	5.63700E-002	9.00000E-005	4.40000E-003	4.05000E-003	0.00000E+000	8.39978E+000	8.39978E+000	2.51000E-003	0.00000E+000	8.45244E+000
Rollers	8.06000E-003	7.39800E-002	4.49300E-002	6.00000E-005	5.51000E-003	5.07000E-003	0.00000E+000	5.49491E+000	5.49491E+000	1.64000E-003	0.00000E+000	5.52936E+000
Rubber Tired Dozers	5.09300E-002	5.75480E-001	4.39060E-001	3.60000E-004	2.68500E-002	2.47000E-002	0.00000E+000	3.38899E+001	3.38899E+001	1.01200E-002	0.00000E+000	3.41024E+001
Scrapers	5.77300E-002	7.43960E-001	4.63060E-001	6.00000E-004	3.00500E-002	2.76400E-002	0.00000E+000	5.67745E+001	5.67745E+001	1.69500E-002	0.00000E+000	5.71304E+001
Tractors/Loaders/Backhoes	5.84300E-002	5.56430E-001	3.93250E-001	5.10000E-004	4.35500E-002	4.00700E-002	0.00000E+000	4.81660E+001	4.81660E+001	1.43800E-002	0.00000E+000	4.84679E+001
Welders	4.10100E-002	1.22270E-001	1.33000E-001	1.70000E-004	1.02800E-002	1.02800E-002	0.00000E+000	1.23285E+001	1.23285E+001	3.34000E-003	0.00000E+000	1.23986E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.42421E-006	1.42421E-006	0.00000E+000	0.00000E+000	1.42032E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.74082E-007	9.74082E-007	0.00000E+000	0.00000E+000	1.29068E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.28010E-006	1.28010E-006	0.00000E+000	0.00000E+000	1.27213E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.04942E-006	1.04942E-006	0.00000E+000	0.00000E+000	1.39051E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21552E-006	1.21552E-006	0.00000E+000	0.00000E+000	1.21292E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.38813E-007	8.38813E-007	0.00000E+000	0.00000E+000	1.66717E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.05762E-006	1.05762E-006	0.00000E+000	0.00000E+000	1.05103E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19051E-006	1.19051E-006	0.00000E+000	0.00000E+000	1.18309E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.81986E-006	1.81986E-006	0.00000E+000	0.00000E+000	1.80852E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18029E-006	1.18029E-006	0.00000E+000	0.00000E+000	1.17294E-006
Scrapers	0.00000E+000	0.00000E+000	2.15950E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23295E-006	1.23295E-006	0.00000E+000	0.00000E+000	1.22527E-006
Tractors/Loaders/Backhoes	0.00000E+000	1.79714E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.24569E-006	1.24569E-006	0.00000E+000	0.00000E+000	1.23793E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.11131E-007	8.11131E-007	0.00000E+000	0.00000E+000	8.06541E-007

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)			
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Grading	Fugitive Dust	0.25	0.13	0.25	0.13	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Trenching	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Trenching	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.71	0.01
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	-0.01	0.13		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	250.00
No	Use Low VOC Paint (Residential Exterior)	250.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00

DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

ATTACHMENT B

SCREEN 3 Output

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 13043 ***

Lone Oak SF Development

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE                =         AREA
   EMISSION RATE (G/(S-M**2))  =     0.758000E-06
   SOURCE HEIGHT (M)          =       3.0000
   LENGTH OF LARGER SIDE (M)   =     229.3600
   LENGTH OF SMALLER SIDE (M)  =     229.3600
   RECEPTOR HEIGHT (M)        =       1.5000
   URBAN/RURAL OPTION         =        RURAL
THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


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

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

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

  DIST     CONC              U10M   USTK  MIX HT   PLUME  MAX DIR
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
-------  ----------  ----  -----  -----  ------  ------  -------
    10.    17.19        6     1.0    1.0 10000.0    3.00     45.
   100.    26.44        6     1.0    1.0 10000.0    3.00     45.
   200.    33.86        6     1.0    1.0 10000.0    3.00     45.
   300.    28.64        6     1.0    1.0 10000.0    3.00     45.
   400.    23.76        6     1.0    1.0 10000.0    3.00     45.
   500.    20.11        6     1.0    1.0 10000.0    3.00     45.
   600.    17.38        6     1.0    1.0 10000.0    3.00     45.
   700.    15.32        6     1.0    1.0 10000.0    3.00     45.
   800.    13.74        6     1.0    1.0 10000.0    3.00     45.
   900.    12.49        6     1.0    1.0 10000.0    3.00     45.
  1000.    11.47        6     1.0    1.0 10000.0    3.00     45.
  1100.    10.61        6     1.0    1.0 10000.0    3.00     45.
  1200.    9.874        6     1.0    1.0 10000.0    3.00     45.
  1300.    9.227        6     1.0    1.0 10000.0    3.00     45.
```

				SCREEN			
1400.	8.653	6	1.0	1.0	10000.0	3.00	45.
1500.	8.136	6	1.0	1.0	10000.0	3.00	45.
1600.	7.670	6	1.0	1.0	10000.0	3.00	45.
1700.	7.246	6	1.0	1.0	10000.0	3.00	45.
1800.	6.859	6	1.0	1.0	10000.0	3.00	45.
1900.	6.503	6	1.0	1.0	10000.0	3.00	44.
2000.	6.183	6	1.0	1.0	10000.0	3.00	45.
2100.	5.897	6	1.0	1.0	10000.0	3.00	44.
2200.	5.638	6	1.0	1.0	10000.0	3.00	45.
2300.	5.397	6	1.0	1.0	10000.0	3.00	45.
2400.	5.172	6	1.0	1.0	10000.0	3.00	44.
2500.	4.960	6	1.0	1.0	10000.0	3.00	45.
2600.	4.762	6	1.0	1.0	10000.0	3.00	44.
2700.	4.576	6	1.0	1.0	10000.0	3.00	45.
2800.	4.401	6	1.0	1.0	10000.0	3.00	44.
2900.	4.237	6	1.0	1.0	10000.0	3.00	45.
3000.	4.084	6	1.0	1.0	10000.0	3.00	44.
3500.	3.466	6	1.0	1.0	10000.0	3.00	45.
4000.	2.987	6	1.0	1.0	10000.0	3.00	45.
4500.	2.607	6	1.0	1.0	10000.0	3.00	42.
5000.	2.301	6	1.0	1.0	10000.0	3.00	44.
5500.	2.051	6	1.0	1.0	10000.0	3.00	44.
6000.	1.843	6	1.0	1.0	10000.0	3.00	41.
6500.	1.668	6	1.0	1.0	10000.0	3.00	38.
7000.	1.520	6	1.0	1.0	10000.0	3.00	45.
7500.	1.397	6	1.0	1.0	10000.0	3.00	45.
8000.	1.291	6	1.0	1.0	10000.0	3.00	35.
8500.	1.198	6	1.0	1.0	10000.0	3.00	39.
9000.	1.116	6	1.0	1.0	10000.0	3.00	43.
9500.	1.043	6	1.0	1.0	10000.0	3.00	43.
10000.	0.9781	6	1.0	1.0	10000.0	3.00	32.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:

191.	34.03	6	1.0	1.0	10000.0	3.00	45.

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

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	34.03	191.	0.

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