January 2018 | Air Quality and Greenhouse Gas Emissions Technical Memorandum

Van Ness Avenue Well Field Project

Torrance, California

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1. Introduction

This Technical Memorandum evaluates the potential air quality and greenhouse gas (GHG) emissions impacts from development of the proposed Descanso/Van Ness Avenue Water Mains project in accordance with the California Environmental Quality Act (CEQA). The analysis evaluates the potential impacts from construction and operation activities associated with the pipeline and well improvements compared to the significance criteria adopted by the South Coast Air Quality Management District (SCAQMD).

1.1 MODELING METHODOLOGY

Pollutant emissions from project-related construction activities are calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. CalEEMod compiles a construction emissions inventory consisting of fugitive dust, off-gas emissions, and on-road and off-road vehicle emissions. Construction data was provided by Quantum Consulting, Inc. and the City of Torrance. Modeling datasheets for the project can be found in the Appendix.

1.2 PROJECT DESCRIPTION

The proposed project would result in the installation of three new water wells and approximately 4.0 miles of water transmission lines. The new well sites would be on City-owned property—Site 1 (Well No. 12) is on 185th Street west of Purche Avenue; Site 2 (Well No. 13) is at the extreme west end of La Carretera Park, at 2040 186th Street; and Site 3 (Well No. 14) is in Descanso Park. A new water well would be required to be drilled at each of the three sites. Drilling operations would be continuous 24-hour operations and well construction would occur at one site at a time. Upon completion of the drilling operations at each site, an electric pump would be installed and would be enclosed in a structure.

The project also includes construction of new storm drain piping—a new 16- to 24-inch plastic discharge (storm drain) pipeline from Site 1 to Site 3 and from Site 3 to an existing City storm drain in Border Avenue north of Plaza Del Amo. Additionally, a 12-inch pipe would connect Site 2 to the 24-inch pipe in Van Ness Avenue. The City of Torrance also requested additional work items at well Site 2, at the east edge of La Carretera Park, that could generate construction-related air quality emissions. These additional items include resurfacing the existing basketball court, fence reconstruction, replacing the existing play equipment and lighting, installation of additional lighting, and paving the walking trail around park. The new water transmission lines would bring fresh well water to the City's existing reservoir and booster pump station at 2223 Border Avenue. The water transmission line improvements would be within the existing right-of-way.

Residential land uses are adjacent to the City properties (Sites 1, 2, and 3) and along the transmission route. Other sensitive receptors proximate to the City properties and along the transmission route include parks and schools (e.g., La Carretera Park, Descanso Park, Torrance Adult School).

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2.1 AIR QUALITY

2.1.1 Federal and State Laws

Ambient air quality standards (AAQS) have been adopted and are periodically updated at state and federal levels for criteria air pollutants. In addition, both the state and federal governments regulate the release of toxic air contaminants (TACs). The project site is within the South Coast Air Basin (SoCAB). Land use is subject to the rules and regulations imposed by the South Coast Air Quality Management District (SCAQMD), the California AAQS adopted by the California Air Resources Board (CARB), and National AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

2.1.1.1 AMBIENT AIR QUALITY STANDARDS

The Clean Air Act was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollutants. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

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Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which 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 greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016a.
Notes: ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, 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.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. 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.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

2.1.1.2 TANNER AIR TOXICS ACT AND AIR TOXICS “HOT SPOT” INFORMATION AND ASSESSMENT ACT

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and to reduce exposure to them. The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health” (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. Code § 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate "toxics best available control technology" to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10, § 2485**, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **13 CCR Chapter 10, § 2480**, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **13 CCR § 2477 and Article 8**, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

2.1.2 Air Pollutants of Concern

2.1.2.1 CRITERIA AIR POLLUTANTS

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that AAQS have been established for them. VOC and NOx are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Each of the primary and secondary criteria air pollutants and its known health effects is described here.

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2017a). The SoCAB is designated in attainment of CO criteria levels under the California and National AAQS (CARB 2016b).

- **Volatile Organic Compounds** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (SCAQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O_3, SCAQMD has established a significance threshold (see Section 4, *Thresholds of Significance*).

- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NOx are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NOx produced by combustion is NO, but NO reacts quickly with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NOx. NO_2 is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; USEPA 2017). The SoCAB is designated an attainment area for NO_2 under the National and California AAQS (CARB 2016b).

- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SOx). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO_2 may do greater

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harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (SCAQMD 2005; USEPA 2017). The SoCAB is designated attainment for SO_2 under the California and National AAQS (CARB 2016b).

- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that PM2.5, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (SCAQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), have human health implications, because ultrafine particulates' toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA and CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3] (SCAQMD 2005; USEPA 2017). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2016b).

- **Ozone** is commonly referred to as "smog" and is a gas that is formed when VOCs and NOx, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight; therefore, it is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness

1 $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.
2 Particulate matter can be carried over long distances by wind and settle on ground or water, making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, and affecting the diversity of ecosystems.
3 Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

areas. In particular, O_3 harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2017a). The SoCAB is designated extreme nonattainment under the California AAQS (1 hour and 8 hour) and National AAQS (8 hour) (CARB 2016b).

- **Lead** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAMQD 2005; USEPA 2017a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[4] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2016b). Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the project.

2.1.2.2 TOXIC AIR CONTAMINANTS

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

[4] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012).

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Community Risk

To reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when siting sensitive receptors near existing pollution sources. CARB's recommendations were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity substantially increases exposure and the potential for adverse health effects. Three carcinogenic TACs constitute the majority of the known health risks from motor vehicle traffic—DPM from trucks and benzene and 1,3 butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

2.1.3 Air Quality Management Planning

SCAQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2.1.3.1 2016 AQMP

The 2016 AQMP was adopted by the SCAQMD Board on March 3, 2017, and serves as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 federal 8-hour ozone standard by 2031
- 2012 federal annual PM2.5 standard by 2025
- 2006 federal 24-hour PM2.5 standard by 2019
- 1997 federal 8-hour ozone standard by 2023
- 1979 federal 1-hour ozone standard by year 2022

It is projected that total NOx emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (SCAQMD 2017a), which requires reducing NOx emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard. Reducing NOx emissions would also reduce $PM_{2.5}$ concentrations within the SoCAB. However, as the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, SCAQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (SCAQMD 2017a).

2.1.3.2 LEAD STATE IMPLEMENTATION PLAN

In 2008 the EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

2.1.3.3 SCAQMD RULES AND REGULATIONS

All projects are subject to SCAQMD rules and regulations in effect at the time of activity, including:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of visible pollutant emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions that result in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

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

- **Rule 1113, Architectural Coatings.** This rule limits the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

2.2 GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[5,6] The major GHGs are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

  - ***Chlorofluorocarbons (CFCs)*** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper

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5 Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, because it is considered part of the feedback loop rather than a primary cause of change.

6 Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not include black carbon yet due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

atmosphere where, given suitable conditions, they break down the ozone layer. These gases are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with hydrofluorocarbons (HFCs), to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high GWP.
- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, and slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs. (IPCC 1995; USEPA 2017b)

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 2, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 250 MT of CO_2.[7]

[7] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 2 GHG Emissions and their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to $CO_2$1	Fourth Assessment Report Global Warming Potential Relative to $CO_2$1
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_2O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Source: IPCC 1995, IPCC 2007.
Note: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in the Fourth Assessment Report are used by SCAQMD to maintain consistency in statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on the GWP values in the Fourth Assessment Report.
[1] Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
[2] The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

2.2.1 Federal GHG Emissions Laws

The EPA announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements, but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per SCAQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

2.2.1.1 US MANDATORY REPORT RULE FOR GHGS (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2e per year are required to submit an annual report.

2.2.1.2 UPDATE TO CORPORATE AVERAGE FUEL ECONOMY STANDARDS (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025. However, the EPA is reexamining the 2017–2025 emissions standards.

2.2.1.3 EPA REGULATION OF STATIONARY SOURCES UNDER THE CLEAN AIR ACT (ONGOING)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the President's 2013 Climate Action Plan, the EPA will be directed to develop regulations for existing stationary sources also. However, the EPA is reviewing the Clean Power Plan under President Trump's Energy Independence Executive Order.

2.2.2 State GHG Emissions Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Orders S 03 05 and B 30 15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and SB 375.

2.2.2.1 EXECUTIVE ORDER S-03-05

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for the state:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

2.2.2.2 ASSEMBLY BILL 32, THE GLOBAL WARMING SOLUTIONS ACT (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31,

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2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

2008 Scoping Plan

The 2008 Scoping Plan was adopted by CARB on December 11, 2008. The 2008 Scoping Plan identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the state (CARB 2008). In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

In 2014, CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The final Update to the Scoping Plan was released in May, and CARB adopted it at the May 22, 2014, board hearing. The Update to the Scoping Plan defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in Executive Orders S-03-05 and B-16-2012. The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants. The GHG target identified in the 2008 Scoping Plan is based on the IPCC GWPs from the Second and Third Assessment Reports (see Table 2). IPCC's Fourth and Fifth Assessment Reports identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with the updated GWPs in the Fourth Assessment Report, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher, at 431 $MMTCO_2e$ (CARB 2014).

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update also addresses the state's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals. CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014).

2.2.2.3 EXECUTIVE ORDER B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal of Executive Order B-30-15 as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, "Safeguarding California," in order to ensure climate change is accounted for in state planning and investment decisions.

2.2.2.4 SENATE BILL 32 AND ASSEMBLY BILL 197

In September 2016, Governor Brown signed Senate Bill 32 and Assembly Bill 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. In November 2017, CARB released the final 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017b).

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

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks;
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.

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- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 3, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 50 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 3 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	398
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target	60

Source: CARB 2017b.

Table 4, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 4 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 $MMTCO_2e$	2030 Proposed Plan Ranges $MMTCO_2e$	% Change from 1990
Agricultural	26	24-25	-4% to -8%
Residential and Commercial	44	38-40	-9% to -14%
Electric Power	108	30-53	-51% to -72%
High GWP	3	8-11	167% to 267%
Industrial	98	83-93	-8% to -15%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-27% to -32%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-21% to -32%
Cap-and-Trade Program	NA	40-85	NA
Total	431	260	-40%

Source: CARB 2017b.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

2.2.2.5 SENATE BILL 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH4. Black carbon is the light-absorbing component of fine particulate matter (PM) produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On March 14, 2017, CARB adopted the Final Proposed Short-Lived Climate Pollutant Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017b). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. SCAQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these charbroilers by over 80 percent (CARB 2017a). Additionally, SCAQMD Rule 445, Wood-Burning Devices, limits installation of new fireplaces in the SoCAB.

2.2.2.6 SB 375, SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT

In 2008, the Sustainable Communities and Climate Protection Act was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled (VMT) and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). SB 375 requires CARB to periodically update the targets, no later than every 8 years. In August 2014, CARB staff released a preliminary draft staff report on the status of SB 375 efforts and factors that CARB could consider during development of the methodology to update the targets. In March 2017, CARB held a series of workshops regarding the SB 375 target update process, and updated targets adopted in 2017 are intended to become effective in 2018. Sustainable communities strategies adopted in 2018 would be subject to the updated targets (CARB 2015).

The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update (for SB 32), while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005; this excludes reductions anticipated from implementation of State technology and fuels strategies, and any potential future State strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels contained in the MPOs' currently adopted Sustainable Community Strategies (SCSs, discussed below) to achieve the SB 375 targets. As proposed, CARB staff's proposed targets would result in an additional reduction of over 10 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 21 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent). CARB anticipates adoption of the updated targets and methodology in 2018 and subsequent SCSs adopted afterwards would be subject to these new targets (CARB 2017c).

SCAG 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

SB 375 requires the MPOs to prepare a sustainable communities strategy in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year-2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents an additional 2 percent of reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies that will achieve the aforementioned regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016). However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

2.2.2.7 ASSEMBLY BILL 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the CAFE standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced

Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

2.2.2.8 EXECUTIVE ORDER S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold within the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

2.2.2.9 EXECUTIVE ORDER B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

2.2.2.10 SENATE BILLS 1078,107, X1-2, AND EXECUTIVE ORDER S-14-08

A major component of California's Renewable Energy Program is the renewable portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SBX1-2). The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

2.2.2.11 SENATE BILL 350

Senate Bill 350 (de Leon), signed into law September 2015, establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

2.2.2.12 CALIFORNIA BUILDING CODE: BUILDING ENERGY EFFICIENCY STANDARDS

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017.

The 2016 Standards continues to improve upon the previous 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. Under the 2016 Standards, residential and nonresidential buildings are 28 and 5 percent more energy efficient than the 2013 Standards, respectively (CEC 2015a). Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the prior 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features. While the 2016 standards do not achieve zero net energy, they do get very close to the state's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for newly constructed residential buildings throughout California (CEC 2015b).

2.2.2.13 CALIFORNIA GREEN BUILDING CODE

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[8] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, and were last updated in 2016. The 2016 Standards became effective on January 1, 2017.

2.2.2.14 2006 APPLIANCE EFFICIENCY REGULATIONS

The 2006 Appliance Efficiency Regulations (Title 20, CCR §§ 1601 through 1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

2.2.2.15 SOLID WASTE REGULATIONS

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills

[8] The green building standards became mandatory in the 2010 edition of the code.

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by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

The California Solid Waste Reuse and Recycling Access Act (AB 1327, California Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2013 California Green Building Standards Code (Title 24, California Code of Regulations, Part 11) also requires that at least 50 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014 Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

2.2.2.16 WATER EFFICIENCY REGULATIONS

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the Energy Commission, in consultation with the department, to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

2. Regulatory Setting

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3. Environmental Setting

3.1 SOUTH COAST AIR BASIN

The project site lies within the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is a coastal plain with connecting broad valleys and low hills. The SoCAB is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

3.1.1 Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the Torrance Monitoring Station (ID No. 048973). The lowest average temperature is reported at 44.3°F in January, and the highest average temperature is 78.6°F in August (WRCC 2017).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall historically averages 13.55 inches per year in the project area (WRCC 2017).

3.1.2 Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

3.1.3 Wind

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

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 2005).

3.1.4 Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (SCAQMD 2005).

3.2 SOCAB AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data is incomplete and does not support a designation of attainment or nonattainment.
- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.
- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.
- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 5, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB is designated nonattainment for lead (Los Angeles County only) under the National AAQS.

Table 5 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment[1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2016b.
1 SCAQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under federal $PM_{2.5}$ standard.
2 In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas within the SoCAB are unclassified.

3.3 MULTIPLE AIR TOXICS EXPOSURE STUDY (MATES)

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk (SCAQMD 2008a).

SCAQMD recently released another update of MATES (MATES IV). The results showed that the overall monitored risk for excess cancer decreased to approximately 418 in one million (SCAQMD 2015a). Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources, and 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor was diesel exhaust, accounting for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and an associated decrease in air toxics exposure. As a result, the estimated basinwide population-weighted risk decreased by approximately 57 percent compared to the analysis done for the MATES III time period (SCAQMD 2015a).

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015a).

3.4 EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site and project area are best documented by measurements made by SCAQMD. The project site is in Source Receptor Area (SRA) 3 – Southwest Coastal Los Angeles County. The air quality monitoring station closest to the project site is the Compton-700 North Bullis Road Monitoring Station. This station does not have information for CO and PM10, so the information for this criteria air pollutant was obtained from the Los Angeles—Westchester Parkway Monitoring Station. Data from these stations are summarized in Table 6, *Ambient Air Quality Monitoring Summary*. The data show that the concentration levels of O_3 and $PM_{2.5}$ of the area regularly exceed the state and federal one-hour and eight-hour O3 standards as well as the federal $PM_{2.5}$ standards. The CO, SO_2, PM_{10} and NO_2 standards have not been exceeded in the last five years in the project vicinity.

Table 6 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2011	2012	2013	2014	2015
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm	0	0	0	0	0
State 8-hour ≥ 0.07 ppm	0	0	1	2	0
Federal 8-Hour > 0.075 ppm	0	0	1	4	1
Max. 1-Hour Conc. (ppm)	0.082	0.086	0.090	0.094	0.091
Max. 8-Hour Conc. (ppm)	0.065	0.070	0.080	0.081	0.072
Carbon Monoxide (CO)[2]					
State 8-Hour > 9.0 ppm	0	0	*	*	*
Federal 8-Hour ≥ 9.0 ppm	0	0	*	*	*
Max. 8-Hour Conc. (ppm)	4.67	3.96	*	*	*
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	75	79	69	68	73
Sulfur Dioxide (SO_2)[1]					
State 1-Hour ≥ 0.04 ppm	0	0	0	*	*
Federal 24-Hour ≥ 0.14 ppm	0	0	0	*	*
Max. 1-Hour Conc. (ppm)	0.002	0.002	0.002	*	*
Coarse Particulates (PM_{10})[1]					
State 24-Hour > 50 µg/m³	0	0	0	0	0
Federal 24-Hour > 150 µg/m³	0	0	0	0	0
Max. 24-Hour Conc. (µg/m³)	41	30	37	45	42
Fine Particulates ($PM_{2.5}$)[2]					
Federal 24-Hour > 35 µg/m³	0	1	1	1	3
Max. 24-Hour Conc. (µg/m³)	35.3	51.2	52.1	35.8	41.3

Source: CARB 2017d.
Notes: CO and PM_{10} were based on data from the Los Angeles—Westchester Parkway Monitoring Station. NO_2, O_3, SO_2, and $PM_{2.5}$ was based on data from the Compton – 700 North Bulls Road Monitoring Station.
ppm: parts per million; $\mu g/m^3$: or micrograms per cubic meter.
* Data not available.

3.5 EXISTING EMISSIONS

The existing wells and pipelines currently do not generate criteria air pollutant and greenhouse gas emissions from daily operations.

3.6 SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

The nearest sensitive receptors include the single-family residential receptors along 185th Street, 186th Street, Casimir Avenue, and Van Ness Avenue, as well as non-residential receptors adjacent to Van Ness Avenue and Border Avenue.

3. Environmental Setting

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4. Thresholds of Significance

4.1 AIR QUALITY

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[9] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the SCAQMD thresholds, projects are also subject to the AAQS. AAQS are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

4.1.1 Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 7, *SCAQMD Regional Significance Thresholds*, lists these thresholds.

Table 7 SCAQMD Regional Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: SCAQMD 2015b.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)

[9] SCAQMD's Air Quality Significance Thresholds can be found here: http://www.aqmd.gov/ceqa/hdbk.html.

4. Thresholds of Significance

- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (SCAQMD 2015c)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, a landmark children's health study by University of Southern California scientists found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (SCAQMD 2015d).

Mass emissions in Table 7 contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. The analysis to determine how exceeding the regional thresholds would affect the number of days the region is in non-attainment is within the scope of the AQMP and not within the scope of an individual project. SCAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals under elevated air quality concentrations in the SoCAB. To achieve the health-based standards established by the EPA, SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements (Caltrans 1997). However, at the time of the 1993 SCAQMD *Handbook*, the SoCAB was designated nonattainment under the California AAQS and National AAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

4.1.2 Localized Significance Thresholds

SCAQMD identifies localized significance thresholds (LSTs), shown in Table 8, *SCAQMD Localized Significance Thresholds. Emissions* of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site (off-site mobile-source emissions are not included in the LST analysis) could expose sensitive receptors to substantial concentrations of criteria air pollutants. LSTs are based on the California AAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated to protect those sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. A project that generates emissions that trigger a violation of the AAQS when added to the local background concentrations would generate a significant impact.

Table 8 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 $\mu g/m^3$
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 $\mu g/m^3$
Annual Average PM_{10} Standard (SCAQMD)[1]	1.0 $\mu g/m^3$

Source: SCAQMD 2015b.
ppm – parts per million; $\mu g/m^3$ – micrograms per cubic meter
[1] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated on-site that would trigger the levels shown in Table 8 for projects under five acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, screening-level LST tables can be used as screening criteria for larger projects to determine whether dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentration thresholds shown in Table 8.

In accordance with SCAQMD's LST methodology, screening-level construction LSTs are based on the acreage disturbed per day based on equipment use, the distance to the nearest receptor, and the SRA. The screening-level construction LSTs for the project site in SRA 3 are shown in Table 9, *SCAQMD Screening-Level Construction Localized Significance Thresholds*, for sensitive and non-sensitive receptors at 82 feet (25 meters).

Table 9 SCAQMD Screening-Level Localized Significance Thresholds

	Threshold (lbs/day)			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
Construction Phase				
≤1.13 acres disturbed per day	96	702	5.37	3.25
≤2.25- acres disturbed per day	137	1,034	8.58	5.25

Source: SCAQMD 2008b. SCAQMD 2011.
Note: LSTs are based on residential and non-residential receptors within 82 feet (325 meters) of the project site in SRA 3.

4.1.3 Health Risk

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, the Air Contaminant Identification and Control Act (1983), or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by SCAQMD. Table 10, *SCAQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists SCAQMD's TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project (California Building Industry Association v. Bay Area Air Quality Management District [2015] 62 Cal.4th 369 [Case No. S213478]). CEQA does not require an analysis of the proposed project's environmental effects on potential future sensitive receptors at a project site. However, the environmental document must analyze the impacts of environmental hazards on future users when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, school, and office uses do not use substantial quantities of TACs, and these thresholds are typically applied to new industrial projects.

Table 10 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Cancer Burden (in areas ≥ 1 in 1 million)	> 0.5 excess cancer cases
Hazard Index (project increment)	≥ 1.0

Source: SCAQMD 2015a.

4.2 GREENHOUSE GAS EMISSIONS

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, the SCAQMD Working Group identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD identified a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects.

These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.
- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

SCAQMD has identified an efficiency target for projects that exceed the screening threshold, which is a 2020 efficiency target of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.[10] Service population is defined as the sum of the residential and employment population of a project. The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[11]

The buildout year of the project would be prior to the AB 32 year of 2020. For the purpose of this project, if project-related emissions exceed the screening threshold of 3,000 $MTCO_2e$ per year, project emissions would be compared to the per capita target of 4.8 $MTCO_2e$ per year per service population. If projects exceed the thresholds, GHG emissions would be considered potentially significant in the absence of mitigation measures.

[10] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this meeting.

[11] SCAQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

4. Thresholds of Significance

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5. Environmental Impacts

5.1 AIR QUALITY IMPACTS

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 applicable air quality plan?

Less Than Significant Impact. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration at an early enough stage to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals in the AQMP. The most recent adopted comprehensive plan is the 2016 AQMP, adopted on March 3, 2017.

Regional growth projections are used by SCAQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by the Southern California Association of Governments (SCAG) and are partially based on land use designations in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections. The proposed project is not considered a regionally significant project that would warrant Intergovernmental Review by SCAG under CEQA Guidelines section 15206. The proposed project involves construction of approximately 4.0 miles of pipeline and 3 wells in the City of Torrance. It would not have the potential to substantially affect housing, employment, or population projections within the SCAG region. The regional emissions generated by the construction and operation of the proposed project would be less than the SCAQMD emissions thresholds (see 'b', below). Therefore, the project would not be considered by SCAQMD to be a substantial source of air pollutant emissions and would not conflict or obstruct implementation of the regional air quality management plans.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. The following describes project-related impacts from short-term construction activities and long-term operation of the proposed project.

Short-Term Air Quality Impacts

Construction activities would result in the generation of air pollutants. These emissions would primarily be 1) exhaust emissions from off-road diesel-powered construction equipment; 2) dust generated by grading, earthmoving, and other construction activities; and 3) exhaust emissions from on-road vehicles.

5. Environmental Impacts

Construction at the project site would involve demolition, site preparation, trenching, and construction of the proposed pipelines and wells. Overall, construction activities are anticipated to start in February 2018 and would take approximately 7 months. Construction emissions were estimated with CalEEMod based on the project's preliminary construction information. Results of the construction emission modeling in Table 11, *Maximum Daily Regional Construction Emissions*. show that air pollutant emissions from construction-related activities would be less than their respective SCAQMD regional significance threshold values.

Table 11 Maximum Daily Regional Construction Emissions

Source	Criteria Air Pollutants (lbs/day)[1,2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2018 Demolition + Demo Haul + Site Prep	3	26	18	<1	5	2
2018 Trenching + Construction	5	50	40	<1	4	3
2018 All Phases	8	76	59	<1	8	4
Total Maximum Daily	8	76	59	<1	8	4
SCAQMD Regional Threshold	75	100	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No

Source: CalEEMod, version 2016.3.1.
Notes: Totals may not equal 100 percent due to rounding. Based on highest winter or summer emissions.
1 Construction phasing and the anticipated construction equipment are based on the preliminary information provided by the Applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
2 Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Long-Term Operation-Related Air Quality Impact

The proposed project would provide infrastructure improvements that involves the installation of pipelines, wells, electric pumps, and housing structures for the pumps. Based on the planned improvements, operation of the proposed infrastructure is anticipated to generate minimal to no emissions of criteria air pollutants. Therefore, it is not anticipated that the proposed project would exceed the SCAQMD's regional emissions thresholds for operational activities.

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

Less Than Significant. The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS, nonattainment for PM_{10} under the California AAQS, and nonattainment for lead under the National AAQS (CARB 2016b). According to SCAQMD methodology, any project that does not exceed or can be mitigated to less than the daily threshold values would not add significantly to a cumulative impact (SCAQMD 1993). As discussed above in Section 5.1.b, construction and operational activities associated with the proposed project would not result in emissions in excess of SCAQMD's significant thresholds. Therefore, the project would not result in a cumulatively considerable net increase in criteria pollutants.

d. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The proposed project could expose sensitive receptors to elevated pollutant concentrations if it would cause or contribute significantly to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

Construction

Localized Significance Thresholds

Air pollutant emissions generated by construction activities are anticipated to cause temporary increases in air pollutant concentrations at the nearby sensitive receptors. As stated, the nearest sensitive receptors include the single-family residential receptors along 185th Street, 186th Street, Casimir Avenue, and Van Ness Avenue, as well as non-residential receptors adjacent to Van Ness Avenue and Border Avenue. Table 12, *Localized Construction Emissions*, shows the maximum daily emissions (lbs. per day) generated by on-site construction activities compared with the SCAQMD's screening-level construction LSTs. As shown in the table, the maximum daily NOx, CO, PM_{10} and $PM_{2.5}$ emissions generated from on-site construction-related activities would be less than their respective SCAQMD screening-level construction LSTs. Therefore, project-related construction activities would not have the potential to expose sensitive receptors to substantial pollutant concentrations.

Table 12 Localized Construction Emissions

Source	Pollutants(lbs/day)[1,2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2018 Demolition + Haul + Site Prep	19	12	2.78	1.31
2018 Trenching + Construction	46	31	2.32	2.18
SCAQMD ≤1.13-acre LST	96	702	5.37	3.25
Exceeds LST?	No	No	No	No
2018 All Phases Total	65	43	5.10	3.49
SCAQMD ≤2.25-acre LST	137	1,034	8.58	5.25
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.1; SCAQMD 2011; and SCAQMD 2008.
Notes: LSTs are based on residential and nonresidential receptors within 82 feet (25 meters) in SRA 3. In accordance with SCAQMD methodology, only on-site stationary sources and on-site mobile equipment are included in the analysis.
1 Air quality modeling based on construction information provided by the Applicant. Where specific construction information was not available, construction assumptions were based on CalEEMod defaults.
2 Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Health Risk

Construction activities would result in short-term emissions of diesel particulate matter (DPM), which is a TAC. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during site preparation, grading, and other construction activities. Health risk assessment is based on risk accumulated over a 70-year lifetime.

5. Environmental Impacts

SCAQMD currently does not require health risk assessments to be conducted for short-term emissions from construction equipment. Emissions from construction equipment primarily consist of DPM. The Office of Environmental Health Hazards Assessment (OEHHA) adopted guidance for the preparation of health risk assessments in March 2015. OEHHA has developed a cancer risk factor and non-cancer chronic reference exposure level for DPM, but these factors are based on continuous exposure over a 30-year time frame. No short-term acute exposure levels have been developed for DPM. Nevertheless, the proposed project would be developed in approximately 7 months, which is less than the 30-year exposure period for DPM and risk accumulated over a 70-year lifetime, and would limit the exposure to on-site and off-site receptors. In addition, construction activities would not exceed screening-level LST significance thresholds. For the reasons stated above, it is anticipated that construction emissions would not pose a threat to sensitive receptors.

Operational

Localized Significance Thresholds

Operation of the proposed project would not generate substantial emissions from on-site, stationary sources. The proposed project involves the construction of wells and water pipelines, and would generate minimal criteria air pollutant emissions associated with the operation of electric well pumps. Additionally, land uses that have the potential to generate substantial stationary-source emissions would require a permit from SCAQMD and include industrial land uses such as chemical processing and warehousing operations where substantial truck idling could occur on-site. The proposed project does not fall within this category of uses. Thus, it is anticipated that operation of the proposed infrastructure improvements would not exceed the SCAQMD LSTs and would not have the potential to expose sensitive receptors to substantial pollutant concentrations.

Carbon Monoxide Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by SCAQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.[12] As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not of congestion at a particular

[12] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air do not mix—in order to generate a significant CO impact (BAAQMD 2017). Based on the nature of the proposed infrastructure improvement project, it is not anticipated that it would generate operational vehicle trips Therefore, the proposed project would not produce the volume of traffic required to generate a CO hotspot.

e. Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project would result in the installation of water pipelines, wells, and electric pumps and would not result in the types of odors generated by the aforementioned land uses. Emissions from construction equipment, such as diesel exhaust, and volatile organic compounds from architectural coatings and paving activities may generate odors. However, these odors would be low in concentration, temporary, and are not expected to affect a substantial number of people.

5.2 GREENHOUSE GAS EMISSIONS IMPACTS

This section analyzes the project's contribution to global climate change impacts in California through an analysis of project-related GHG emissions. Information on manufacture of cement, steel, and other "life cycle" emissions that would occur as a result of the project are not applicable and are not included in the analysis.[13] Black carbon emissions are not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32 inventory and treats this short-lived climate pollutant separately.[14]

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. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

[13] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

[14] Particulate matter emissions, which include black carbon, are analyzed under Section 5.1, *Air Quality Impacts*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The state's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017a).

5. Environmental Impacts

Less Than Significant Impact. Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

The proposed project would generate GHG emissions from construction of approximately 4.0 miles of pipeline and 3 wells. GHG emissions generated from construction were calculated for the project, amortized over 30 years, and included in the emissions inventory to account for GHG emissions from the construction phase of the project. Operational emissions would be nominal, because electric pumps associated with the wells would not generate a substantial amount of greenhouse gases. Project-related GHG emissions are shown in Table 13, *Project-Related GHG Emissions*. As shown in the table, the construction activities associated with the proposed project would generate a total of 1,219 $MTCO_2e$ of GHG emissions or 41 $MTCO_2e$ per year when amortized over 30 years per SCAQMD methodology (SCAQMD 2010). Overall, the total GHG emissions generated from the proposed project would not exceed SCAQMD Working Group's bright-line threshold of 3,000 $MTCO_2e$.

Table 13 Project-Related GHG Emissions

Source	GHG MTons/Year
2018 Construction Emissions[1]	1,219
Amortized Construction Emissions[2]	41
Bright-Line Threshold	3,000
Exceeds Bright-Line Threshold	No

Source: CalEEMod, Version 2016.3.1.
Notes: MTons: metric tons
[1] CalEEMod calculated emissions associated with the Well Construction phase are multiplied by three as development of the three well sites would require the same construction processes.
[2] Total construction emissions are amortized over 30 years per recommended SCAQMD methodology (SCAQMD 2010).

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. Plans adopted for the purposes of reducing GHG emissions include CARB's Scoping Plan and SCAG's 2016-2040 RTP/SCS. CARB's Scoping Plan is California's GHG reduction strategy to achieve the state's GHG emissions reductions targets established in AB 32 and SB 32. The 2016-2040 RTP/SCS outlines an integrated approach between the development pattern for the region in addition to the transportation network to reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources. Due to the nature of the proposed project that would primarily involve water pipeline infrastructure improvements, it is not anticipated that it would have the potential to interfere or obstruct implementation of the CARB Scoping Plan or the 2016-2040 RTP/SCS.

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Appendix. Air Quality & Greenhouse Gas Modeling

Appendix

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Regional Construction Emissions Worksheet

Demo Haul - Winter

		2018	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite								
	Fugitive Dust						1.6654	0.2522
	Off-Road		0	0	0	0.00E+00	0	0
	Total		**0**	**0**	**0**	**0.00E+00**	**1.6654**	**0.2522**
Offsite								
	Hauling		0.1477	4.864	1.0496	1.12E-02	0.2374	0.0774
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0	0	0	0.00E+00	0	0
	Total		**0.1477**	**4.864**	**1.0496**	**1.12E-02**	**0.2374**	**0.0774**
TOTAL			***0.1477***	***4.8640***	***1.0496***	***0.0112***	***1.9028***	***0.3296***

Demo Haul - Summer

		2018	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite								
	Fugitive Dust						1.6654	0.2522
	Off-Road		0	0	0	0	0	0
	Total		0	0	0	0	1.6654	0.2522
Offsite								
	Hauling		0.1431	4.8231	0.964	1.14E-02	0.237	0.077
	Vendor		0	0	0	0.00E+00	0	0
	Worker		0	0	0	0.00E+00	0	0
	Total		**0.1431**	**4.8231**	**0.964**	**1.14E-02**	**0.237**	**0.077**
TOTAL			***0.1431***	***4.8231***	***0.9640***	***0.0114***	***1.9024***	***0.3292***
	Maximum		**0.1477**	**4.8640**	**1.0496**	**0.0114**	**1.9028**	**0.3296**

Demolition - Winter

		2018	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite								
	Off-Road		1.1293	11.7421	5.223	9.29E-03	0.6112	0.5634
	Total		**1.1293**	**11.7421**	**5.223**	**9.29E-03**	**0.6112**	**0.5634**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		0.0288	0.737	0.221	1.54E-03	0.0412	0.0155
	Worker		0.2854	0.2268	2.4107	6.00E-03	0.5304	0.1448
	Total		**0.3142**	**0.9638**	**2.6317**	**7.54E-03**	**0.5716**	**0.1603**
TOTAL			***1.4435***	***12.7059***	***7.8547***	***0.0168***	***1.1828***	***0.7237***

Demolition - Summer

		2018	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite								
	Off-Road		1.1293	11.7421	5.223	9.29E-03	0.6112	0.5634
	Total		**1.1293**	**11.7421**	**5.223**	**9.29E-03**	**0.6112**	**0.5634**
Offsite								
	Hauling		0	0	0	0.00E+00	0	0
	Vendor		0.0276	0.7354	0.2011	1.59E-03	0.0411	0.0154
	Worker		0.2534	0.2047	2.6493	6.38E-03	0.5304	0.1448
	Total		**0.281**	**0.9401**	**2.8504**	**7.97E-03**	**0.5715**	**0.1602**
TOTAL			***1.4103***	***12.6822***	***8.0734***	***0.0173***	***1.1827***	***0.7236***
	Maximum		**1.4435**	**12.7059**	**8.0734**	**0.0173**	**1.1828**	**0.7237**

Site Preparation - Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0	0
	Off-Road		0.9429	7.2641	6.5879	1.06E-02	0.5041	0.4929
	Total		**0.9429**	**7.2641**	**6.5879**	**1.06E-02**	**0.5041**	**0.4929**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0288	0.737	0.221	1.54E-03	0.0412	0.0155
	Worker		0.2854	0.2268	2.4107	6.00E-03	0.5304	0.1448
	Total		**0.3142**	**0.9638**	**2.6317**	**7.54E-03**	**0.5716**	**0.1603**
TOTAL			***1.2571***	***8.2279***	***9.2196***	***0.0181***	***1.0757***	***0.6532***

Site Preparation - Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Fugitive Dust						0	0
	Off-Road		0.9429	7.2641	6.5879	1.06E-02	0.5041	0.4929
	Total		**0.9429**	**7.2641**	**6.5879**	**1.06E-02**	**0.5041**	**0.4929**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0276	0.7354	0.2011	1.59E-03	0.0411	0.0154
	Worker		0.2534	0.2047	2.6493	6.38E-03	0.5304	0.1448
	Total		**0.281**	**0.9401**	**2.8504**	**7.97E-03**	**0.5715**	**0.1602**
TOTAL			***1.2239***	***8.2042***	***9.4383***	***0.0186***	***1.0756***	***0.6531***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Maximum	1.2571	8.2279	9.4383	0.0186	1.0757	0.6532

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Winter 2017 Demo + Haul	***2.8483***	***25.7978***	***18.1239***	***0.0462***	***4.1613***	***1.7065***
Summer 2017 Demo + Haul	***2.7773***	***25.7095***	***18.4757***	***0.0472***	***4.1607***	***1.7059***

Utility Trenching - Winter

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		0.8611	7.5803	7.1905	1.15E-02	0.4662	0.446
	Total		**0.8611**	**7.5803**	**7.1905**	**1.15E-02**	**0.4662**	**0.446**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0288	0.737	0.221	1.54E-03	0.0412	0.0155
	Worker		0.2854	0.2268	2.4107	6.00E-03	0.5304	0.1448
	Total		**0.3142**	**0.9638**	**2.6317**	**7.54E-03**	**0.5716**	**0.1603**
TOTAL			***1.1753***	***8.5441***	***9.8222***	***0.0190***	***1.0378***	***0.6063***

Utility Trenching - Summer

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2018**						
	Off-Road		0.8611	7.5803	7.1905	1.15E-02	0.4662	0.446
	Total		**0.8611**	**7.5803**	**7.1905**	**1.15E-02**	**0.4662**	**0.446**
Offsite								
	Hauling		0	0	0	0	0	0
	Vendor		0.0276	0.7354	0.2011	1.59E-03	0.0411	0.0154
	Worker		0.2534	0.2047	2.6493	6.38E-03	0.5304	0.1448
	Total		**0.281**	**0.9401**	**2.8504**	**7.97E-03**	**0.5715**	**0.1602**
TOTAL			***1.1421***	***8.5204***	***10.0409***	***0.0195***	***1.0377***	***0.6062***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Maximum	1.1753	8.5441	10.0409	0.0195	1.0378	0.6063

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Pipeline Construction - Winter							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2018**						
	Off-Road	1.6264	16.0343	11.4736	1.89E-02	0.9272	0.87
	Total	**1.6264**	**16.0343**	**11.4736**	**1.89E-02**	**0.9272**	**0.87**
Offsite							
	Hauling	0	0	0	0	0	0
	Vendor	0.0575	1.474	0.442	3.09E-03	0.0824	0.031
	Worker	0.2854	0.2268	2.4107	6.00E-03	0.5304	0.1448
	Total	**0.3429**	**1.7008**	**2.8527**	**9.09E-03**	**0.6128**	**0.1757**
TOTAL		***1.9693***	***17.7351***	***14.3263***	***0.0280***	***1.5400***	***1.0457***
Pipeline Construction - Summer							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2018**						
	Off-Road	1.6264	16.0343	11.4736	1.89E-02	0.9272	0.87
	Total	**1.6264**	**16.0343**	**11.4736**	**1.89E-02**	**0.9272**	**0.87**
Offsite							
	Hauling	0	0	0	0	0	0
	Vendor	0.0552	1.4707	0.4021	3.17E-03	0.0823	0.0308
	Worker	0.2534	0.2047	2.6493	6.38E-03	0.5304	0.1448
	Total	**0.3086**	**1.6754**	**3.0514**	**9.55E-03**	**0.6127**	**0.1756**
TOTAL		***1.9350***	***17.7097***	***14.5250***	***0.0285***	***1.5399***	***1.0456***
	Maximum	1.9693	17.7351	14.5250	0.0285	1.5400	1.0457
Well Construction - Winter*							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2018**						
	Off-Road	1.93	22.8073	12.773	3.98E-02	0.9241	0.8667
	Total	**1.93**	**22.8073**	**12.773**	**3.98E-02**	**0.9241**	**0.8667**
Offsite							
	Hauling	0	0	0	0	0	0
	Vendor	0.0192	0.4913	0.1473	1.03E-03	0.0291	0.0107
	Worker	0.2854	0.2268	2.4107	6.00E-03	0.575	1.56E-01
	Total	**0.3046**	**0.7181**	**2.558**	**7.03E-03**	**0.6041**	**0.1664**
TOTAL		***2.2346***	***23.5254***	***15.3310***	***0.0468***	***1.5282***	***1.0331***
Well Construction - Summer*							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2018**						
	Off-Road	1.93	22.8073	12.773	3.98E-02	0.9241	0.8667
	Total	**1.93**	**22.8073**	**12.773**	**3.98E-02**	**0.9241**	**0.8667**
Offsite							
	Hauling	0	0	0	0	0	0
	Vendor	0.0184	0.4902	0.134	1.06E-03	0.0291	0.0107
	Worker	0.2534	2.05E-01	2.6493	6.38E-03	0.575	1.56E-01
	Total	**0.2718**	**0.6949**	**2.7834**	**7.44E-03**	**0.6041**	**0.1664**
TOTAL		***2.2018***	***23.5022***	***15.5564***	***0.0472***	***1.5282***	***1.0331***
	Maximum	2.2346	23.5254	15.5564	0.0472	1.5282	1.0331
Winter 2018 Trenching + Construction		***5.3792***	***49.8046***	***39.4795***	***0.0939***	***4.1060***	***2.6851***
Summer 201 Trenching + Construction		***5.2789***	***49.7323***	***40.1223***	***0.0952***	***4.1058***	***2.6849***
Winter 2018 All Phases		***8.2275***	***75.6024***	***57.6034***	***0.1400***	***8.2673***	***4.3916***
Summer 2018 All Phases		***8.0562***	***75.4418***	***58.5980***	***0.1424***	***8.2665***	***4.3908***
MAX DAILY		**8.23**	**75.60**	**58.60**	**0.14**	**8.27**	**4.39**
Regional Thresholds		**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?		No	No	No	No	No	No

Localized Construction Emissions Worksheet

Demo Haul - Winter

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Fugitive Dust		0	0	1.6654	0.2522
	Off-Road		0	0	0	0
	Total		**0**	**0**	**1.6654**	**0.2522**

Demo Haul - Summer

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Fugitive Dust		0	0	1.6654	0.2522
	Off-Road		0	0	0	0
	Total		**0**	**0**	**1.6654**	**0.2522**

Demo Haul Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Fugitive Dust		0	0	1.6654	0.2522
	Off-Road		0	0	0	0
	Total		**0**	**0**	**1.6654**	**0.2522**

Demolition - Winter

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		11.7421	5.223	0.6112	0.5634
	Total		**11.7421**	**5.223**	**0.6112**	**0.5634**

Demolition - Summer

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		11.7421	5.223	0.6112	0.5634
	Total		**11.7421**	**5.223**	**0.6112**	**0.5634**

Demolition Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		11.7421	5.223	0.6112	0.5634
	Total		**11.7421**	**5.223**	**0.6112**	**0.5634**

Site Preparation - Winter

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Fugitive Dust		0	0	0	0
	Off-Road		7.2641	6.5879	0.5041	0.4929
	Total		**7.2641**	**6.5879**	**0.5041**	**0.4929**

Site Preparation - Summer

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Fugitive Dust		0	0	0	0
	Off-Road		7.2641	6.5879	0.5041	0.4929
	Total		**7.2641**	**6.5879**	**0.5041**	**0.4929**

Site Preparation Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		7.2641	6.5879	0.5041	0.4929
	Total		**7.2641**	**6.5879**	**0.5041**	**0.4929**

2018 Demo and Site Prep	***19.0062***	***11.8109***	***2.7807***	***1.3085***
LSTs	96	702	5.37	3.25
Exceed Thresholds?	No	No	No	No

Utility Trenching - Winter 2018

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		7.5803	7.1905	0.4662	0.446
	Total		**7.5803**	**7.1905**	**0.4662**	**0.446**

Utility Trenching - Summer 2018

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		7.5803	7.1905	0.4662	0.446
	Total		**7.5803**	**7.1905**	**0.4662**	**0.446**

Utility Trenching Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		7.5803	7.1905	0.4662	0.446
	Total		**7.5803**	**7.1905**	**0.4662**	**0.446**

Pipeline Construction - Winter 2018

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		16.0343	11.4736	0.9272	0.87
	Total		**16.0343**	**11.4736**	**0.9272**	**0.87**

Pipeline Construction - Summer 2018

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		16.0343	11.4736	0.9272	0.87
	Total		**16.0343**	**11.4736**	**0.9272**	**0.87**

Pipeline Construction Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		16.0343	11.4736	0.9272	0.87
	Total		**16.0343**	**11.4736**	**0.9272**	**0.87**

Well Construction - Winter

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		22.8073	12.773	0.9241	0.8667
	Total		**22.8073**	**12.773**	**0.9241**	**0.8667**

Well Construction - Summer

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2018**				
	Off-Road		22.8073	12.773	0.9241	0.8667
	Total		**22.8073**	**12.773**	**0.9241**	**0.8667**

Well Construction - Max Daily

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2017**				
	Off-Road		22.8073	12.773	0.9241	0.8667
	Total		**22.8073**	**12.773**	**0.9241**	**0.8667**

	NOx	CO	PM10 Total	PM2.5 Total
2018 Trenching and Construction	***46.4219***	***31.4371***	***2.3175***	***2.1827***
LSTs	96	702	5.37	3.25
Exceed Thresholds?	No	No	No	No

	NOx	CO	PM10 Total	PM2.5 Total
2018 Demo, Site Prep, Trenching, Const.	***65.4281***	***43.2480***	***5.0982***	***3.4912***
LSTs	137	1,034	8.58	5.25
Exceed Thresholds?	No	No	No	No

GHG Emissions Worksheet

	MTons Total	
Demolition Haul	23	
Demolition	33	
Site Preparation	34	
Utility Trenching	113	
Pipeline Construction	168	
Well Construction*	847	
Total Construction	**1,219**	
Amortized Construction Emissions*	41	100%
Total All Sectors	41	100%

**CalEEMod results multiplied by three as similar construction processes are assumed to occur at each site.*

CalEEMod Project Characteristics Inputs (Construction)

Name:	Van Ness Avenue Well Field Project
Project Location:	Van Ness Avenue, Descanso Park, Carretera Park
Project Location:	Torrance, CA
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2020
Utility Company:	Southern California Edison
SRA:	3

General Info

Total Project Site Area 27.49 acres

Disturbed Acreage	Distance (feet)*	Width	SQFT***	Acreage
Pipeline from Well 14 to Well 12	5,600	18" Pipe	168,000	
Pipeline from Well 12 to Van Ness Ave, Border, and Plaza Del Amo	17,500	18" Pipe	962,500	
Pipe from Well 13 to Van Ness Ave	1,100	12" Pipe	33,000	
Purche Ave to Van Ness Storm Drain	700	N/A	1,400	
Well 12**			2,500	
Well 13**			2,500	
Well 14**			2,500	
La Carretera Park Modifications*			18,000	
Descanso Park Modifications*			7,000	
TOTAL	4.716		1,197,400	27.49

**Based on distance provided by applicant, verified with aerial maps*
***Acreage based on aerial photographs*
****Average roadway width used to calculate sqft for pipelines*

CalEEMod Land Use Inputs

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
User Defined Recreational	Recreational	User Defined Industrial	1197.40	1000 sqft	27.49	1,197,400

Demolition Haul

Phase Name	Haul Distance (miles)*	Max Total Trips Per Day*	Trips Ends/Day	Haul Days	Total Haul Trips	Estimated Haul Amount (tons)**
Demo Debris Haul	15	9	18	42	**756**	**7,646**

**Provided by the applicant*
***Based on CalEEMod assumption of 1.2641662 tons per cubic yard and the CalEEMod assumed 16 CY haul truck capacity.*

Construction - Unmitigated Run

SCAQMD Rule 403

Replace Ground Cover	PM10:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph

SCAQMD Rule 1186

Clean Paved Road 9 % PM Reduction

CalEEMod Construction Phase Inputs*

5-Day Work Week/8 hours per day

Phase Name	Phase Type	Start Date	End Date	CalEEMod Total Days
Demolition	Demolition	2/1/2018	3/31/2018	42
*Demo Debris Haul***	Demolition	2/1/2018	3/31/2018	42
Site Preparation	Site Preparation	2/1/2018	3/31/2018	42
Utility Trenching	Trenching	3/1/2018	8/31/2018	132
Pipeline Construction	Construction	3/1/2018	8/31/2018	132
Well Construction	Paving	3/1/2018	8/31/2018	132

*Based on construction schedule provided by the Applicant.

**Hauling duration based on demolition phase length

CalEEMod Construction Off-Road Equipment Inputs*

Equipment Type	CalEEMod Equipment Type	Unit Amount	Hours/Day	HP	LF	CalEEMod Vendor Trips	CalEEMod Worker Trips
Demolition							30
Dozer	Rubber Tired Dozers	1	6	247	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	97	0.37		
End Dump	Dumper/Tender	1	6	16	0.38	2	
Water Truck*						4	
Site Preparation/Grading							30
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	97	0.37		
Hydraulic Jackhammer	Air Compressor	1	6	78	0.48		
Concrete Saw	Concrete/Industrial Saw	1	6	81	0.73		
End Dump	Dumper/Tender	1	6	16	0.38	2	
Water Truck*						4	
Utility Trenching							30
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	97	0.37		
End Dump	Dumper/Tender	1	6	16	0.38	2	
Concrete Saw	Concrete/Industrial Saw	1	6	81	0.73		
Excavator	Excavator	1	6	158	0.3819		
Water Truck*						4	
Pipeline Construction							30
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	97	0.37		
Concrete Saw	Concrete Saw	1	6	81	0.73		
Cranes	Cranes	1	6	231	0.29		
Sheepsfoot Compactor	Roller	Below					
Asphalt Paving Equipment	Paving Equipment	1	6	132	0.3551		
Steam Roller	Roller	2	6	80	0.3752		
Concrete Truck	Cement/Mortar Mixer	1	6	9	0.56	2	
Vendor Trips						10	
Well Construction							30
Drill Rig	Bore/Drill Rig	1	24	221	0.5025		
Cranes	Cranes	1	6	231	0.29		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	97	0.37		
Pump	Pumps	1	6	84	0.74		
Support Truck						2	
End Dump						2	

*SCAQMD Rule 403 assumes 4 Water truck trips per day

Torrance Pipeline

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1,197.40	User Defined Unit	27.49	1,197,400.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 8 **Operational Year** 2020

Utility Company Southern California Edison

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Pipelines and wells

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - Drill Rig, support truck, crane, tractor/loader/backhoe, pump

Trips and VMT - See CalEEMod Assumptions and Air Quality Assumptions provided by the Applicant

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	20.00	42.00
tblLandUse	BuildingSpaceSquareFeet	0.00	1,197,400.00
tblLandUse	LandUseSquareFeet	0.00	1,197,400.00
tblLandUse	LotAcreage	0.00	27.49
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	196.00	12.00
tblTripsAndVMT	VendorTripNumber	196.00	4.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00

tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.0565	75.4416	58.5979	0.1423	7.1998	3.5038	10.7036	1.4730	3.3060	4.7791	0.0000	14,236.3660	14,236.3660	2.5131	0.0000	14,299.1927
Maximum	**8.0565**	**75.4416**	**58.5979**	**0.1423**	**7.1998**	**3.5038**	**10.7036**	**1.4730**	**3.3060**	**4.7791**	**0.0000**	**14,236.3660**	**14,236.3660**	**2.5131**	**0.0000**	**14,299.1927**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.0565	75.4416	58.5979	0.1423	4.9696	3.5038	8.4733	1.1354	3.3060	4.4414	0.0000	14,236.3660	14,236.3660	2.5131	0.0000	14,299.1927
Maximum	**8.0565**	**75.4416**	**58.5979**	**0.1423**	**4.9696**	**3.5038**	**8.4733**	**1.1354**	**3.3060**	**4.4414**	**0.0000**	**14,236.3660**	**14,236.3660**	**2.5131**	**0.0000**	**14,299.1927**

	ROG	NOx	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	30.98	0.00	20.84	22.92	0.00	7.07	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	Demo Haul	Demolition	2/1/2018	3/31/2018	5	42	
2	Demolition	Demolition	2/1/2018	3/31/2018	5	42	
3	Site Preparation	Site Preparation	2/1/2018	3/31/2018	5	42	
4	Utility Trenching	Trenching	3/1/2018	8/31/2018	5	132	
5	Pipeline Construction	Building Construction	3/1/2018	8/31/2018	5	132	
6	Well Construction	Building Construction	3/1/2018	8/31/2018	5	132	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demo Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demo Haul	Excavators	0	8.00	158	0.38
Demo Haul	Rubber Tired Dozers	0	8.00	247	0.40

Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Dumpers/Tenders	1	6.00	16	0.38
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	6.00	81	0.73
Site Preparation	Dumpers/Tenders	1	6.00	16	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Utility Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Utility Trenching	Dumpers/Tenders	1	6.00	16	0.38
Utility Trenching	Excavators	1	6.00	158	0.38
Utility Trenching	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Pipeline Construction	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline Construction	Cranes	1	6.00	231	0.29
Pipeline Construction	Forklifts	0	8.00	89	0.20
Pipeline Construction	Generator Sets	0	8.00	84	0.74
Pipeline Construction	Paving Equipment	1	6.00	132	0.36
Pipeline Construction	Rollers	2	6.00	80	0.38
Pipeline Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline Construction	Welders	0	6.00	46	0.45
Well Construction	Bore/Drill Rigs	1	24.00	221	0.50
Well Construction	Cranes	1	6.00	231	0.29
Well Construction	Forklifts	0	8.00	89	0.20
Well Construction	Generator Sets	0	8.00	84	0.74

Well Construction	Pumps	1	6.00	84	0.74
Well Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demo Haul	0	0.00	0.00	756.00	14.70	6.90	15.00	LD_Mix	HDT_Mix	HHDT
Demolition	3	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utility Trenching	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Construction	7	30.00	12.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Construction	4	30.00	4.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demo Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.8956	0.0000	3.8956	0.5898	0.0000	0.5898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.8956**	**0.0000**	**3.8956**	**0.5898**	**0.0000**	**0.5898**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.1431	4.8231	0.9640	0.0114	0.2361	0.0169	0.2530	0.0647	0.0162	0.0809		1,234.0214	1,234.0214	0.0898		1,236.2658
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1431**	**4.8231**	**0.9640**	**0.0114**	**0.2361**	**0.0169**	**0.2530**	**0.0647**	**0.0162**	**0.0809**		**1,234.0214**	**1,234.0214**	**0.0898**		**1,236.2658**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					1.6654	0.0000	1.6654	0.2522	0.0000	0.2522			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.6654**	**0.0000**	**1.6654**	**0.2522**	**0.0000**	**0.2522**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1431	4.8231	0.9640	0.0114	0.2361	0.0169	0.2530	0.0647	0.0162	0.0809		1,234.0214	1,234.0214	0.0898		1,236.2658
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1431**	**4.8231**	**0.9640**	**0.0114**	**0.2361**	**0.0169**	**0.2530**	**0.0647**	**0.0162**	**0.0809**		**1,234.0214**	**1,234.0214**	**0.0898**		**1,236.2658**

3.3 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1293	11.7421	5.2230	9.2900e-003		0.6112	0.6112		0.5634	0.5634		925.4172	925.4172	0.2788		932.3865
Total	**1.1293**	**11.7421**	**5.2230**	**9.2900e-003**		**0.6112**	**0.6112**		**0.5634**	**0.5634**		**925.4172**	**925.4172**	**0.2788**		**932.3865**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

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	1.1293	11.7421	5.2230	9.2900e-003		0.6112	0.6112		0.5634	0.5634	0.0000	925.4172	925.4172	0.2788		932.3865
Total	**1.1293**	**11.7421**	**5.2230**	**9.2900e-003**		**0.6112**	**0.6112**		**0.5634**	**0.5634**	**0.0000**	**925.4172**	**925.4172**	**0.2788**		**932.3865**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9429	7.2641	6.5879	0.0106		0.5041	0.5041		0.4929	0.4929		1,006.2342	1,006.2342	0.1391		1,009.7116
Total	**0.9429**	**7.2641**	**6.5879**	**0.0106**	**0.0000**	**0.5041**	**0.5041**	**0.0000**	**0.4929**	**0.4929**		**1,006.2342**	**1,006.2342**	**0.1391**		**1,009.7116**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9429	7.2641	6.5879	0.0106		0.5041	0.5041		0.4929	0.4929	0.0000	1,006.2342	1,006.2342	0.1391		1,009.7116
Total	**0.9429**	**7.2641**	**6.5879**	**0.0106**	**0.0000**	**0.5041**	**0.5041**	**0.0000**	**0.4929**	**0.4929**	**0.0000**	**1,006.2342**	**1,006.2342**	**0.1391**		**1,009.7116**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

3.5 Utility Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8611	7.5803	7.1905	0.0115		0.4662	0.4662		0.4460	0.4460		1,114.4745	1,114.4745	0.2337		1,120.3161
Total	**0.8611**	**7.5803**	**7.1905**	**0.0115**		**0.4662**	**0.4662**		**0.4460**	**0.4460**		**1,114.4745**	**1,114.4745**	**0.2337**		**1,120.3161**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8611	7.5803	7.1905	0.0115		0.4662	0.4662		0.4460	0.4460	0.0000	1,114.4745	1,114.4745	0.2337		1,120.3161
Total	**0.8611**	**7.5803**	**7.1905**	**0.0115**		**0.4662**	**0.4662**		**0.4460**	**0.4460**	**0.0000**	**1,114.4745**	**1,114.4745**	**0.2337**		**1,120.3161**

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	0.0276	0.7354	0.2011	1.5900e-003	0.0384	5.1800e-003	0.0436	0.0111	4.9600e-003	0.0160		169.0077	169.0077	0.0111		169.2859
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2810**	**0.9401**	**2.8504**	**7.9700e-003**	**0.6085**	**0.0101**	**0.6186**	**0.1622**	**9.5100e-003**	**0.1717**		**803.4802**	**803.4802**	**0.0345**		**804.3428**

3.6 Pipeline Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6264	16.0343	11.4736	0.0189		0.9272	0.9272		0.8700	0.8700		1,855.7795	1,855.7795	0.4659		1,867.4271
Total	**1.6264**	**16.0343**	**11.4736**	**0.0189**		**0.9272**	**0.9272**		**0.8700**	**0.8700**		**1,855.7795**	**1,855.7795**	**0.4659**		**1,867.4271**

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	0.0552	1.4707	0.4021	3.1700e-003	0.0768	0.0104	0.0872	0.0221	9.9100e-003	0.0320		338.0153	338.0153	0.0223		338.5717
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.3086**	**1.6754**	**3.0514**	**9.5500e-003**	**0.6469**	**0.0153**	**0.6622**	**0.1733**	**0.0145**	**0.1877**		**972.4878**	**972.4878**	**0.0456**		**973.6286**

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	1.6264	16.0343	11.4736	0.0189		0.9272	0.9272		0.8700	0.8700	0.0000	1,855.7795	1,855.7795	0.4659		1,867.4271
Total	**1.6264**	**16.0343**	**11.4736**	**0.0189**		**0.9272**	**0.9272**		**0.8700**	**0.8700**	**0.0000**	**1,855.7795**	**1,855.7795**	**0.4659**		**1,867.4271**

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	0.0552	1.4707	0.4021	3.1700e-003	0.0768	0.0104	0.0872	0.0221	9.9100e-003	0.0320		338.0153	338.0153	0.0223		338.5717
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.3086**	**1.6754**	**3.0514**	**9.5500e-003**	**0.6469**	**0.0153**	**0.6622**	**0.1733**	**0.0145**	**0.1877**		**972.4878**	**972.4878**	**0.0456**		**973.6286**

3.7 Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9300	22.8073	12.7730	0.0398		0.9241	0.9241		0.8667	0.8667		3,970.3666	3,970.3666	1.1259		3,998.5145
Total	**1.9300**	**22.8073**	**12.7730**	**0.0398**		**0.9241**	**0.9241**		**0.8667**	**0.8667**		**3,970.3666**	**3,970.3666**	**1.1259**		**3,998.5145**

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	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2718**	**0.6949**	**2.7834**	**7.4400e-003**	**0.5957**	**8.3900e-003**	**0.6041**	**0.1585**	**7.8500e-003**	**0.1664**		**747.1443**	**747.1443**	**0.0308**		**747.9142**

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	1.9300	22.8073	12.7730	0.0398		0.9241	0.9241		0.8667	0.8667	0.0000	3,970.3666	3,970.3666	1.1259		3,998.5145
Total	**1.9300**	**22.8073**	**12.7730**	**0.0398**		**0.9241**	**0.9241**		**0.8667**	**0.8667**	**0.0000**	**3,970.3666**	**3,970.3666**	**1.1259**		**3,998.5145**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0184	0.4902	0.1340	1.0600e-003	0.0256	3.4500e-003	0.0291	7.3700e-003	3.3000e-003	0.0107		112.6718	112.6718	7.4200e-003		112.8572
Worker	0.2534	0.2047	2.6493	6.3800e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		634.4725	634.4725	0.0234		635.0569
Total	**0.2718**	**0.6949**	**2.7834**	**7.4400e-003**	**0.5957**	**8.3900e-003**	**0.6041**	**0.1585**	**7.8500e-003**	**0.1664**		**747.1443**	**747.1443**	**0.0308**		**747.9142**

Torrance Pipeline

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1,197.40	User Defined Unit	27.49	1,197,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Pipelines and wells

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - Drill Rig, support truck, crane, tractor/loader/backhoe, pump

Trips and VMT - See CalEEMod Assumptions and Air Quality Assumptions provided by the Applicant

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	20.00	42.00
tblLandUse	BuildingSpaceSquareFeet	0.00	1,197,400.00
tblLandUse	LandUseSquareFeet	0.00	1,197,400.00
tblLandUse	LotAcreage	0.00	27.49
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	196.00	12.00
tblTripsAndVMT	VendorTripNumber	196.00	4.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00

tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.2274	75.6022	57.6035	0.1399	7.1998	3.5047	10.7045	1.4730	3.3069	4.7799	0.0000	13,998.3972	13,998.3972	2.5145	0.0000	14,061.2593
Maximum	**8.2274**	**75.6022**	**57.6035**	**0.1399**	**7.1998**	**3.5047**	**10.7045**	**1.4730**	**3.3069**	**4.7799**	**0.0000**	**13,998.3972**	**13,998.3972**	**2.5145**	**0.0000**	**14,061.2593**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.2274	75.6022	57.6035	0.1399	4.9696	3.5047	8.4743	1.1354	3.3069	4.4422	0.0000	13,998.3972	13,998.3972	2.5145	0.0000	14,061.2593
Maximum	**8.2274**	**75.6022**	**57.6035**	**0.1399**	**4.9696**	**3.5047**	**8.4743**	**1.1354**	**3.3069**	**4.4422**	**0.0000**	**13,998.3972**	**13,998.3972**	**2.5145**	**0.0000**	**14,061.2593**

	ROG	NOx	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	30.98	0.00	20.83	22.92	0.00	7.06	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	Demo Haul	Demolition	2/1/2018	3/31/2018	5	42	
2	Demolition	Demolition	2/1/2018	3/31/2018	5	42	
3	Site Preparation	Site Preparation	2/1/2018	3/31/2018	5	42	
4	Utility Trenching	Trenching	3/1/2018	8/31/2018	5	132	
5	Pipeline Construction	Building Construction	3/1/2018	8/31/2018	5	132	
6	Well Construction	Building Construction	3/1/2018	8/31/2018	5	132	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demo Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demo Haul	Excavators	0	8.00	158	0.38
Demo Haul	Rubber Tired Dozers	0	8.00	247	0.40

Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Dumpers/Tenders	1	6.00	16	0.38
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	6.00	81	0.73
Site Preparation	Dumpers/Tenders	1	6.00	16	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Utility Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Utility Trenching	Dumpers/Tenders	1	6.00	16	0.38
Utility Trenching	Excavators	1	6.00	158	0.38
Utility Trenching	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Pipeline Construction	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline Construction	Cranes	1	6.00	231	0.29
Pipeline Construction	Forklifts	0	8.00	89	0.20
Pipeline Construction	Generator Sets	0	8.00	84	0.74
Pipeline Construction	Paving Equipment	1	6.00	132	0.36
Pipeline Construction	Rollers	2	6.00	80	0.38
Pipeline Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline Construction	Welders	0	6.00	46	0.45
Well Construction	Bore/Drill Rigs	1	24.00	221	0.50
Well Construction	Cranes	1	6.00	231	0.29
Well Construction	Forklifts	0	8.00	89	0.20
Well Construction	Generator Sets	0	8.00	84	0.74

Well Construction	Pumps	1	6.00	84	0.74
Well Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demo Haul	0	0.00	0.00	756.00	14.70	6.90	15.00	LD_Mix	HDT_Mix	HHDT
Demolition	3	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utility Trenching	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Construction	7	30.00	12.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Construction	4	30.00	4.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demo Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.8956	0.0000	3.8956	0.5898	0.0000	0.5898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.8956**	**0.0000**	**3.8956**	**0.5898**	**0.0000**	**0.5898**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1477	4.8640	1.0496	0.0112	0.2361	0.0174	0.2535	0.0647	0.0166	0.0813		1,207.648 9	1,207.6489	0.0940		1,209.999 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1477**	**4.8640**	**1.0496**	**0.0112**	**0.2361**	**0.0174**	**0.2535**	**0.0647**	**0.0166**	**0.0813**		**1,207.648 9**	**1,207.6489**	**0.0940**		**1,209.999 5**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6654	0.0000	1.6654	0.2522	0.0000	0.2522			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.6654**	**0.0000**	**1.6654**	**0.2522**	**0.0000**	**0.2522**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1477	4.8640	1.0496	0.0112	0.2361	0.0174	0.2535	0.0647	0.0166	0.0813		1,207.6489	1,207.6489	0.0940		1,209.9995
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1477**	**4.8640**	**1.0496**	**0.0112**	**0.2361**	**0.0174**	**0.2535**	**0.0647**	**0.0166**	**0.0813**		**1,207.6489**	**1,207.6489**	**0.0940**		**1,209.9995**

3.3 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1293	11.7421	5.2230	9.2900e-003		0.6112	0.6112		0.5634	0.5634		925.4172	925.4172	0.2788		932.3865
Total	**1.1293**	**11.7421**	**5.2230**	**9.2900e-003**		**0.6112**	**0.6112**		**0.5634**	**0.5634**		**925.4172**	**925.4172**	**0.2788**		**932.3865**

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	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

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	1.1293	11.7421	5.2230	9.2900e-003		0.6112	0.6112		0.5634	0.5634	0.0000	925.4172	925.4172	0.2788		932.3865
Total	**1.1293**	**11.7421**	**5.2230**	**9.2900e-003**		**0.6112**	**0.6112**		**0.5634**	**0.5634**	**0.0000**	**925.4172**	**925.4172**	**0.2788**		**932.3865**

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	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9429	7.2641	6.5879	0.0106		0.5041	0.5041		0.4929	0.4929		1,006.2342	1,006.2342	0.1391		1,009.7116
Total	**0.9429**	**7.2641**	**6.5879**	**0.0106**	**0.0000**	**0.5041**	**0.5041**	**0.0000**	**0.4929**	**0.4929**		**1,006.2342**	**1,006.2342**	**0.1391**		**1,009.7116**

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	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9429	7.2641	6.5879	0.0106		0.5041	0.5041		0.4929	0.4929	0.0000	1,006.2342	1,006.2342	0.1391		1,009.7116
Total	**0.9429**	**7.2641**	**6.5879**	**0.0106**	**0.0000**	**0.5041**	**0.5041**	**0.0000**	**0.4929**	**0.4929**	**0.0000**	**1,006.2342**	**1,006.2342**	**0.1391**		**1,009.7116**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

3.5 Utility Trenching - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	0.8611	7.5803	7.1905	0.0115		0.4662	0.4662		0.4460	0.4460		1,114.4745	1,114.4745	0.2337		1,120.3161
Total	**0.8611**	**7.5803**	**7.1905**	**0.0115**		**0.4662**	**0.4662**		**0.4460**	**0.4460**		**1,114.4745**	**1,114.4745**	**0.2337**		**1,120.3161**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	0.8611	7.5803	7.1905	0.0115		0.4662	0.4662		0.4460	0.4460	0.0000	1,114.4745	1,114.4745	0.2337		1,120.3161
Total	**0.8611**	**7.5803**	**7.1905**	**0.0115**		**0.4662**	**0.4662**		**0.4460**	**0.4460**	**0.0000**	**1,114.4745**	**1,114.4745**	**0.2337**		**1,120.3161**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0288	0.7370	0.2210	1.5400e-003	0.0384	5.2600e-003	0.0437	0.0111	5.0400e-003	0.0161		164.4899	164.4899	0.0119		164.7866
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3142**	**0.9638**	**2.6317**	**7.5400e-003**	**0.6085**	**0.0102**	**0.6187**	**0.1622**	**9.5900e-003**	**0.1718**		**761.7633**	**761.7633**	**0.0338**		**762.6093**

3.6 Pipeline Construction - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	1.6264	16.0343	11.4736	0.0189		0.9272	0.9272		0.8700	0.8700		1,855.7795	1,855.7795	0.4659		1,867.4271
Total	**1.6264**	**16.0343**	**11.4736**	**0.0189**		**0.9272**	**0.9272**		**0.8700**	**0.8700**		**1,855.7795**	**1,855.7795**	**0.4659**		**1,867.4271**

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	0.0575	1.4740	0.4420	3.0900e-003	0.0768	0.0105	0.0874	0.0221	0.0101	0.0322		328.9798	328.9798	0.0237		329.5732
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3429**	**1.7008**	**2.8527**	**9.0900e-003**	**0.6469**	**0.0155**	**0.6624**	**0.1733**	**0.0146**	**0.1879**		**926.2532**	**926.2532**	**0.0457**		**927.3959**

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	1.6264	16.0343	11.4736	0.0189		0.9272	0.9272		0.8700	0.8700	0.0000	1,855.7795	1,855.7795	0.4659		1,867.4271
Total	**1.6264**	**16.0343**	**11.4736**	**0.0189**		**0.9272**	**0.9272**		**0.8700**	**0.8700**	**0.0000**	**1,855.7795**	**1,855.7795**	**0.4659**		**1,867.4271**

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	0.0575	1.4740	0.4420	3.0900e-003	0.0768	0.0105	0.0874	0.0221	0.0101	0.0322		328.9798	328.9798	0.0237		329.5732
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3429**	**1.7008**	**2.8527**	**9.0900e-003**	**0.6469**	**0.0155**	**0.6624**	**0.1733**	**0.0146**	**0.1879**		**926.2532**	**926.2532**	**0.0457**		**927.3959**

3.7 Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9300	22.8073	12.7730	0.0398		0.9241	0.9241		0.8667	0.8667		3,970.3666	3,970.3666	1.1259		3,998.5145
Total	**1.9300**	**22.8073**	**12.7730**	**0.0398**		**0.9241**	**0.9241**		**0.8667**	**0.8667**		**3,970.3666**	**3,970.3666**	**1.1259**		**3,998.5145**

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	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3046**	**0.7181**	**2.5580**	**7.0300e-003**	**0.5957**	**8.4500e-003**	**0.6041**	**0.1585**	**7.9100e-003**	**0.1664**		**706.9333**	**706.9333**	**0.0299**		**707.6804**

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	1.9300	22.8073	12.7730	0.0398		0.9241	0.9241		0.8667	0.8667	0.0000	3,970.3666	3,970.3666	1.1259		3,998.5145
Total	**1.9300**	**22.8073**	**12.7730**	**0.0398**		**0.9241**	**0.9241**		**0.8667**	**0.8667**	**0.0000**	**3,970.3666**	**3,970.3666**	**1.1259**		**3,998.5145**

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	0.0192	0.4913	0.1473	1.0300e-003	0.0256	3.5100e-003	0.0291	7.3700e-003	3.3600e-003	0.0107		109.6599	109.6599	7.9100e-003		109.8578
Worker	0.2854	0.2268	2.4107	6.0000e-003	0.5701	4.9400e-003	0.5750	0.1512	4.5500e-003	0.1557		597.2734	597.2734	0.0220		597.8227
Total	**0.3046**	**0.7181**	**2.5580**	**7.0300e-003**	**0.5957**	**8.4500e-003**	**0.6041**	**0.1585**	**7.9100e-003**	**0.1664**		**706.9333**	**706.9333**	**0.0299**		**707.6804**

Torrance Pipeline

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1,197.40	User Defined Unit	27.49	1,197,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Pipelines and wells

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - Drill Rig, support truck, crane, tractor/loader/backhoe, pump

Trips and VMT - See CalEEMod Assumptions and Air Quality Assumptions provided by the Applicant

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	440.00	132.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	20.00	42.00
tblLandUse	BuildingSpaceSquareFeet	0.00	1,197,400.00
tblLandUse	LandUseSquareFeet	0.00	1,197,400.00
tblLandUse	LotAcreage	0.00	27.49
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	196.00	12.00
tblTripsAndVMT	VendorTripNumber	196.00	4.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripLength	14.70	25.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00

tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00
tblTripsAndVMT	WorkerTripNumber	503.00	30.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.4079	3.8365	2.9987	7.1900e-003	0.2315	0.1794	0.4110	0.0524	0.1691	0.2215	0.0000	650.9300	650.9300	0.1268	0.0000	654.1006
Maximum	**0.4079**	**3.8365**	**2.9987**	**7.1900e-003**	**0.2315**	**0.1794**	**0.4110**	**0.0524**	**0.1691**	**0.2215**	**0.0000**	**650.9300**	**650.9300**	**0.1268**	**0.0000**	**654.1006**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.4079	3.8365	2.9987	7.1900e-003	0.1847	0.1794	0.3641	0.0454	0.1691	0.2144	0.0000	650.9295	650.9295	0.1268	0.0000	654.1001
Maximum	**0.4079**	**3.8365**	**2.9987**	**7.1900e-003**	**0.1847**	**0.1794**	**0.3641**	**0.0454**	**0.1691**	**0.2144**	**0.0000**	**650.9295**	**650.9295**	**0.1268**	**0.0000**	**654.1001**

	ROG	NOx	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	20.23	0.00	11.40	13.52	0.00	3.20	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2018	4-30-2018	0.7091	0.7091
2	5-1-2018	7-31-2018	0.3175	0.3175
3	8-1-2018	9-30-2018	0.1070	0.1070
		Highest	0.7091	0.7091

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demo Haul	Demolition	2/1/2018	3/31/2018	5	42	
2	Demolition	Demolition	2/1/2018	3/31/2018	5	42	
3	Site Preparation	Site Preparation	2/1/2018	3/31/2018	5	42	
4	Utility Trenching	Trenching	3/1/2018	8/31/2018	5	132	
5	Pipeline Construction	Building Construction	3/1/2018	8/31/2018	5	132	
6	Well Construction	Building Construction	3/1/2018	8/31/2018	5	132	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demo Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demo Haul	Excavators	0	8.00	158	0.38
Demo Haul	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Dumpers/Tenders	1	6.00	16	0.38
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	6.00	81	0.73
Site Preparation	Dumpers/Tenders	1	6.00	16	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Utility Trenching	Concrete/Industrial Saws	1	6.00	81	0.73
Utility Trenching	Dumpers/Tenders	1	6.00	16	0.38
Utility Trenching	Excavators	1	6.00	158	0.38
Utility Trenching	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Pipeline Construction	Cement and Mortar Mixers	1	6.00	9	0.56
Pipeline Construction	Concrete/Industrial Saws	1	6.00	81	0.73
Pipeline Construction	Cranes	1	6.00	231	0.29
Pipeline Construction	Forklifts	0	8.00	89	0.20
Pipeline Construction	Generator Sets	0	8.00	84	0.74
Pipeline Construction	Paving Equipment	1	6.00	132	0.36
Pipeline Construction	Rollers	2	6.00	80	0.38
Pipeline Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Pipeline Construction	Welders	0	6.00	46	0.45
Well Construction	Bore/Drill Rigs	1	24.00	221	0.50
Well Construction	Cranes	1	6.00	231	0.29
Well Construction	Forklifts	0	8.00	89	0.20
Well Construction	Generator Sets	0	8.00	84	0.74
Well Construction	Pumps	1	6.00	84	0.74
Well Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demo Haul	0	0.00	0.00	756.00	14.70	6.90	15.00	LD_Mix	HDT_Mix	HHDT
Demolition	3	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utility Trenching	4	30.00	6.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Construction	7	30.00	12.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Construction	4	30.00	4.00	0.00	25.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demo Haul - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0818	0.0000	0.0818	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0818**	**0.0000**	**0.0818**	**0.0124**	**0.0000**	**0.0124**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0500e-003	0.1042	0.0210	2.4000e-004	4.8700e-003	3.6000e-004	5.2300e-003	1.3400e-003	3.4000e-004	1.6800e-003	0.0000	23.2982	23.2982	1.7500e-003	0.0000	23.3418
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0500e-003**	**0.1042**	**0.0210**	**2.4000e-004**	**4.8700e-003**	**3.6000e-004**	**5.2300e-003**	**1.3400e-003**	**3.4000e-004**	**1.6800e-003**	**0.0000**	**23.2982**	**23.2982**	**1.7500e-003**	**0.0000**	**23.3418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0350	0.0000	0.0350	5.3000e-003	0.0000	5.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0350**	**0.0000**	**0.0350**	**5.3000e-003**	**0.0000**	**5.3000e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0500e-003	0.1042	0.0210	2.4000e-004	4.8700e-003	3.6000e-004	5.2300e-003	1.3400e-003	3.4000e-004	1.6800e-003	0.0000	23.2982	23.2982	1.7500e-003	0.0000	23.3418
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0500e-003**	**0.1042**	**0.0210**	**2.4000e-004**	**4.8700e-003**	**3.6000e-004**	**5.2300e-003**	**1.3400e-003**	**3.4000e-004**	**1.6800e-003**	**0.0000**	**23.2982**	**23.2982**	**1.7500e-003**	**0.0000**	**23.3418**

3.3 Demolition - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0237	0.2466	0.1097	2.0000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	17.6300	17.6300	5.3100e-003	0.0000	17.7628
Total	**0.0237**	**0.2466**	**0.1097**	**2.0000e-004**		**0.0128**	**0.0128**		**0.0118**	**0.0118**	**0.0000**	**17.6300**	**17.6300**	**5.3100e-003**	**0.0000**	**17.7628**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0158	4.4400e-003	3.0000e-005	7.9000e-004	1.1000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1836	3.1836	2.2000e-004	0.0000	3.1891
Worker	5.4100e-003	4.9000e-003	0.0520	1.3000e-004	0.0117	1.0000e-004	0.0118	3.1200e-003	1.0000e-004	3.2100e-003	0.0000	11.5687	11.5687	4.3000e-004	0.0000	11.5793
Total	**6.0000e-003**	**0.0207**	**0.0565**	**1.6000e-004**	**0.0125**	**2.1000e-004**	**0.0127**	**3.3500e-003**	**2.0000e-004**	**3.5400e-003**	**0.0000**	**14.7523**	**14.7523**	**6.5000e-004**	**0.0000**	**14.7684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0237	0.2466	0.1097	2.0000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	17.6300	17.6300	5.3100e-003	0.0000	17.7628
Total	**0.0237**	**0.2466**	**0.1097**	**2.0000e-004**		**0.0128**	**0.0128**		**0.0118**	**0.0118**	**0.0000**	**17.6300**	**17.6300**	**5.3100e-003**	**0.0000**	**17.7628**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0158	4.4400e-003	3.0000e-005	7.9000e-004	1.1000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1836	3.1836	2.2000e-004	0.0000	3.1891
Worker	5.4100e-003	4.9000e-003	0.0520	1.3000e-004	0.0117	1.0000e-004	0.0118	3.1200e-003	1.0000e-004	3.2100e-003	0.0000	11.5687	11.5687	4.3000e-004	0.0000	11.5793
Total	**6.0000e-003**	**0.0207**	**0.0565**	**1.6000e-004**	**0.0125**	**2.1000e-004**	**0.0127**	**3.3500e-003**	**2.0000e-004**	**3.5400e-003**	**0.0000**	**14.7523**	**14.7523**	**6.5000e-004**	**0.0000**	**14.7684**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0198	0.1526	0.1384	2.2000e-004		0.0106	0.0106		0.0104	0.0104	0.0000	19.1697	19.1697	2.6500e-003	0.0000	19.2359
Total	**0.0198**	**0.1526**	**0.1384**	**2.2000e-004**	**0.0000**	**0.0106**	**0.0106**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**19.1697**	**19.1697**	**2.6500e-003**	**0.0000**	**19.2359**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0158	4.4400e-003	3.0000e-005	7.9000e-004	1.1000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1836	3.1836	2.2000e-004	0.0000	3.1891
Worker	5.4100e-003	4.9000e-003	0.0520	1.3000e-004	0.0117	1.0000e-004	0.0118	3.1200e-003	1.0000e-004	3.2100e-003	0.0000	11.5687	11.5687	4.3000e-004	0.0000	11.5793
Total	**6.0000e-003**	**0.0207**	**0.0565**	**1.6000e-004**	**0.0125**	**2.1000e-004**	**0.0127**	**3.3500e-003**	**2.0000e-004**	**3.5400e-003**	**0.0000**	**14.7523**	**14.7523**	**6.5000e-004**	**0.0000**	**14.7684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0198	0.1526	0.1384	2.2000e-004		0.0106	0.0106		0.0104	0.0104	0.0000	19.1696	19.1696	2.6500e-003	0.0000	19.2359
Total	**0.0198**	**0.1526**	**0.1384**	**2.2000e-004**	**0.0000**	**0.0106**	**0.0106**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**19.1696**	**19.1696**	**2.6500e-003**	**0.0000**	**19.2359**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0158	4.4400e-003	3.0000e-005	7.9000e-004	1.1000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1836	3.1836	2.2000e-004	0.0000	3.1891
Worker	5.4100e-003	4.9000e-003	0.0520	1.3000e-004	0.0117	1.0000e-004	0.0118	3.1200e-003	1.0000e-004	3.2100e-003	0.0000	11.5687	11.5687	4.3000e-004	0.0000	11.5793
Total	**6.0000e-003**	**0.0207**	**0.0565**	**1.6000e-004**	**0.0125**	**2.1000e-004**	**0.0127**	**3.3500e-003**	**2.0000e-004**	**3.5400e-003**	**0.0000**	**14.7523**	**14.7523**	**6.5000e-004**	**0.0000**	**14.7684**

3.5 Utility Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0568	0.5003	0.4746	7.6000e-004		0.0308	0.0308		0.0294	0.0294	0.0000	66.7283	66.7283	0.0140	0.0000	67.0780
Total	**0.0568**	**0.5003**	**0.4746**	**7.6000e-004**		**0.0308**	**0.0308**		**0.0294**	**0.0294**	**0.0000**	**66.7283**	**66.7283**	**0.0140**	**0.0000**	**67.0780**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8500e-003	0.0496	0.0139	1.0000e-004	2.4900e-003	3.4000e-004	2.8400e-003	7.2000e-004	3.3000e-004	1.0500e-003	0.0000	10.0056	10.0056	6.9000e-004	0.0000	10.0228
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0188**	**0.0650**	**0.1775**	**5.0000e-004**	**0.0394**	**6.7000e-004**	**0.0401**	**0.0105**	**6.3000e-004**	**0.0112**	**0.0000**	**46.3644**	**46.3644**	**2.0300e-003**	**0.0000**	**46.4150**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0568	0.5003	0.4746	7.6000e-004		0.0308	0.0308		0.0294	0.0294	0.0000	66.7282	66.7282	0.0140	0.0000	67.0779
Total	**0.0568**	**0.5003**	**0.4746**	**7.6000e-004**		**0.0308**	**0.0308**		**0.0294**	**0.0294**	**0.0000**	**66.7282**	**66.7282**	**0.0140**	**0.0000**	**67.0779**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8500e-003	0.0496	0.0139	1.0000e-004	2.4900e-003	3.4000e-004	2.8400e-003	7.2000e-004	3.3000e-004	1.0500e-003	0.0000	10.0056	10.0056	6.9000e-004	0.0000	10.0228
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0188**	**0.0650**	**0.1775**	**5.0000e-004**	**0.0394**	**6.7000e-004**	**0.0401**	**0.0105**	**6.3000e-004**	**0.0112**	**0.0000**	**46.3644**	**46.3644**	**2.0300e-003**	**0.0000**	**46.4150**

3.6 Pipeline Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1073	1.0583	0.7573	1.2500e-003		0.0612	0.0612		0.0574	0.0574	0.0000	111.1133	111.1133	0.0279	0.0000	111.8107
Total	**0.1073**	**1.0583**	**0.7573**	**1.2500e-003**		**0.0612**	**0.0612**		**0.0574**	**0.0574**	**0.0000**	**111.1133**	**111.1133**	**0.0279**	**0.0000**	**111.8107**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.0992	0.0279	2.1000e-004	4.9900e-003	6.9000e-004	5.6800e-003	1.4400e-003	6.6000e-004	2.1000e-003	0.0000	20.0112	20.0112	1.3700e-003	0.0000	20.0455
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0207**	**0.1146**	**0.1915**	**6.1000e-004**	**0.0419**	**1.0200e-003**	**0.0429**	**0.0112**	**9.6000e-004**	**0.0122**	**0.0000**	**56.3700**	**56.3700**	**2.7100e-003**	**0.0000**	**56.4377**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1073	1.0583	0.7573	1.2500e-003		0.0612	0.0612		0.0574	0.0574	0.0000	111.1132	111.1132	0.0279	0.0000	111.8106
Total	**0.1073**	**1.0583**	**0.7573**	**1.2500e-003**		**0.0612**	**0.0612**		**0.0574**	**0.0574**	**0.0000**	**111.1132**	**111.1132**	**0.0279**	**0.0000**	**111.8106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.0992	0.0279	2.1000e-004	4.9900e-003	6.9000e-004	5.6800e-003	1.4400e-003	6.6000e-004	2.1000e-003	0.0000	20.0112	20.0112	1.3700e-003	0.0000	20.0455
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0207**	**0.1146**	**0.1915**	**6.1000e-004**	**0.0419**	**1.0200e-003**	**0.0429**	**0.0112**	**9.6000e-004**	**0.0122**	**0.0000**	**56.3700**	**56.3700**	**2.7100e-003**	**0.0000**	**56.4377**

3.7 Well Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1274	1.5053	0.8430	2.6200e-003		0.0610	0.0610		0.0572	0.0572	0.0000	237.7225	237.7225	0.0674	0.0000	239.4078
Total	**0.1274**	**1.5053**	**0.8430**	**2.6200e-003**		**0.0610**	**0.0610**		**0.0572**	**0.0572**	**0.0000**	**237.7225**	**237.7225**	**0.0674**	**0.0000**	**239.4078**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0331	9.2900e-003	7.0000e-005	1.6600e-003	2.3000e-004	1.8900e-003	4.8000e-004	2.2000e-004	7.0000e-004	0.0000	6.6704	6.6704	4.6000e-004	0.0000	6.6818
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0182**	**0.0485**	**0.1729**	**4.7000e-004**	**0.0386**	**5.6000e-004**	**0.0391**	**0.0103**	**5.2000e-004**	**0.0108**	**0.0000**	**43.0292**	**43.0292**	**1.8000e-003**	**0.0000**	**43.0741**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1274	1.5053	0.8430	2.6200e-003		0.0610	0.0610		0.0572	0.0572	0.0000	237.7222	237.7222	0.0674	0.0000	239.4075
Total	**0.1274**	**1.5053**	**0.8430**	**2.6200e-003**		**0.0610**	**0.0610**		**0.0572**	**0.0572**	**0.0000**	**237.7222**	**237.7222**	**0.0674**	**0.0000**	**239.4075**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0331	9.2900e-003	7.0000e-005	1.6600e-003	2.3000e-004	1.8900e-003	4.8000e-004	2.2000e-004	7.0000e-004	0.0000	6.6704	6.6704	4.6000e-004	0.0000	6.6818
Worker	0.0170	0.0154	0.1636	4.0000e-004	0.0369	3.3000e-004	0.0372	9.8000e-003	3.0000e-004	0.0101	0.0000	36.3588	36.3588	1.3400e-003	0.0000	36.3922
Total	**0.0182**	**0.0485**	**0.1729**	**4.7000e-004**	**0.0386**	**5.6000e-004**	**0.0391**	**0.0103**	**5.2000e-004**	**0.0108**	**0.0000**	**43.0292**	**43.0292**	**1.8000e-003**	**0.0000**	**43.0741**

Torrance Pipeline

Los Angeles-South Coast, Summary Report

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1,197.40	User Defined Unit	27.49	1,197,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments

Only CalEEMod defaults were used.

Project Characteristics -

Land Use - Pipelines and wells

Construction Phase - See CalEEMod Assumptions

Off-road Equipment -

Off-road Equipment - Haul Phase

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - See CalEEMod Assumptions

Off-road Equipment - Drill Rig, support truck, crane, tractor/loader/backhoe, pump

Trips and VMT - See CalEEMod Assumptions and Air Quality Assumptions provided by the Applicant

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 1186

2.0 Peak Daily Emissions

Peak Daily Construction Emissions

Peak Daily Construction Emissions

		Unmitigated						Mitigated					
		ROG	NOX	CO	SO2	PM10	PM2.5	ROG	NOX	CO	SO2	PM10	PM2.5
Year	Phase	lb/day											
2018	Demolition	1.4435 W	12.7059 W	8.0734 S	0.0173 S	1.2299 W	0.7352 W	1.4435 W	12.7059 W	8.0734 S	0.0173 S	1.2299 W	0.7352 W
2018	Site Preparation	1.2571 W	8.2279 W	9.4383 S	0.0185 S	1.1228 W	0.6647 W	1.2571 W	8.2279 W	9.4383 S	0.0185 S	1.1228 W	0.6647 W
2018	Trenching	1.1753 W	8.5440 W	10.0408 S	0.0194 S	1.0849 W	0.6178 W	1.1753 W	8.5440 W	10.0408 S	0.0194 S	1.0849 W	0.6178 W
	Peak Daily Total	1.4435 W	12.7059 W	10.0408 S	0.0194 S	1.2299 W	0.7352 W	1.4435 W	12.7059 W	10.0408 S	0.0194 S	1.2299 W	0.7352 W
	Air District Threshold												
	Exceed Significance?												

3.0 Annual GHG Emissions

Annual GHG

Annual GHG

		Unmitigated				Mitigated			
		CO2	CH4	N2O	CO2e	CO2	CH4	N2O	CO2e
GHG Activity	Year	MT/yr							
Construction	2018	650.9300	0.1268	0.0000	654.1006	650.9295	0.1268	0.0000	654.1001
	Total								
	Significance Threshold								
	Exceed Significance?								

Torrance Pipeline

Los Angeles-South Coast County, 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												
Demo Haul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline 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
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utility 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
Well 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

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
Bore/Drill Rigs	Diesel	No Change	0	1	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	1	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	3	No Change	0.00
Cranes	Diesel	No Change	0	2	No Change	0.00
Dumpers/Tenders	Diesel	No Change	0	3	No Change	0.00
Excavators	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	0	No Change	0.00
Generator Sets	Diesel	No Change	0	0	No Change	0.00

Paving Equipment	Diesel	No Change	0	1	No Change	0.00
Pumps	Diesel	No Change	0	1	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	1	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	5	No Change	0.00
Welders	Diesel	No Change	0	0	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	6.27000E-003	4.21200E-002	3.89400E-002	6.00000E-005	3.16000E-003	3.16000E-003	0.00000E+000	5.36184E+000	5.36184E+000	5.10000E-004	0.00000E+000	5.37458E+000
Bore/Drill Rigs	5.96400E-002	8.30830E-001	4.14160E-001	1.86000E-003	2.34800E-002	2.16000E-002	0.00000E+000	1.69627E+002	1.69627E+002	5.28100E-002	0.00000E+000	1.70947E+002
Cement and Mortar Mixers	2.91000E-003	1.82300E-002	1.52600E-002	4.00000E-005	7.20000E-004	7.20000E-004	0.00000E+000	2.26847E+000	2.26847E+000	2.40000E-004	0.00000E+000	2.27436E+000
Concrete/Industrial Saws	5.96000E-002	4.49240E-001	4.27340E-001	7.20000E-004	3.06400E-002	3.06400E-002	0.00000E+000	6.16961E+001	6.16961E+001	4.78000E-003	0.00000E+000	6.18155E+001
Cranes	5.65000E-002	6.75260E-001	2.49660E-001	5.70000E-004	2.92300E-002	2.68900E-002	0.00000E+000	5.21443E+001	5.21443E+001	1.62300E-002	0.00000E+000	5.25501E+001
Dumpers/Tenders	5.96000E-003	3.77800E-002	2.03200E-002	6.00000E-005	1.47000E-003	1.47000E-003	0.00000E+000	4.47801E+000	4.47801E+000	4.80000E-004	0.00000E+000	4.49003E+000
Excavators	1.43100E-002	1.53250E-001	1.62140E-001	2.60000E-004	7.43000E-003	6.84000E-003	0.00000E+000	2.33323E+001	2.33323E+001	7.26000E-003	0.00000E+000	2.35139E+001
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	1.17700E-002	1.31600E-001	1.25540E-001	2.00000E-004	6.44000E-003	5.93000E-003	0.00000E+000	1.84115E+001	1.84115E+001	5.73000E-003	0.00000E+000	1.85548E+001
Pumps	2.63200E-002	2.06650E-001	1.88360E-001	3.30000E-004	1.36800E-002	1.36800E-002	0.00000E+000	2.79778E+001	2.79778E+001	2.12000E-003	0.00000E+000	2.80307E+001
Rollers	2.55300E-002	2.46850E-001	1.91610E-001	2.60000E-004	1.69900E-002	1.56300E-002	0.00000E+000	2.37018E+001	2.37018E+001	7.38000E-003	0.00000E+000	2.38862E+001
Rubber Tired Dozers	1.83700E-002	1.97820E-001	6.89300E-002	1.30000E-004	9.62000E-003	8.85000E-003	0.00000E+000	1.22903E+001	1.22903E+001	3.83000E-003	0.00000E+000	1.23860E+001
Tractors/Loaders/Backhoes	4.79000E-002	4.73350E-001	4.20610E-001	5.60000E-004	3.35300E-002	3.08500E-002	0.00000E+000	5.10742E+001	5.10742E+001	1.59000E-002	0.00000E+000	5.14717E+001
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

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	6.27000E-003	4.21200E-002	3.89400E-002	6.00000E-005	3.16000E-003	3.16000E-003	0.00000E+000	5.36184E+000	5.36184E+000	5.10000E-004	0.00000E+000	5.37457E+000

Bore/Drill Rigs	5.96400E-002	8.30830E-001	4.14160E-001	1.86000E-003	2.34800E-002	2.16000E-002	0.00000E+000	1.69627E+002	1.69627E+002	5.28100E-002	0.00000E+000	1.70947E+002
Cement and Mortar Mixers	2.91000E-003	1.82300E-002	1.52600E-002	4.00000E-005	7.20000E-004	7.20000E-004	0.00000E+000	2.26847E+000	2.26847E+000	2.40000E-004	0.00000E+000	2.27435E+000
Concrete/Industrial Saws	5.96000E-002	4.49240E-001	4.27340E-001	7.20000E-004	3.06400E-002	3.06400E-002	0.00000E+000	6.16960E+001	6.16960E+001	4.78000E-003	0.00000E+000	6.18154E+001
Cranes	5.65000E-002	6.75260E-001	2.49660E-001	5.70000E-004	2.92300E-002	2.68900E-002	0.00000E+000	5.21442E+001	5.21442E+001	1.62300E-002	0.00000E+000	5.25500E+001
Dumpers/Tenders	5.96000E-003	3.77800E-002	2.03200E-002	6.00000E-005	1.47000E-003	1.47000E-003	0.00000E+000	4.47801E+000	4.47801E+000	4.80000E-004	0.00000E+000	4.49003E+000
Excavators	1.43100E-002	1.53250E-001	1.62140E-001	2.60000E-004	7.43000E-003	6.84000E-003	0.00000E+000	2.33323E+001	2.33323E+001	7.26000E-003	0.00000E+000	2.35139E+001
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	1.17700E-002	1.31600E-001	1.25540E-001	2.00000E-004	6.44000E-003	5.93000E-003	0.00000E+000	1.84115E+001	1.84115E+001	5.73000E-003	0.00000E+000	1.85548E+001
Pumps	2.63200E-002	2.06650E-001	1.88360E-001	3.30000E-004	1.36800E-002	1.36800E-002	0.00000E+000	2.79777E+001	2.79777E+001	2.12000E-003	0.00000E+000	2.80307E+001
Rollers	2.55300E-002	2.46850E-001	1.91610E-001	2.60000E-004	1.69900E-002	1.56300E-002	0.00000E+000	2.37017E+001	2.37017E+001	7.38000E-003	0.00000E+000	2.38862E+001
Rubber Tired Dozers	1.83700E-002	1.97820E-001	6.89300E-002	1.30000E-004	9.62000E-003	8.85000E-003	0.00000E+000	1.22903E+001	1.22903E+001	3.83000E-003	0.00000E+000	1.23859E+001
Tractors/Loaders/Backhoes	4.79000E-002	4.73350E-001	4.20610E-001	5.60000E-004	3.35300E-002	3.08500E-002	0.00000E+000	5.10741E+001	5.10741E+001	1.59000E-002	0.00000E+000	5.14716E+001
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

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	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.86061E-006
Bore/Drill Rigs	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17906E-006	1.17906E-006	0.00000E+000	0.00000E+000	1.22845E-006
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	4.39684E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.13459E-006	1.13459E-006	0.00000E+000	0.00000E+000	1.13240E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15065E-006	1.15065E-006	0.00000E+000	0.00000E+000	1.14177E-006
Dumpers/Tenders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.28577E-006	1.28577E-006	0.00000E+000	0.00000E+000	8.50561E-007
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.08628E-006	1.08628E-006	0.00000E+000	0.00000E+000	1.07789E-006
Pumps	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07228E-006	1.07228E-006	0.00000E+000	0.00000E+000	1.07026E-006

Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.26573E-006	1.26573E-006	0.00000E+000	0.00000E+000	1.25595E-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	8.13650E-007	8.13650E-007	0.00000E+000	0.00000E+000	1.61473E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17476E-006	1.17476E-006	0.00000E+000	0.00000E+000	1.35997E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Replace Ground Cover of Area Disturbed	PM10 Reduction	5.00	PM2.5 Reduction	5.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	15.00		
No	Clean Paved Road	% PM Reduction	9.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Demo Haul	Fugitive Dust	0.08	0.01	0.03	0.01	0.57	0.57
Demo Haul	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Pipeline Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline Construction	Roads	0.04	0.01	0.04	0.01	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Utility Trenching	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Utility Trenching	Roads	0.04	0.01	0.04	0.01	0.00	0.00
Well Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Well Construction	Roads	0.04	0.01	0.04	0.01	0.00	0.00

Construction Localized Significance Thresholds: Demolition and Site Prep

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
3	1.13	25	82

Source Receptor	Southwest Coastal LA County
Distance (meters)	25
NOx	**96**
CO	**702**
PM10	**5.37**
PM2.5	**3.25**

Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Tractors	0.5	0.0625	2	6	0.75
Graders	0.5	0.0625			0
Dozers	0.5	0.0625	1	6	0.375
Scrapers	1	0.125			0
				Acres	1.13

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	91	93	107	139	218
	2	131	128	139	165	233
		96	97	111	142	220
CO	1	664	785	1156	2228	7269
	2	967	1158	1597	2783	7950
		702	832	1211	2297	7354
PM10	1	5	14	28	56	140
	2	8	23	37	65	148
		5	15	29	57	141
PM2.5	1	3	5	9	21	75
	2	5	7	12	25	81
		3	5	9	22	76

Southwest Coastal LA County
1.13 Acres

	25	**50**	**100**	**200**	**500**
NOx	96	97	111	142	220
CO	702	832	1211	2297	7354
PM10	5	15	29	57	141
PM2.5	3	5	9	22	76

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
3	1	3	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Utility Trenching, Pipeline Construction, and Well Construction

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
3	1.13	25	82

Source Receptor	Southwest Coastal LA County	Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25	Tractors	0.5	0.0625	3	6	1.125
NOx	**96**	Graders	0.5	0.0625			0
CO	**702**	Dozers	0.5	0.0625			0
PM10	**5.37**	Scrapers	1	0.125			0
PM2.5	**3.25**					**Acres**	1.13

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	91	93	107	139	218
	2	131	128	139	165	233
		96	97	111	142	220
CO	1	664	785	1156	2228	7269
	2	967	1158	1597	2783	7950
		702	832	1211	2297	7354
PM10	1	5	14	28	56	140
	2	8	23	37	65	148
		5	15	29	57	141
PM2.5	1	3	5	9	21	75
	2	5	7	12	25	81
		3	5	9	22	76

Southwest Coastal LA County

1.13 Acres

	25	**50**	**100**	**200**	**500**
NOx	96	97	111	142	220
CO	702	832	1211	2297	7354
PM10	5	15	29	57	141
PM2.5	3	5	9	22	76

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
3	1	3	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Utility Trenching, Pipeline Construction, and Well Construction

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
3	2.25	25	82

Source Receptor	Southwest Coastal LA County	Equipment	Acres/8-hr Day	Acres/Hr	Equipment Used	Number of Hrs	Acres
Distance (meters)	25	Tractors	0.5	0.0625	5	6	1.875
NOx	**137**	Graders	0.5	0.0625			0
CO	**1034**	Dozers	0.5	0.0625	1	6	0.375
PM10	**8.58**	Scrapers	1	0.125			0
PM2.5	**5.25**					**Acres**	2.25

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	2	131	128	139	165	233
	3	153	148	160	184	248
		137	133	144	170	237
CO	2	967	1158	1597	2783	7950
	3	1234	1433	1934	3228	8584
		1034	1227	1681	2894	8109
PM10	2	8	23	37	65	148
	3	10	31	45	73	156
		9	25	39	67	150
PM2.5	2	5	7	12	25	81
	3	6	8	14	28	86
		5	7	13	26	82

Southwest Coastal LA County

2.25 Acres

	25	**50**	**100**	**200**	**500**
NOx	137	133	144	170	237
CO	1034	1227	1681	2894	8109
PM10	9	25	39	67	150
PM2.5	5	7	13	26	82

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
3	2	3	3

Distance Increment Below

25

Distance Increment Above

25

Updated: 10/21/2009 - Table C-1. 2006 – 2008