Appendix C
AQ and GHG Report

Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Paseo Montril Project San Diego, California

Prepared for:

Tri Pointe Homes
13400 Sabre Springs Parkway STE 200
San Diego California 92128
Contact: Tiffany Finstad

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Nicholas Lorenzen

OCTOBER 2021

Printed on 30% post-consumer recycled material.

Table of Contents

APPENDICES

FIGURE

TABLES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
2050 RTP/SCS	2050 Regional Transportation Plan
AB	Assembly Bill
ATCM	Airborne Toxic Control Measure
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CH_4	methane
City	City of San Diego
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
County	County of San Diego
DPM	diesel particulate matter
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
GHG	greenhouse gas
GWP	global warming potential
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HRA	health risk assessment
IPCC	Intergovernmental Panel on Climate Change
LOS	level of service
MMT CO_2e	million metric tons of CO_2 equivalent
MT	metric tons
MT CO_2e	metric tons of CO_2 equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
PDF	Project Design Feature
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppm	parts per million
RAQS	Regional Air Quality Strategy
Regional Plan	San Diego Forward: The Regional Plan

Acronym/Abbreviation	Definition
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas and Electric
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLCP	short-lived climate pollutant
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAC	toxic air contaminant
VMT	vehicle miles traveled
VOC	volatile organic compound
ZEV	zero emissions vehicle

Executive Summary

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Paseo Montril Project (project) located within the City of San Diego (City). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.).

Project Overview

The project is approximately 15.2 acres and includes a total of 55 multifamily units. The project proposes a Vesting Tentative Map, Site Development Permit, Planned Development Permit, Rezone, and Community Plan Amendment to construct a 55-unit multi-family residential development with supporting improvements.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the proposed project. Impacts were evaluated for their significance based on the City's CEQA Significance Determination Thresholds (City of San Diego 2016) and the San Diego Air Pollution Control District's (SDAPCD) mass daily criteria air pollutant thresholds of significance (SDAPCD 2016a) outlined in Rule 20.2. Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (criteria) for outdoor concentrations to protect public health. Criteria air pollutants include ozone, nitrogen dioxide, carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to ozone.

Air Quality Plan Consistency

If a project proposes development that is greater than that anticipated in the local plan and the growth projections set by the San Diego Association of Governments (SANDAG), the project might be in conflict with the State Implementation Plan and Regional Air Quality Strategy, and therefore may contribute to a potentially significant cumulative impact on air quality. The project was deemed to be consistent with the current air quality plan because the anticipated growth associated with the project does not exceed that projected by SANDAG. In addition, the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Maximum daily construction emissions would not exceed the SDAPCD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction.

Operational Criteria Air Pollutant Emissions

The analysis herein assumed an operational year of 2022 based on the planned construction schedule. Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (consumer product use, architectural coatings, and landscape maintenance equipment), and energy (natural gas). Maximum operational emissions would not exceed the SDAPCD operational significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Cumulative Impacts

The potential for the project to result in a cumulatively considerable impact, per the SDAPCD guidance and thresholds, is based on the project's potential to exceed the project-specific daily thresholds. Because maximum construction and operational emissions would not exceed the SDAPCD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, the project would not result in a cumulatively considerable increase in criteria air pollutants.

Exposure of Sensitive Receptors

Construction activities would not generate emissions in excess of the SDAPCD site-specific mass daily thresholds; therefore, site-specific construction impacts during construction of the project would be less than significant. In addition, diesel equipment would also be subject to the California Air Resources Board Airborne Toxic Control Measures for in-use off-road diesel fleets, which would minimize diesel particulate matter emissions. As a precautionary measure, a health risk assessment (HRA) was performed to assess the impact of construction on sensitive receptors proximate to the project site (provided as Appendix D). The construction HRA prepared for the project showed non-cancer (chronic) risk below levels of significance prior to mitigation; however, cancer risk would exceed the SDAPCD threshold prior to mitigation. With MM-AQ-1, which reduces diesel particulate matter emissions from construction equipment, cancer risk impacts would be mitigated below the SDAPCD 10-in-a-million cancer risk threshold resulting in a less than significant impact after mitigation. No residual toxic air contaminant emissions and corresponding cancer risk are anticipated after construction, since no long-term sources of toxic air contaminant emissions are anticipated during operation of the project. Therefore, impacts to sensitive receptors would be less than significant.

A HRA was performed to evaluate potential health risks at future sensitive receptors of the project from DPM emissions from the proximate Interstate 15 (I-15) freeway (Appendix E). The diesel particulate matter emissions from the I-15 freeway would result in a cancer and non-cancer (chronic) below the SDAPCD significance threshold.

The project would not exceed the City's CO hotspots screening levels during operation. As such, potential project-generated impacts associated with CO hotspots would be less than significant.

Other Emissions

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The project would be a mixed-use development that would not include land uses with sources that have the potential to generate substantial odors, and impacts associated with odors during operation would be less than significant.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact, but must also be evaluated on a project-level under the California Environmental Quality Act. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. GHGs are gases that absorb infrared radiation in the atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane, and nitrous oxide. GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential factors for methane and nitrous oxide.

Project-Generated Construction and Operational Greenhouse Gas Emissions

Construction of the project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total project-generated GHG emissions during construction were estimated to be 2,226 MT CO_2e, or 74 MT CO_2e per year when amortized over 30 years.

The project would generate operational GHG emissions from area sources (landscape maintenance), energy sources (electricity consumption), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. Estimated annual project-generated operational GHG emissions at buildout in 2024 would be approximately 611 MT CO_2e per year. Estimated annual project-generated operational emissions in 2024, plus amortized construction emissions, would be approximately 685 MT CO_2e per year.

Consistency with Applicable Greenhouse Gas Reduction Plans

The project was shown to be consistent with the SANDAG's San Diego Forward: The Regional Plan, and Senate Bill 32. However, the project would conflict with the City's CAP Consistency Checklist. Therefore, the project's impacts on GHG emissions would be significant and unavoidable.

INTENTIONALLY LEFT BLANK

1 Introduction

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Paseo Montril Project (project or proposed project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and is based on the emissions-based significance thresholds recommended by the San Diego Air Pollution Control District (SDAPCD) and other applicable thresholds of significance.

This introductory section provides a description of the project and the project location (see Figure 1, Project Location). Section 2, Air Quality, describes the air quality-related environmental setting, regulatory setting, existing air quality conditions, thresholds of significance and analysis methodology, and also presents an air quality impact analysis per Appendix G of the CEQA Guidelines. Section 3, Greenhouse Gas Emissions, follows the same format as Section 2 and similarly describes the GHG emissions-related environmental setting, regulatory setting, existing climate change conditions, thresholds of significance and analysis methodology, and presents a GHG emissions impact analysis per Appendix G of the CEQA Guidelines. Section 4, References Cited, includes a list of the references cited. Section 5, List of Preparers, includes a list of those who prepared this technical report.

1.2 Project Location

The approximately 15.2-acre project site is located at the eastern terminus of Paseo Montril in Rancho Peñasquitos Community Plan area of the City of San Diego, California (Figure 1, Project Location). Commercial and residential developments borders the site to the north and west and by the interstate 15 to the east and south. The site is located less than a quarter of a mile north-northwest of Interstate 15 Freeway (Figure 1, Project Location).

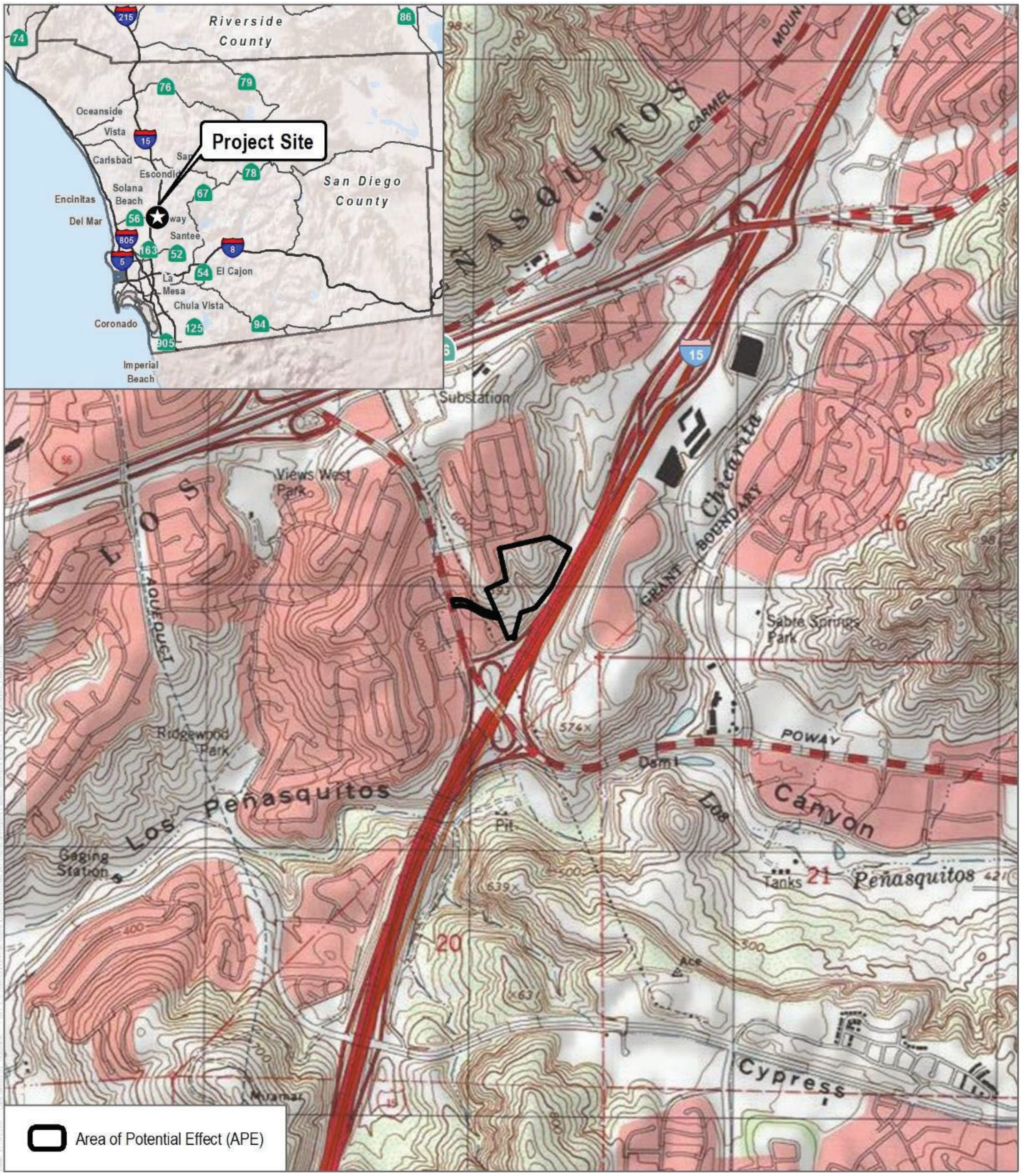
1.3 Project Description

The project is approximately 15.2 acres and includes a total of 55 multi-family condominiums units with ancillary internal streets and parkways and associated parking. The project site is within the Rancho Peñasquitos Community Plan and has a land use designation as Open Space and is currently zoned as RM-2-5 residential multiple unit and RS-1-14 single-family residential unit. The project proposes a Community Plan Amendment to change Lot 1 to Low-Medium Density Residential to allow for the proposed multi-family residential uses. The project also proposes to rezone Lot 1 to RM-1-1 and Lot 2 to OC-1-1.

The project includes several sustainability features, including:

- Development of a site within an urbanized area to reduce urban sprawl.
- Clustering of residential buildings and minimization of the project footprint.
- Development in proximity to transit, with a bus station located within walking distance at 700 feet away.
- Provision of 10% of parking (12 spaces) that include electrical equipment to allow for the future installation of electrical vehicle charging stations.
- Use of drought tolerant landscaping to reduce water demand.

- Inclusion of rooftop solar consistent with Title 24 requirements.
- Adherence to a waste management plan that provides for:
  - 75% recycling of demolition waste and 75% diversion of construction waste; and
  - Provision of appropriate recycling amenities and services during operations, including recyclable material storage areas, provision of recycling materials receptacles, provision of organic waste recycling receptacles, collection of recyclables twice a month, and education to residents about recycling services available.



SOURCE: USGS 7.5-Minute Series Poway Quadrangle
Towhship 14S, Range 2W, Section 17

DUDEK

0 1,000 2,000 Feet
0 250 500 Meters
1:24,000

FIGURE 1

Project Location

Paseo Montril Development Project

INTENTIONALLY LEFT BLANK

2 Air Quality

2.1 Environmental Setting

The project site is located within the San Diego Air Basin (SDAB) and is subject to the SDAPCD guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in Fahrenheit [°F]) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains to the east.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east. Along with local meteorology, the topography influences the dispersal and movement of pollutants in the SDAB. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers as described in the next section.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

2.1.1 Meteorological and Topographical Conditions

The SDAB lies in the southwest corner of California, comprises the entire San Diego region (covering approximately 4,260 square miles), and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The climate also drives the pollutant levels. The climate of San Diego is classified as Mediterranean, but it is incredibly diverse due to the topography. The climate is dominated by the Pacific High pressure system that results in mild, dry summers and mild, wet winters. The Pacific High drives the prevailing winds in the SDAB. The winds tend to blow onshore during the daytime and offshore at night. In the fall months, the SDAB is often impacted by Santa Ana winds. These winds are the result of a high pressure system over the Nevada–Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean (SDAPCD 2015a). The winds blow the air basin's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase the San Diego ozone (O_3) concentrations. A strong Santa Ana also primes the vegetation for firestorm conditions.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. Another type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm.

The shallow inversion layer formed between these two air masses can also trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, commonly known as smog.

Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to emissions of carbon monoxide (CO) and oxides of nitrogen (NO_x). CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the basin are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days when O_3 concentrations are lower.

The local climate in the central part of the County of San Diego (County) is characterized as semi-arid with consistently mild, warmer temperatures throughout the year. The average summertime high temperature in the region is approximately 86°F. The average wintertime low temperature is approximately 39°F. Average precipitation in the local area is approximately 13.2 inches per year, with the bulk of precipitation falling between November and March (WRCC 2017).

2.1.2 Pollutants and Effects

2.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (criteria) for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone).[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is, thus, considered "bad" O_3. Stratospheric, or "good,"

1 The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's (2016a) Criteria Air Pollutants and the CARB (2016a) Glossary of Air Pollutant Terms.

2 The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about five miles at the poles and about 10 miles at the equator.

O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide and Oxides of Nitrogen. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016b).

NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources of NO_x are transportation and stationary fuel combustion sources, such as electric utility and industrial boilers.

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter (about 1/7 the thickness of a human hair). Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter (roughly 1/28 the diameter of a human hair). $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the primary sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment and reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor that has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in the air can cause nervous system effects such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$, described above.

2.1.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over five years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than one micrometer in diameter (about 1/70th the diameter of a human hair) and, thus, is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR

93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines, including on-road diesel engines from trucks, buses, and cars; and off-road diesel engines from locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and, overall, is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The fungus is very prevalent in the soils of California's San Joaquin Valley, particularly in Kern County. Kern County is considered a highly endemic county (i.e., more than 20 cases annually of Valley Fever per 100,000 people) based on the incidence rates reported through 2016 (California Department of Public Health 2017).. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

The County is not considered a highly endemic region for Valley Fever, as the latest report from the California Department of Public Health indicated the County has 4.4 cases per 100,000 people (California Department of Public Health 2017). Similarly, among the total reported incidents of Valley Fever from 2008 through 2017, only 0.9% of the cases reported in the County were in in the City's zip code (92129) (County of San Diego 2018).

2.1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SDAPCD identifies sensitive receptors as those who are especially susceptible to adverse health effects from exposure to TACs, such as children, the elderly, and the ill. Sensitive receptors include schools (grades Kindergarten through 12), day care centers, nursing homes, retirement homes, health clinics, and hospitals within two kilometers of the facility (SDAPCD 2019). The closest sensitive receptors to the proposed project are residences near the northwest property boundary.

2.2 Regulatory Setting

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of the National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

Under the CAA, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every five years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal CAA amendments required the EPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. Hazardous air pollutants include certain VOCs, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA amendments, which expanded the control program for hazardous air pollutants, 189 substances and chemical families were identified as hazardous air pollutants.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the CAA and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, 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. The NAAQS and CAAQS are presented in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 $\mu g/m^3$)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 $\mu g/m^3$)	0.070 ppm (137 $\mu g/m^3$)[f]	
NO_2[g]	1 hour	0.18 ppm (339 $\mu g/m^3$)	0.100 ppm (188 $\mu g/m^3$)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2[h]	1 hour	0.25 ppm (655 $\mu g/m^3$)	0.075 ppm (196 $\mu g/m^3$)	—
	3 hours	—	—	0.5 ppm (1,300 $\mu g/m^3$)
	24 hours	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	20 $\mu g/m^3$	—	
$PM_{2.5}$[i]	24 hours	—	35 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	12 $\mu g/m^3$	12.0 $\mu g/m^3$	15.0 $\mu g/m^3$
Lead[j,k]	30-day Average	1.5 $\mu g/m^3$	—	—
	Calendar Quarter	—	1.5 $\mu g/m^3$ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 $\mu g/m^3$	
Hydrogen sulfide	1 hour	0.03 ppm (42 $\mu g/m^3$)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 $\mu g/m^3$)	—	—
Sulfates	24 hours	25 $\mu g/m^3$	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b; EPA 2016c.

Notes: O_3 = ozone; ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended 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.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per 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 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

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

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

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

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

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

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

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over three years.

[j] California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling three-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.2.2.2 Toxic Air Contaminants

A TAC is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Federal laws use the hazardous air pollutants to refer to the same types of compounds that are referred to as TACs under state law. California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. Pursuant to AB 2588, existing facilities that emit air pollutants above specified levels were required to (1) prepare a TAC emission inventory plan and report; (2) prepare a risk assessment if TAC emissions were significant; (3) notify the public of significant risk levels; and (4) if health impacts were above specified levels, prepare and implement risk reduction measures.

The following regulatory measures pertain to the reduction of DPM and criteria pollutant emissions from off-road equipment and diesel-fueled vehicles.

Idling of Commercial Heavy Duty Trucks (13 CCR 2485)

In July 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to control emissions from idling trucks. The ATCM prohibits idling for more than five minutes for all commercial trucks with a gross vehicle weight rating over 10,000 pounds. The ATCM contains an exception that allows trucks to idle while queuing or involved in operational activities.

In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.)

In July 2007, CARB adopted an ATCM for in-use off-road diesel vehicles. This regulation requires that specific fleet average requirements are met for NO_x emissions and for particulate matter emissions. Where average requirements cannot be met, best available control technology requirements apply. The regulation also includes several recordkeeping and reporting requirements.

In response to AB 8 2X, the regulations were revised in July 2009 (effective December 3, 2009) to allow a partial postponement of the compliance schedule in 2011 and 2012 for existing fleets. On December 17, 2010, CARB adopted additional revisions to further delay the deadlines reflecting reductions in diesel emissions due to the poor economy and overestimates of diesel emissions in California. The revisions delayed the first compliance date until no earlier than January 1, 2014, for large fleets, with final compliance by January 1, 2023. The compliance dates for medium fleets were delayed until an initial date of January 1, 2017, and final compliance date of January 1, 2023. The compliance dates for small fleets were delayed until an initial date of January 1, 2019, and final compliance date of January 1, 2028. Correspondingly, the fleet average targets were made more stringent in future compliance years. The revisions also accelerated the phaseout of older equipment with newer equipment added to existing large and medium fleets over time, requiring the addition of Tier 2 or higher engines starting on March 1, 2011, with some exceptions: Tier 2 or higher engines on January 1, 2013, without exception; and Tier 3 or higher engines on January 1, 2018 (January 1, 2023, for small fleets).

On October 28, 2011 (effective December 14, 2011), the Executive Officer approved amendments to the regulation. The amendments included revisions to the applicability section and additions and revisions to the definition. The initial date for requiring the addition of Tier 2 or higher engines for large and medium fleets, with some exceptions, was revised to January 1, 2012. New provisions also allow for the removal of emission control devices for safety or visibility purposes. The regulation also was amended to combine the particulate matter and NO_x fleet average targets under one, instead of two, sections. The amended fleet average targets are based on the fleet's NO_x fleet average, and the previous section regarding particulate matter performance requirements was deleted completely. The best available control technology requirements, if a fleet cannot comply with the fleet average requirements, were restructured and clarified. Other amendments to the regulations included minor administrative changes to the regulatory text.

In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025)

On December 12, 2008, CARB adopted an ATCM to reduce NO_x and particulate matter emissions from most in-use on-road diesel trucks and buses with a gross vehicle weight rating greater than 14,000 pounds. The original ATCM regulation required fleets of on-road trucks to limit their NO_x and particulate matter emissions through a combination of exhaust retrofit equipment and new vehicles. The regulation limited particulate matter emissions for most fleets by 2011, and limited NO_x emissions for most fleets by 2013. The regulation did not require any vehicle to be replaced before 2012 and never required all vehicles in a fleet be replaced.

In December 2009, the CARB Governing Board directed staff to evaluate amendments that would provide additional flexibility for fleets adversely affected by the struggling California economy. On December 17, 2010, CARB revised this ATCM to delay its implementation along with limited relaxation of its requirements. Starting on January 1, 2015, lighter trucks with a gross vehicle weight rating of 14,001 to 26,000 pounds with 20-year-old or older engines need to be replaced with newer trucks (2010 model year emissions equivalent as defined in the regulation). Trucks with a gross vehicle weight rating greater than 26,000 pounds with 1995 model year or older engines needed to be replaced as of January 1, 2015. Trucks with 1996 to 2006 model year engines must install a Level 3 (85% control) diesel particulate filter starting on January 1, 2012, to January 1, 2014, depending on the model year, and then must be replaced after eight years. Trucks with 2007 to 2009 model year engines have no requirements until 2023, at which time they must be replaced with 2010 model year emissions-equivalent engines, as defined in the regulation. Trucks with 2010 model year engines would meet the final compliance requirements. The ATCM provides a phase-in option under which a fleet operator would equip a percentage of trucks in the fleet with diesel particulate filters, starting at 30% as of January 1, 2012, with 100% by January 1, 2016. Under each option, delayed compliance is granted to fleet operators who have or will comply with requirements before the required deadlines.

On September 19, 2011 (effective December 14, 2011), the Executive Officer approved amendments to the regulations, including revisions to the compliance schedule for vehicles with a gross vehicle weight rating of 26,000 pounds or less to clarify that *all* vehicles must be equipped with 2010 model year emissions equivalent engines by 2023. The amendments included revised and additional credits for fleets that have downsized; implement early particulate matter retrofits; incorporate hybrid vehicles, alternative-fueled vehicles, and vehicles with heavy-duty pilot ignition engines; and implement early addition of newer vehicles. The amendments included provisions for additional flexibility, such as for low-usage construction trucks, and revisions to previous exemptions, delays, and extensions. Other amendments to the regulations included minor administrative changes to the regulatory text, such as recordkeeping and reporting requirements related to other revisions.

California Health and Safety Code Section 41700

Section 41700 of the California Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.2.3 Local Regulations

2.2.3.1 San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The proposed project area is located within the SDAB and is subject to the guidelines and regulations of the SDAPCD.

In the County, O_3 and particulate matter are the pollutants of main concern, since exceedances of state ambient air quality standards for those pollutants have been observed in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, an O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only, including the proposed project area).

Federal Attainment Plans

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS), which indicated that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016a). In this plan, SDAPCD relies on the Regional Air Quality Strategy (RAQS) to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these pollutants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

Currently, the County is designated as moderate nonattainment for the 2008 NAAQS and maintenance for the 1997 NAAQS. As documented in the 2016 8-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low-emission cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. The County will also continue emission control measures, including ongoing implementation of existing regulations in O_3 precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and the adoption of laws requiring best available retrofit control technology for control of emissions (SDAPCD 2016a).

State Attainment Plans

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated on a triennial basis, most recently in 2016 (SDAPCD 2016b). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans (SANDAG 2017a, 2017b).

In December 2016, the SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region reduced daily VOC emissions and NO_x emissions by 3.9% and 7.0%, respectively; the SDAPCD expects to continue reductions through 2035 (SDAPCD 2016b). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in the SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, the SDAPCD is considering additional measures, including three VOC measures and four control measures to reduce 0.3 daily tons of VOC and 1.2 daily tons of NO_x, provided they are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emission offset repeal.

In regards to particulate matter emissions-reduction efforts, in December 2005, the SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill (SB) 656 in the County (SB 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carry-out and track-out removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

SDAPCD Rules and Regulations

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD and would apply to the proposed project.

SDAPCD Regulation II: Permits; Rule 20.2: New Source Review Non-Major Stationary Sources

This rule requires new or modified stationary source units (that are not major stationary sources) with the potential to emit 10 pounds per day or more of VOC, NO_x, SO_x, or PM_{10} to be equipped with best available control technology. For those units with a potential to emit above Air Quality Impact Assessments Trigger Levels, the units must demonstrate that such emissions would not violate or interfere with the attainment of any national air quality standard (SDAPCD 2016b).

The proposed project does not propose specific stationary sources. If stationary sources were to be included as part of the proposed project, or at a later date, those sources would be subject to Rule 20.2 and would require appropriate operating permits from the SDAPCD. Because the SDAPCD has not adopted specific criteria air pollutant thresholds for CEQA analyses, the thresholds identified in Rule 20.2 are utilized in this analysis as screening-level thresholds to evaluate project-level impacts, as discussed in Section 2.4.1, Thresholds of Significance.

SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions

This rule prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any period of 60 consecutive minutes, which is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer’s view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

Construction of the proposed project may result in visible emissions, primarily during earth-disturbing activities, which would be subject to SDAPCD Rule 50. Although visible emissions are less likely to occur during operation of the proposed project, compliance with SDAPCD Rule 50 would be required during both construction and operational phases.

SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance

This rule prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).

Any criteria air pollutant emissions, TAC emissions, or odors that would be generated during construction or operation of the proposed project would be subject to SDAPCD Rule 51. Violations can be reported to the SDAPCD in the form of an air quality complaint by telephone, email, and online form. Complaints are investigated by the SDAPCD as soon as possible.

SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust

This rule regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project area (SDAPCD 2009b).

Construction of the proposed project, primarily during earth-disturbing activities, may result in fugitive dust emissions that would be subject to SDAPCD Rule 55. Fugitive dust emissions are not anticipated during operation of the proposed project.

SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings

This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015b). Construction and operation of the proposed project would include application of architectural coatings (e.g., paint and other finishes), which are subject to SDAPCD Rule 67.0.1. Architectural coatings used in the reapplication of coatings during operation of the proposed project would be subject to the VOC content limits identified in SDAPCD Rule 67.0.1, which applies to coatings manufactured, sold, or distributed within the County.

SDAPCD Regulation XII: Toxic Air Contaminants; Rule 1200: Toxic Air Contaminants - New Source Review

This rule requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above one in 1 million at every receptor location; demonstrate that toxics best available control technology will be employed if maximum incremental cancer risk is equal to or less than 10 in 1 million; or demonstrate compliance with the SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in 1 million but less than 100 in 1 million (SDAPCD 2017a).

The proposed project does not currently include specific stationary sources that would generate TACs that are not commonly associated with residential development projects. If stationary sources with the potential to emit TACs were to be included as part of the proposed project—or if they were added at a later date—those sources would be subject to SDAPCD Rule 1200, and would be subject to new source review requirements.

SDAPCD Regulation XII: Toxic Air Contaminants; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction

This rule requires each stationary source required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in 1 million, cancer burden equal to or greater than 1.0, total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0 (SDAPCD 2017b).

The proposed project does not currently include specific stationary sources that would generate TACs. If stationary sources with the potential to emit TACs were to be included as part of the proposed project—or if they were added at a later date—those sources would be subject to SDAPCD Rule 1210 and would be subject to public notification and risk reduction requirements.

2.2.3.2 San Diego Association of Governments

SANDAG is the regional planning agency for the County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for the County. With respect to air quality planning and other regional issues, SANDAG has prepared San Diego Forward: The Regional Plan (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how the region will grow over the next 35 years with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy (SCS), is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050.

In regards to air quality, the Regional Plan sets the policy context in which SANDAG participates in and responds to the air district's air quality plans and builds off the air district's air quality plan processes that are designed to meet health-based criteria pollutant standards in several ways (SANDAG 2015). First, it complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in air quality plans. Second, the Regional Plan emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On September 23, 2016, SANDAG's Board of Directors adopted the final 2016 Regional Transportation Improvement Program, which is a multibillion dollar, multiyear program of proposed major transportation projects in the San Diego region. Transportation projects funded with federal, state, and TransNet (the San Diego transportation sales tax program) must be included in an approved Regional Transportation Improvement Program. The programming of locally funded projects also may be programmed at the discretion of the agency. The 2016 Regional Transportation Improvement Program covers five fiscal years and incrementally implements the Regional Plan (SANDAG 2016).

2.2.3.3 City of San Diego

The San Diego Municipal Code addresses air quality and odor impacts at Chapter 14, Article 2, Division 7 paragraph 142.0710, "Air Contaminant Regulations," which states that air contaminants including smoke, charred paper, dust, soot, grime, carbon, noxious acids, toxic fumes, gases, odors, and particulate matter, or any emissions that endanger human health, cause damage to vegetation or property, or cause soiling shall not be permitted to emanate beyond the boundaries of the premises upon which the use emitting the contaminants is located (City of San Diego 2010).

2.3 Regional and Local Air Quality Conditions

2.3.1 San Diego Air Basin Attainment Designation

Pursuant to the 1990 federal CAA amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the SDAB with respect to the NAAQS and CAAQS.

Table 2. San Diego Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour	Attainment	**Nonattainment**
O_3 – (8 hour)	**Nonattainment (moderate)**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon Monoxide (CO)	Attainment (maintenance)	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse Particulate Matter (PM_{10})	Unclassifiable/attainment	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	Unclassifiable/attainment	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen Sulfide	No federal standard	Attainment
Sulfates	No federal standard	Unclassified
Visibility-Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	No designation

Sources: EPA 2016d (federal); CARB 2016c (state).
Notes:
Attainment = meets the standards; Attainment/maintenance = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
If nonattainment for federal standards, a clarifying classification will be provided indicating the severity of the nonattainment status.

In summary, the SDAB is designated as an attainment area for the 1997 8-hour O_3 NAAQS and as a nonattainment area for the 2008 8-hour O_3 NAAQS. The SDAB is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ CAAQS. The portion of the SDAB where the proposed project would be located is designated as attainment or unclassifiable/unclassified for all other criteria pollutants under the NAAQS and CAAQS.

2.3.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Local ambient air quality is monitored by the SDAPCD. The SDAPCD operates a network of ambient air monitoring stations throughout the County that measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest SDAPCD-operated monitoring station to the proposed project is the Kearny Villa Road monitoring station, which is located approximately 7 miles south of the project site. This Kearny Villa Road monitoring station was used to show the background ambient air quality for O_3, PM_{10}, $PM_{2.5}$, and NO_2 for the project site. The monitoring station located on First Street was the closest to the proposed project that monitored CO and SO_2 (12 miles south of the project site). Table 3 presents the most recent background ambient air quality data and number of days exceeding the ambient air quality standards from 2016 to 2018.

Table 3. Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O3) – Kearny Villa Road									
Maximum 1-hour Concentration	ppm	State	0.09	0.087	0.097	0.102	0	2	1
Maximum 8-hour Concentration	ppm	State	0.070	0.075	0.084	0.077	3	6	5
		Federal	0.070	0.075	0.083	0.077	3	6	5
Nitrogen Dioxide (NO2) – Kearny Villa Road									
Maximum 1-hour Concentration	ppm	State	0.18	0.053	0.054	0.045	0	0	0
		Federal	0.100	0.053	0.054	0.045	0	0	0
Annual Concentration	ppm	State	0.030	0.009	0.009	0.008	0	0	0
		Federal	0.053	0.009	0.009	0.008	0	0	0
Carbon Monoxide (CO) – First Street									
Maximum 1-hour Concentration	ppm	State	20	1.6	1.5	1.4	0	0	0
		Federal	35	1.6	1.5	1.4	0	0	0
Maximum 8-hour Concentration	ppm	State	9.0	1.3	1.4	1.1	0	0	0
		Federal	9	1.3	1.4	1.1	0	0	0
Sulfur Dioxide (SO2) – First Street									
Maximum 1-hour Concentration	ppm	Federal	0.075	0.001	0.001	0.004	0	0	0
Maximum 24-hour Concentration	ppm	State	0.04	0.000	0.000	0.000	0	0	0
	ppm	Federal	0.140	0.000	0.000	0.000	0	0	0
Annual Concentration	ppm	Federal	0.030	0.000	0.000	0.000	0	0	0
Coarse Particulate Matter (PM10)a – Kearny Villa Road									
Maximum 24-hour Concentration	μg/m³	State	50	35.0	47.0	38.0	0	0	0
		Federal	150	36.0	46.0	38.0	0	0	0
Annual Concentration	μg/m³	State	20	—	17.6	18.4	0	0	0
Fine Particulate Matter (PM2.5)a – Kearny Villa Road									
Maximum 24-hour Concentration	μg/m³	Federal	35	19.4	27.5	32.2	0	0	0
Annual Concentration	μg/m³	State	12	7.8	8.0	8.3	0	0	0
		Federal	12.0	7.5	7.9	8.3	0	0	0

Sources: CARB 2019; EPA 2019a.

Notes: ppm = parts per million; μg/m3 = micrograms per cubic meter; — = not available.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and Environmental Protection Agency AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every six days and every one to three days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.4 Significance Criteria and Methodology

2.4.1 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this air quality analysis, a significant impact would occur if the project would (14 CCR 15000 et seq.):

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

City of San Diego

To determine the significance of the project's emissions on the environment, the City's CEQA Significance Determination Thresholds (City of San Diego 2016) were used. The City's thresholds are consistent with the thresholds contained in Appendix G of CEQA Guidelines, with the addition of the following threshold:

- Release substantial quantities of air contaminants beyond the boundaries of the premises upon which the stationary source emitting the contaminants is located.[3]

The potential for the project to release substantial quantities of air contaminants under the aforementioned threshold is addressed in the analysis of the project-generated criteria air pollutant emissions, TAC emissions, and odors, as appropriate, in Section 2.5, Impact Analysis.

The SDAPCD Air Quality Significance Thresholds shown in Table 4 (below) were used to determine significance of proposed project-generated construction and operational criteria air pollutants; specifically, the proposed project's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation (as assessed under the threshold criterion 2). In regards to the analysis of potential impacts to sensitive receptors, the City specifically recommends consideration of sensitive receptors in locations such as day care centers, schools, retirement homes, and hospitals, or medical patients in residential homes close to major roadways or stationary sources, which could be impacted by air pollutants. The City of San Diego also states that the significance of potential odor impacts should be determined based on what is known about the quantity of the odor compound(s) that would result from the project's proposed use(s), the types of neighboring uses potentially affected, the distance(s) between the project's point source(s) and the neighboring uses such as sensitive receptors, and the resultant concentration(s) at the receptors.

3 San Diego Municipal Code, Chapter 14, Article 2, Division 7, Off-Site Development Impact Regulations paragraph 142.0710, Air Contaminant Regulations, states: "Air contaminants including smoke, charred paper, dust, soot, grime, carbon, noxious acids, toxic fumes, gases, odors, and particulate matter, or any emissions that endanger human health, cause damage to vegetation or property, or cause soiling shall not be permitted to emanate beyond the boundaries of the premises upon which the use emitting the contaminants is located." (Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

The air quality section of the CEQA Significance Determination Thresholds recognizes attainment status designations for the SDAB and its nonattainment status for both ozone and particulate matter. As such, the document recognizes that all new projects should include measures, pursuant to CEQA, to reduce project-related emissions of ozone precursors and particulate matter to ensure new development does not contribute to San Diego's nonattainment status for these pollutants.

San Diego Air Pollution Control District

As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources (SDAPCD 2016c). The SDAPCD sets forth quantitative emissions thresholds below which a stationary source would not have a significant impact on ambient air quality. Consistent with the City's CEQA Significance Determination Thresholds, project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4 are exceeded.[4]

Table 4. San Diego Air Pollution Control District Air Quality Significance Thresholds

Construction Emissions			
Pollutant	*Total Emissions (Pounds per Day)*		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_x)	250		
Oxides of Sulfur (SO_x)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)	75[a]		
Operational Emissions			
Pollutant	*Total Emissions*		
	Pounds per Hour	*Pounds per Day*	*Tons per Year*
PM_{10}	—	100	15
$PM_{2.5}$	—	55	10
NO_x	25	250	40
SO_x	25	250	40
CO	100	550	100
Operational Emissions			
Pollutant	*Total Emissions*		
	Pounds per Hour	*Pounds per Day*	*Tons per Year*
Lead and Lead Compounds	—	3.2	0.6
VOCs	—	75[a]	13.7

Sources: SDAPCD 1995; SDAPCD 2016b.
Notes: — = not available.
[a] VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

[4] Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

The thresholds listed in Table 4 represent screening-level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 4, the proposed project could have the potential to result in a cumulatively considerable net increase in these pollutants and, thus, could have a significant impact on the ambient air quality.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

2.4.2 Approach and Methodology

2.4.2.1 Construction

Emissions from the construction phase of the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017).

As described in Section 1.2, Project Description, the proposed project would develop 55 multi-family units. For the purposes of modeling, it was assumed that construction of the proposed project would commence in January 2022[5] and would last approximately 24 months, ending in December 2023. The analysis contained herein is based on the following subset area schedule assumptions (duration of phases is approximate):

- Site Preparation – 1 month (January 2022)
- Grading – 5 months (2022 – June 2022)
- Utilities – 5 months (June 2022 – November 2022)
- Paving – 5 months (June 2022 – November 2022)
- Building Construction – 13 months (November 2022 – December 2023)
- Architectural Coating – 1 month (December 2023)

The site preparation and grading phase listed above would occur sequentially in isolation. However, the building construction, utilities, paving and architectural coating phases are assumed to overlap for a period of time. The estimated construction duration was provided by the project applicant. Detailed construction equipment modeling assumptions are provided in Appendix A, CalEEMod Outputs.

The construction equipment mix used for estimating the construction emissions of the proposed project is based on information provided by the project applicant and is shown in Table 5.

5 The analysis assumes a construction start date of January 2022, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Table 5. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Site Preparation	18	0	0	Rubber Tired Dozers	3	8
				Tractors/Loaders/ Backhoes	4	8
Grading	20	0	5,638	Graders	1	8
				Excavators	2	8
				Rubber Tired Dozers	1	8
				Scrapers	2	8
				Tractors/Loaders/ Backhoes	2	8
Utilities	14	0	0	Excavators	2	8
				Rubber Tired Loaders	1	8
				Tractors/Loaders/ Backhoes	2	8
Building Construction	62	20	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	3	7
				Welders	1	8
Paving	16	0	0	Rollers	2	8
				Pavers	2	8
				Paving Equipment	2	8
Architectural Coating	12	0	0	Air Compressors	1	6

Note: See Appendix A for details.

For the analysis, it was assumed that heavy construction equipment would be operating five days per week (22 days per month) during proposed project construction. Construction worker and vendor trips were based on CalEEMod default assumptions and rounded up to the nearest whole number to account for whole round trips.

Proposed project grading would include 59,500 cubic yards of cut and 12,800 cubic yards of fill as represented in the grading phase, which would require 46,700 cubic yards of export. It is anticipated on-site that earth movement would be primarily, if not completely, accomplished using off-road equipment (e.g., scrapers and excavators).

Construction of proposed project components would be subject to SDAPCD Rule 55, Fugitive Dust Control, which requires that proposed construction include steps to restrict visible emissions of fugitive dust beyond the property line (SDAPCD 2009b). Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during proposed grading and construction activities.

A detailed depiction of the construction schedule—including information regarding phases and equipment used during each phase—is included in Appendix A of this report. The information contained in Appendix A was used as CalEEMod model inputs.

Blasting

Blasting operations would be required for site preparation. Rock blasting is the controlled use of explosives to excavate, break down, or remove rock. The result of rock blasting is often known as a rock cut. The most commonly used explosives today are ammonium nitrate/fuel oil-based blends, due to their lower cost compared to dynamite. The chemistry of ammonium nitrate/fuel oil detonation is the reaction of ammonium nitrate with a long-chain alkane to form NO_x, carbon dioxide (CO_2), and water. When detonation conditions are optimal, these gases are the only products. In practical use, such conditions are impossible to attain, and blasts produce moderate amounts of other gases. The EPA's Compilation of Air Pollutant Emission Factors (AP-42), Section 13.3 – Explosives Detonation (EPA 1980), provided the emissions factors for CO, NO_x, and SO_x used in this assessment. According to AP-42, "Unburned hydrocarbons also result from explosions, but in most instances, methane (CH_4) is the only species that has been reported" (EPA 1980); CH_4 is not a VOC, and a CH_4 emission factor has not been determined for ammonium nitrate/fuel oil.

AP-42 states that CO is the pollutant produced in greatest quantity from explosives detonation (EPA 1980). All explosives produce measurable amounts of CO. Particulates are produced as well, but such large quantities of particulate are generated during shattering of the rock and earth by the explosive that the quantity of particulates from the explosive charge cannot be distinguished. Accordingly, AP-42, Section 11.9 – Western Surface Coal Mining (EPA 1998), provided the basis for the PM_{10} and $PM_{2.5}$ emissions factors. The emissions factors are based on the horizontal area disturbed during blasting.

It is anticipated that blasting operations would occur during the grading phase of the proposed project. No more than one blast per day would occur during proposed construction activities. Based on information provided by the project applicant, a maximum of 2.9 tons of ammonium nitrate/fuel oil would be applied per blast. The blasting information provided by the project applicant and additional calculation assumptions are provided in Table 6.

Table 6. Blasting Characteristics

Activity	
Total Rock Requiring Blasting (cubic yards)	**28,000**
Rock Blasted per Blast (cubic yards per blast)	2,300
Maximum Blasts per Day (blasts per day)	1
Maximum Explosive per Blast (tons ANFO per blast)	2.9
Total Explosives Used (tons ANFO)	**57.2**

Sources: Appendix B.
Note: ANFO = ammonium nitrate/fuel oil

Rock Crushing.

In addition to blasting emissions, emissions associated with rock crushing were quantified in a separate calculation, since CalEEMod does not account for rock crushing. Emissions factors were obtained from AP-42, Section 11.9.2 – Crushed Stone Processing and Pulverized Mineral Processing (EPA 2004). For transfers to the feed hopper and stockpiles, the "drop" equation in Section 13.2.4 (Aggregate Handling and Storage Piles) of AP-42 (EPA 2006) was used to derive an emissions factor. Based on information provided by the project applicant the project, the project would crush a total maximum of 53,500 cubic yards of rock over the course of five weeks during the grading phase with approximately 2,140 cubic yards being crushed per day. It is assumed that rock crushing activity would occur for 8 hours a day while active. Notably, not all excavated material would be rock and thus require crushing. Therefore, this analysis is overly conservative as the maximum crushed material assumed would be equal to the total excavated amount.

The rock-crushing equipment was assumed to consist of a crusher, screen, and conveyor, and the crushed rock would be stockpiled for future use. Although a single primary crusher and screen may be all that is required, use of a secondary crusher and additional screen would expedite this process. To generate a conservative emissions estimate, it was assumed that a feed hopper, primary and secondary crushers, two screens, and several conveyors for transfers would be used. Particulate emissions from the crushers, screens, and conveyors would be controlled with water sprays.

It is expected that the rock-crushing equipment would be powered by a diesel-engine generator. It was assumed that the engine generator would be rated at 750 kilowatts, or approximately 1,000 horsepower. The engine generator would operate up to 8 hours per day. The VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from the diesel-engine generator were estimated using the off-road-engine load factor and emissions factors from the CalEEMod User's Guide for a typical generator operating in 2022 (the first year of construction). Blasting and rock-crushing emissions calculations are provided in Appendix B.

2.4.2.2 Operation

Emissions from the operational phase of the proposed project were estimated using CalEEMod. Operational year 2024 was assumed per the project applicant's construction schedule.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2017). Consumer product VOC emissions for the buildings are estimated in CalEEMod based on the floor area of buildings and on the default factor of pounds of VOC per building square foot per day. Consumer products associated with the parking lot and other asphalt surfaces include degreasers, which were estimated based on the square footage of the parking lot and the default factor of pounds of VOC per square foot per day. The CalEEMod default values for consumer products were assumed.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers used during building maintenance. CalEEMod calculates the VOC evaporative emissions from the application of surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emissions factor is based on the VOC content of the surface coatings, and SDAPCD's Rule 67.0.1 (Architectural Coatings) governs the VOC content for interior and exterior coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015b). The proposed project would use architectural coatings that would not exceed 50 grams per liter for interior applications and 100 grams per liter for exterior applications consistent with SDAPCD Rule 67.0.1. The model default reapplication rate of 10% of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating (CAPCOA 2017).

CalEEMod estimates emissions from woodstoves and hearths based on default emission factor values, the amount of wood burned by stoves and different hearth types, and the percentage of different hearths in various areas of California. The project would not include woodstoves; as such, area source emissions from wood stoves are not included. While wood-burning fireplaces are not anticipated, because wood-burning fireplaces are not specifically prohibited by the SDAPCD, CalEEMod default values were applied, which assume 13 wood-burning fireplaces and 19 natural-gas burning fireplaces.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Mobile Sources

Following the completion of construction activities, the proposed project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of the residents of the proposed project. The maximum weekday trip rates were taken from the Traffic Impact Analysis for the project (LOS 2020). The weekend trip rates were adjusted based on CalEEMod default trip rates. CalEEMod default data, including trip characteristics and emissions factors, were used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within the CalEEMod. Emission factors representing the vehicle mix and emissions for 2024 were used to estimate emissions associated with vehicular sources.

2.4.2.3 Construction Health Risk Assessment

The greatest potential for TAC emissions during project construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. As a precautionary measure, a health risk assessment (HRA) was performed to assess the impact of construction on sensitive receptors proximate to the project site (provided as Appendix D). For risk assessment purposes, PM_{10} in diesel exhaust is considered a proxy for DPM.

The construction HRA applies the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidelines) (OEHHA 2015). Cancer risk parameters, such as age-sensitivity factors, daily breathing rates, exposure period, fraction of time at home, and cancer potency factors were based on the values and data recommended by OEHHA are implemented in Hotspots Analysis and Reporting Program Version 2 (HARP2), which was used to estimate risk from construction activities. To implement the OEHHA Guidelines based on project information, the SDAPCD has developed a three-tiered approach where each successive tier is progressively more refined, with fewer conservative assumptions. The SDAPCD document, Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD 2019), provides guidance with which to perform HRAs within the SDAB.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends a carcinogenic (cancer) risk threshold of 10 in one million. Additionally, some TACs increase non-cancer health risk due to long-term (chronic) exposures. The Chronic Hazard Index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SDAPCD recommends a Chronic Hazard Index significance threshold of one (project increment).

The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment. The HRA for the project evaluated the risk to existing proximate residents from diesel emissions from exhaust from on-site construction equipment and diesel haul and vendor trucks.

The dispersion modeling of DPM was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model SDAPCD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain (EPA 2019b). For the project, AERMOD was run with all sources emitting unit emissions (one gram per second) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations were determined for construction emissions using AERMOD and the maximum concentrations determined for the one-hour and period-averaging periods. Principal parameters of this modeling are presented in Table 7.

Table 7. Construction Health Risk Assessment American Meteorological Society/Environmental Protection Agency Regulatory Principal Parameters

Parameter	Details
Meteorological Data	The latest three-year meteorological data (2014–2016) for the Kearny Villa Road Station (KVR) from SDAPCD were downloaded and then input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the SDAPCD guidelines, the rural dispersion option was selected due to the SDAB's proximity to the ocean.
Terrain Characteristics and Elevation Data	The terrain in the vicinity of the modeled project site is varied. The elevation of the modeled site is about 145 to 170 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with an approximately 10-meter (1/3 arc-second) resolution.
Emission Sources and Release Parameters	Air dispersion modeling of DPM from construction activities was conducted using emissions estimated using CalEEMod, assuming emissions would occur 5 days per week. The construction equipment DPM emissions were modeled as a line of adjacent volume sources where construction activity is anticipated to occur. The line of adjacent volume sources were assumed to have a release height of 2.5 meters, a plume height of 5 meters, and a plume width of 8.6 meters. (SBCAPCD 2020, SCAQMD 2008).

Table 7. Construction Health Risk Assessment American Meteorological Society/Environmental Protection Agency Regulatory Principal Parameters

Parameter	Details
Receptors	Three uniform Cartesian grids of receptors were placed over the project site at varying spacing to ensure sensitive receptors near the project site were adequately captured: (1) a fine grid of receptors spaced 20 meters apart, 200 meters across, (2) a grid of receptors spaced 50 meters apart, 500 meters across, and (3) a coarse grid of receptors spaced 100 meters apart, 1,000 meters from the project site. All uniform Cartesian grids were then converted to discrete receptors.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; SDAPCD = San Diego Air Pollution Control District; DPM = diesel particulate matter; CalEEMod = California Emissions Estimator Model.
See Appendix D for additional information.

Dispersion model plotfiles from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak one-hour emission rates and annual emission rates for all pollutants for each modeling source. The project's potential cancer and noncancer health impacts from construction assume an exposure duration of 2 years, starting at the third trimester of pregnancy. The risk results were then compared to SDAPCD thresholds to assess project impact significance.

2.4.2.4 Operational Roadway Health Risk Assessment (Effect of the Environment on the Project)

A HRA was performed to evaluate potential health risks at future sensitive receptors of the project from DPM emissions from the proximate I-15 freeway. The following discussion summarizes the dispersion modeling and HRA methodology; supporting operational HRA documentation, including detailed assumptions, is presented in Appendix E.

Operational year 2024 was evaluated consistent with the anticipated first year of project operation. As with the construction HRA, for risk assessment purposes, PM_{10} in diesel exhaust is considered a proxy for DPM. Emissions of DPM from motor vehicles on the I-15 freeway have the highest potential for cancer risk due to the high volume of heavy-duty vehicle traffic and proximity to the project site.

Traffic data for the I-15 freeway was attained from California Department of Transportation Performance Measurement System (PeMS) January 2019 through December 2019 traffic volumes on California state highways (Caltrans 2020). The PeMS data provides the annual daily traffic and truck percent of annual daily traffic by freeway direction (e.g., northbound and southbound) for different freeway segments. Volumes for two segments along the I-15 freeway near the project site – one north of Poway Drive and one south of Poway Drive – were used in the roadway HRA. To estimate the future volumes in 2024, PeMS traffic data for 2014 (January 2014 through December 2014) was used to estimate an annual growth rate between 2014 and 2019, which was applied to the 2019 vehicle volumes to estimate vehicle volumes in 2024.

Both heavy-duty diesel trucks and light-duty diesel-fueled vehicles (non-heavy-duty trucks) were included in the roadway HRA. Data from the EPA-approved version of CARB's mobile source emission inventory, EMFAC2017, was used to determine the emission factors and composition of diesel vehicles within the overall vehicle fleet for San Diego County. EMFAC2017 can generate emission factors (also referred to as emission rates) in grams per mile for the fleet in a class of motor vehicles within a county for a particular geographical study year. EMFAC2017 was run assuming an aggregate speed for each vehicle class consistent with the Bay Area Air Quality Management District Guidance (BAAQMD 2011). For heavy-duty trucks, the following EMFAC categories were assumed and a weighted emission factor was generated based on the percent of VMT in each category: Light-Heavy Duty Trucks (LHDT1 and LHDT2), Medium-Heavy Duty Trucks (MHDT), and Heavy-Heavy Duty Trucks (HHDT). For the light-duty vehicles, a VMT-weighted emission factor was similarly generated for the remaining EMFAC categories with diesel-fueled vehicles: Light-Duty Automobiles (LDA), Light-Duty Trucks (LDT1 and LDT2), Medium-Duty Vehicles (MDV), Motorhomes (MH), Other Buses (OBUS), School Buses (SBUS), and Urban Buses (UBUS). VMT for each freeway segment was calculated by taking the average daily traffic from PeMS and multiplying it by the distance of the roadway segment evaluated in AERMOD. The total exhaust PM_{10} emissions (in pounds per hour and pounds per year) were then calculated for each roadway segment by multiplying the appropriate emission factor by the VMT.

The vehicle emission factors for San Diego County and calendar year 2024 was assumed for the entire exposure period of 30 years, which represents a conservative analysis as vehicle DPM emission factors would decrease over time due to regulatory requirements and fleet turnover and the volume of diesel vehicles will also decrease over time as more zero and near-zero emissions vehicles enter the fleet.

Similar to the construction scenario as summarized in Section 2.4.2.3, air dispersion modeling methodology was based on generally accepted modeling practices of SDAPCD (SDAPCD 2019). Air dispersion modeling was performed using the EPA's AERMOD Version 19191 modeling system (computer software) with the Lakes Environmental Software implementation/user interface, AERMOD View Version 9.9.0. The HRA followed OEHHA 2015 guidelines (OEHHA 2015) and SDAPCD guidance to calculate the health risk impacts at all proximate receptors as further discussed below. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the SDAPCD and EPA guidance and identified as representative of the project site and project activities. Principal parameters of this modeling are presented in Table 8.

Table 8. Operational Roadway Health Risk Assessment American Meteorological Society/Environmental Protection Agency Regulatory Principal Parameters

Parameter	Details
Meteorological Data	The latest three-year meteorological data (2014–2016) for the Kearny Villa Road Station (KVR) from SDAPCD were downloaded and then input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the SDAPCD guidelines, the rural dispersion option was selected due to the SDAB's proximity to the ocean.
Terrain Characteristics and Elevation Data	The terrain in the vicinity of the modeled project site is varied. The elevation of the modeled site is about 145 to 170 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with an approximately 10-meter (1/3 arc-second) resolution.
Emission Sources and Release Parameters	Air dispersion modeling of DPM was conducted using emissions estimated using traffic data from PeMS and emission factors from EMFAC2017 (as discussed above). Vehicles traveling on I-15 were modeled as a line of adjacent volume sources for each direction of the freeway for each of the two freeway segments. The plume width was estimated for each segment based on the width of the traveling lanes plus 6 meters (or approximately 10 feet on each side) to account for vehicle wake. Because each line source represents heavy-duty trucks and light-duty vehicles, a weighted plume height was calculated for each source based on the percent of emissions of the heavy-duty truck and light-duty vehicles and the assumptions of 6.8 meters plume height for heavy-duty trucks and 2.6 meters plume height for light-duty vehicles. Similarly, a weighted release height was estimated for each source assuming 0.5 of the weighted plume height (EPA 2015, SBCAPCD 2020).

Table 8. Operational Roadway Health Risk Assessment American Meteorological Society/Environmental Protection Agency Regulatory Principal Parameters

Parameter	Details
Receptors	A plant boundary was drawn around the project site to ensure that residential receptors within the project site were included. A fine uniform Cartesian grid of receptors were placed over the project site spaced 10 meters apart, filling the inside of the plant boundary (receptors outside of the plant boundary were excluded).

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; SDAPCD = San Diego Air Pollution Control District; DPM = diesel particulate matter.
See Appendix E for additional information.

Similar to the construction scenario as summarized in Section 2.4.2.3, the health risk calculations were performed using the HARP2 ADMRT (dated 19121). AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for HARP2. The line of volume sources were modeled with 1 gram per second evenly partitioned across each volume source. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual and the noncancerous chronic health index.

MERV 13 filters are required for residential construction in accordance with the 2019 Title 24 building code and the reduction in PM_{10} and associated DPM emissions were included in the emission estimates for the freeway source. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) reported that MERV 13 filters remove 90% of particles ranging from 1 to 3 microns, and less than 75% for particles ranging from 0.3 to 1 microns (ASHRAE 2007). In a study conducted by Fisk et al. on the performance and costs of particulate air filtration technologies, it was shown that if the ventilation systems are operated with one air exchange per hour of outside air and four air exchanges per hour of recirculated air, that MERV 13 (ASHRAE Dust Spot 85%) filters provide an 80% or greater reduction of outdoor fine particulate matter (particulate matter with a diameter less than or equal to 2.5 microns, or $PM_{2.5}$, such as DPM) (Fisk et al. 2002). It was conservatively assumed that the MERV13 filters provide 80% reduction in DPM. In addition, the National Human Activity Pattern Survey (NHAPS) was conducted in support by the US EPA to study where people spend their time. The results of the NHAPS showed that on average people spend approximately 87% of their time in enclosed buildings, approximately 6% in enclosed vehicles, and approximately 7% outdoors (Kleipeis et. al. 2001). This assessment of risk includes the accounting for time spent indoors as identified in the NHAPS and the time spent away from home as recommended by OEHHA (OEHHA 2015). Accounting for the actual time spent indoors and exposure related to the residents within the project provides a more realistic exposure scenario from TAC emissions from the I-15 freeway.

Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in one million. Maximum Individual Cancer Risk is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of exposure to TACs over a period of 30 years for residential receptor locations. For the roadway HRA, the TAC exposure period was assumed to start in the third trimester for 30 years for all receptor locations. The mandatory exposure pathways were selected.

The SDAPCD has also established noncarcinogenic risk parameters for use in HRAs since some TACs increase noncancerous health risk due to long-term (chronic) exposures and some TACs increase noncancerous health risk due to short-term (acute) exposures. Noncarcinogenic risks are quantified by calculating a hazard index, expressed as the ratio between the ambient pollutant concentration and its toxicity or REL, which is a concentration at or below which health effects are not likely to occur. The chronic hazard index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system, similarly calculated for acute hazard index. A hazard index less of than one (1.0) means that adverse health effects are not expected. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment.

2.5 Impact Analysis

Issue AQ-1. Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

As mentioned in Section 2.2.3, Local Regulations, the SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the basin—specifically, the SIP and RAQS.[6] The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2012. The most recent O_3 attainment plan was adopted in 2016. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated on a triennial basis (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County as a whole and the cities in the County, to project future emissions and determine the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans.

If a project proposes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. SANDAG's 2050 Regional Growth Forecast, was adopted in October 2013 and is the current growth forecast; it estimates that the City would have 559,143 units in 2020 and 640,668 units in 2035 (SANDAG 2013). This would equate to an additional 5,435 units per year from 2020 to 2035. Implementation of the proposed project would result in an increase in 55 residential units in a location assumed to be open space in SANDAG's growth projections. The proposed zoning would ultimately allow up to 107 units on the site even though only 55 are currently proposed. The proposed project is expected to add these 55 units to market in 2024. The project would add an estimated 169 people to the area (SANDAG 2013). The rezoning could generate up to 329 people based on 3.07 persons per household. The expected population change, which did not include the conversion of open space to medium density residential, within the Rancho Peñasquitos community is expected to result in the addition of 1,164 residents by 2050. Thus, the addition of 169 or 329 people to the area would not exceed the total anticipated population and housing growth for the area. While the project would generate unplanned population and housing growth at the project site. It would not be substantial and would assist the City in meetings its Regional Housing Needs. Therefore, the proposed project would not conflict with SANDAG's regional growth forecast for the City, which accounts for residential growth in the City.

While the SDAPCD and City do not provide guidance regarding the analysis of impacts associated with air quality plan conformance, the County's Guidelines for Determining Significance and Report and Format and Content Requirements – Air Quality does discuss conformance with the RAQS (County of San Diego 2007). The guidance indicates that if a project, in conjunction with other projects, contributes to growth

6 For the purpose of this discussion, the relevant federal air quality plan is the ozone maintenance plan (SDAPCD 2012). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

projections that would not exceed SANDAG's growth projections for the City, the project would not be in conflict with the RAQS (County of San Diego 2007). As previously discussed, the proposed project would not contribute to growth in the region that is not already accounted for.

Issue AQ-2. Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

Construction Emissions

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, blasting and rock crushing, soil disturbance, and VOC off-gassing) and off-site sources (worker vehicle trips). Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed proposed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.4.2.1, Construction. The information contained in Appendix A was used as CalEEMod inputs.

Development of the proposed project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, asphalt pavement application, and architectural coatings. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The proposed project would be subject to SDAPCD Rule 55, Fugitive Dust Control. This rule requires that the proposed project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) generated during grading and construction activities.

Exhaust from internal combustion engines used by construction equipment and vehicles would result in emissions of VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. The application of asphalt pavement and architectural coatings would also produce VOC emissions.

Table 9 shows the estimated maximum daily construction emissions associated with construction of the proposed project without mitigation. Complete details of the emissions calculations are provided in Appendix A.

Table 9. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
2022	7.76	154.07	239.46	5.90	25.55	9.15
2023	23.10	17.35	20.14	0.04	1.52	0.93
Maximum	**23.10**	**154.07**	**239.46**	**5.90**	**25.55**	**9.15**
SDAPCD Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District; CalEEMod = California Emissions Estimator Model.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod and the Maximum daily emissions from Rock blasting and crushing activities. Although not considered mitigation, these emissions reflect the CalEEMod "mitigated" output, which accounts for the required compliance with SDAPCD Rule 55 (Fugitive Dust) and Rule 67.0.1 (Architectural Coatings). The maximum VOC emissions would occur during the architectural coatings phase, the maximum NO_x, CO, SO_x, PM_{10} and $PM_{2.5}$ emissions would occur during grading in 2022.

As shown in Table 9, daily construction emissions would not exceed the significance thresholds for any criteria air pollutant. Therefore, impacts during construction would be **less than significant.**

Operational Emissions

Operation of the proposed project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources (consumer products, landscape maintenance equipment), and energy sources. As discussed in Section 2.4.2.2, Operation, pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the proposed project area and energy sources.

Table 10 presents the maximum daily area, energy, and mobile source emissions associated with operation (Year 2024) of the proposed project without mitigation. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 10. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
Area	50.66	1.01	64.99	0.11	8.50	8.50
Energy	0.02	0.16	0.66	<0.01	0.01	0.01
Mobile	0.69	2.66	8.24	0.03	2.92	0.79
Total	**51.37**	**3.83**	**73.29**	**0.14**	**11.43**	**9.31**
SDAPCD Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District; CalEEMod = California Emissions Estimator Model.
See Appendix A for complete results.

The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect the CalEEMod "mitigated" output, which accounts for compliance with SDAPCD Rule 67.0.1 (Architectural Coatings).

As shown in Table 10, the combined daily area, energy, and mobile source emissions would not exceed the SDAPCD's operational thresholds for VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

Cumulative Analysis

The SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The poor air quality in the SDAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., VOCs and NO_x for O_3) potentially contribute to poor air quality. In analyzing cumulative impacts from a project, the analysis must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, a project would only be considered to have a significant cumulative impact if the project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

Regarding short-term construction impacts, the SDAPCD thresholds of significance are used to determine whether the project may have a short-term cumulative impact. As shown in Table 7, the project would not exceed any criteria air pollutant during construction. Therefore, the project would have a less than significant cumulative impact during construction.

Additionally, for the SDAB, the RAQS serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions in the basin to ensure the SDAB continues to make progress toward NAAQS- and CAAQS-attainment status. As such, cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the RAQS. Similarly, individual projects that are inconsistent with the regional planning documents upon which the RAQS is based would have the potential to result in cumulative operational impacts if they represent development and population increases beyond regional projections.

Regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the SIP and RAQS serve as the primary air quality planning documents for the state and SDAB, respectively. The SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and the County as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. As stated previously, the proposed project would not result in significant regional growth that is not accounted for within the RAQS. As a result, the proposed project would not result in a cumulatively considerable contribution to pollutant emissions. Cumulative impacts would be **less than significant** during construction and operation.

Issue AQ-3. Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB (2005), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. As such, sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. The closest sensitive receptors to the proposed project are residences adjacent to the property boundaries. The proposed project would also introduce new on-site sensitive receptors (residences) to the area.

Health Impacts of Toxic Air Contaminants

"Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard OEHHA risk-assessment methodology (OEHHA 2015). In addition, some TACs have noncarcinogenic effects.

Construction Health Risk Assessment

TACs that would potentially be emitted during construction activities would be DPM emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to CARB ATCMs to reduce DPM emissions. According to the OEHHA, HRAs should be based on a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, the duration of proposed construction activities (approximately 24 months) would only constitute a small percentage of the total long-term exposure period and would not result in exposure of proximate sensitive receptors to substantial TACs. After proposed construction is completed, there would be no long-term source of TAC emissions during operation.

An HRA was performed to evaluate the risk from diesel exhaust emissions on existing sensitive receptors in the vicinity of the project from construction activities. The HRA methodology was described in Section 2.4.2.3, and the detailed assessment is provided in Appendix D. Table 11 summarizes the results of the HRA for proposed project construction.

Table 11. Construction Health Risk Assessment Results – Unmitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
MICR – Residential	Per Million	22.63	10.0	Potentially Significant
HIC – Residential	Not Applicable	0.0132	1.0	Less than Significant

Source: SDAPCD 2019.
Notes: CEQA = California Environmental Quality Act; MICR = Maximum Individual Cancer Risk. HIC = Chronic Hazard Index.
See Appendix D.

The results of the construction analysis for the project demonstrate that the construction emissions result in a potential Maximum Individual Cancer Risk at nearby residential receptors that would exceed the 10 in a million cancer risk threshold; however, construction emissions would be below the Chronic Hazard Index threshold. The Project would result in a **potentially significant impact** in regards to cancer risk resulting from TAC emissions generated during construction and mitigation is required.

Operational Roadway Health Risk Assessment (Effect of the Environment on the Project)

As discussed in Section 2.4.2.4, an HRA was performed to estimate the Maximum Individual Cancer Risk and Chronic Hazard Index for residential receptors as a result of diesel emissions from the I-15 freeway on future sensitive receptors of the project. Results of the roadway HRA are presented in Table 12.

Table 12. Roadway Health Risk Assessment Results

Impact Parameter	Units	Impact Level	CEQA Threshold
Maximum Individual Cancer Risk – Residential	Per Million	7.23	10
Chronic Hazard Index – Residential	Index Value	0.0017	1.0

Source: SDAPCD 2019.
Notes: CEQA = California Environmental Quality Act.
See Appendix E.

As shown in Table 12, the DPM emissions from the I-15 freeway would result in a Residential Maximum Individual Cancer Risk of 7.23 in 1 million and a Residential Chronic Hazard Index of 0.0017. These impact levels would be less than the SDAPCD significance threshold.

Health Impacts of Carbon Monoxide

Mobile-source impacts occur on two basic scales of motion. Regionally, project-related travel would add to regional trip generation and increase the VMT within the local airshed and the SDAB. Locally, project-related traffic would be added to the City's roadway system. If such traffic occurs during periods of poor atmospheric ventilation, consists of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the proposed project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. A traffic impact analysis evaluated the level of service (LOS) (i.e., increased congestion) impacts at intersections affected by the proposed project (LOS 2020). The potential for CO hotspots was evaluated based on the results of the traffic report. City of San Diego's Significance Determination Thresholds (City of San Diego 2016) CO hotspot screening guidance was followed to determine if the project would require a site-specific hotspot analysis. The City recommends that a quantitative analysis of CO hotspots be performed if a proposed development causes a six-lane or four-lane roadway to deteriorate to a LOS E or worse, causes a six-lane roadway to drop to LOS F, or if a proposed development is within 400 feet of a sensitive receptor and the LOS is D or worse. Based on the LMA analysis (Appendix B.1), one roadway segment within the study area, Rancho Peñasquitos Boulevard from Paseo Montril to the I-15, would operate at unacceptable LOS E in the existing conditions and LOS F in the opening year 2024 and horizon year 2050. This roadway segment is four lanes and is within 400 feet of a sensitive receptor (residential uses). The project would contribute additional traffic to that segment, consisting of 374 trips during construction and 242 average daily trips during operations.

Based on the CO hotspot screening evaluation the roadway segment Rancho Peñasquitos Boulevard from Paseo Montril and I-15 SB Ramps was modelled, as it were the only roadway segment meeting the City's recommendation. The potential impact of the proposed Project on local CO levels was assessed at this roadway segment with the Caltrans CL4 interface based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a, 1998b).

The emissions factor represents the weighted average emissions rate of the local County vehicle fleet expressed in grams per mile per vehicle. Consistent with the traffic scenario, emissions factors for 2050 were used for the modeled intersection. Emissions factors for 2050 were predicted by the Mobile Source Emissions Inventory Model (EMFAC 2021) based on a 5-mile-per-hour average speed for the intersections for approach and departure segments. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on information provided by the traffic consultant, and modeling assumptions are outlined in Appendix C.

Consistent with the CO Protocol (Caltrans 2010), four receptor locations at each segment were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk along the modeled roadway segment, for a total of two receptors adjacent to the roadway segment, to represent the future possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur in 2050. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The maximum CO concentration measured at the First street monitoring stations in El Cajon over the last 3 years was 1.6 parts per million, which was measured in 2016 (EPA 2019). This maximum 1-hour concentration value is used as the background concentration when evaluating the addition of the vehicle-generated CO emissions. To estimate an 8-hour average CO concentration, a persistence factor of 0.6, as calculated based on Caltrans guidance (Caltrans 2010), was applied to the output values of predicted concentrations in parts per million at each of the receptor locations.

The results of the model are shown in Table 5.3.9, CALINE4 Predicted Carbon Monoxide Concentrations. Model input and output data are provided in Appendix C.

Table 5.3.9 CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact for Year 2050 (ppm)	
	1-Hour	*8-Hour*[a]
Paseo Montril & I-15 Ramp (AM peak hour)	2.3	1.4
Paseo Montril & I-15 Ramp (PM peak hour)	2.3	1.4

Source: Caltrans 1998a (CALINE4).
Notes:
ppm = parts per million.
See Appendix C.
a 8-hour concentrations were obtained by multiplying the 1-hour concentration by a persistence factor of 0.6 (Caltrans 2010).

As shown in Table 5.3.9, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 2.3 parts per million (ppm), which is below the 1-hour CO CAAQS of 20 ppm (CARB 2016b). The maximum predicted 8-hour CO concentration of 1.4 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9 ppm (CARB 2016b). Neither the 1-hour nor 8-hour CAAQS would be equaled or exceeded at any of the intersections studied. Therefore, a CO hotspot analysis is not needed and the proposed project would have a **less than significant** impact.

Health Effects of Other Criteria Air Pollutants

Construction and operation of the proposed project would not result in emissions that exceed the SDAPCD's emission thresholds for any criteria air pollutants. Regarding VOCs, some VOCs are associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the SDAPCD's thresholds. Generally, the VOCs in architectural coatings are of relatively low toxicity. Additionally, SDAPCD Rule 67.0.1 restricts the VOC content of coatings for both construction and operational applications.

In addition, VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SDAB is designated by the EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed in Section 2.1.2, Pollutants and Effects, are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur, because exceedances of the O_3 ambient air quality standards tend to occur between April and October when solar radiation is highest.

The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with proposed project construction and operations could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, health impacts would be considered **less than significant.**

Regarding NO_2, according to the construction emissions analysis, construction of the proposed project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. As described in Section 2.1.2, health impacts from exposure to NO_2 and NO_x are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term. Additionally, off-road construction equipment would operate at various portions of the site and would not be concentrated in one portion of the site at any one time. Construction of the proposed project would not require any stationary emission sources that would create substantial, localized NO_x impacts. Therefore, health impacts would be considered **less than significant.**

The VOC and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and its associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 3, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected that the proposed project's operational NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO "hotspots" were discussed previously as a less-than-significant impact. Thus, the proposed project's CO emissions would not contribute to significant health effects associated with this pollutant. Likewise, PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter, would not obstruct the SDAB from coming into attainment for these pollutants, and would not contribute to significant health effects associated with particulates.

Based on the preceding considerations, health impacts associated with criteria air pollutants would be **less than significant.**

The California Supreme Court's *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 decision (referred to herein as the Friant Ranch decision) (issued on December 24, 2018), addresses the need to correlate mass emission values for criteria air pollutants to specific health consequences, and contains the following direction from the California Supreme Court: "The Environmental Impact Report (EIR) must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further." (Italics original.) (Sierra Club v. County of Fresno 2018.) Currently, SDAPCD, CARB, and EPA have not approved a quantitative method to reliably, meaningfully, and consistently translate the mass emission estimates for the criteria air pollutants resulting from the proposed project to specific health effects. In addition, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional non-attainment days.

In connection with the judicial proceedings culminating in issuance of the Friant Ranch decision, the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley Air Pollution Control District (SJVAPCD) filed amicus briefs attesting to the extreme difficulty of correlating an individual project's criteria air pollutant emissions to specific health impacts. Both SJVAPCD and SCAQMD have among the most sophisticated air quality modeling and health impact evaluation capabilities of the air districts in California. The key, relevant points from SCAQMD and SJVAPCD briefs is summarized herein.

In requiring a health impact type of analysis for criteria air pollutants, it is important to understand how O_3 and PM is formed, dispersed and regulated. The formation of O_3 and PM in the atmosphere, as secondary pollutants,[7] involves complex chemical and physical interactions of multiple pollutants from natural and anthropogenic sources. The O_3 reaction is self-perpetuating (or catalytic) in the presence of sunlight because NO_2 is photochemically reformed from nitric oxide (NO). In this way, O_3 is controlled by both NO_x and VOC emissions (NRC 2005). The complexity of these interacting cycles of pollutants means that incremental decreases in one emission may not result in proportional decreases in O_3 (NRC 2005). Although these reactions and interactions are well understood, variability in emission source operations and meteorology creates uncertainty in the modeled O_3 concentrations to which downwind populations may be exposed (NRC 2005). Once formed, O_3 can be transported long distances by wind and due to atmospheric transport, contributions of precursors from the surrounding region can also be important (EPA 2008). Because of the complexity of O_3 formation, a specific tonnage amount of VOCs or NO_X emitted in a particular area does not equate to a particular concentration of O_3 in that area (SJVAPCD 2015). PM can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, like O_3, is formed via complex

7 Air pollutants formed through chemical reactions in the atmosphere are referred to as secondary pollutants.

chemical reactions in the atmosphere between precursor chemicals such as SO_x and NO_x (SJVAPCD 2015). Because of the complexity of secondary PM formation, including the potential to be transported long distances by wind, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area (SJVAPCD 2015). This is especially true for individual projects, like the proposed project, where project-generated criteria air pollutant emissions are not derived from a single "point source," but from construction equipment and mobile sources (passenger cars and trucks) driving to, from and around the FMP project sites.

Another important technical nuance is that health effects from air pollutants are related to the concentration of the air pollutant that an individual is exposed to, not necessarily the individual mass quantity of emissions associated with an individual project. For example, health effects from O_3 are correlated with increases in the ambient level of O_3 in the air a person breathes (SCAQMD 2015). However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region (SCAQMD 2015). The lack of link between the tonnage of precursor pollutants and the concentration of O_3 and $PM_{2.5}$ formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects; rather, it is the concentration of resulting O_3 that causes these effects (SJVAPCD 2015). Indeed, the ambient air quality standards, which are statutorily required to be set by EPA at levels that are requisite to protect the public health, are established as concentrations of O_3 and $PM_{2.5}$ and not as tonnages of their precursor pollutants (EPA 2018b). Because the ambient air quality standards are focused on achieving a particular concentration region-wide, the tools and plans for attaining the ambient air quality standards are regional in nature. For CEQA analyses, project-generated emissions are typically estimated in pounds per day or tons per year and compared to mass daily or annual emission thresholds. While CEQA thresholds are established at levels that the air basin can accommodate without affecting the attainment date for the AAQS, even if a project exceeds established CEQA significance thresholds, this does not mean that one can easily determine the concentration of O_3 or PM that will be created at or near the project site on a particular day or month of the year, or what specific health impacts will occur (SJVAPCD 2015).

In regard to regional concentrations and air basin attainment, the San Joaquin Valley Air Pollution Control District (SJVAPCD) emphasized that attempting to identify a change in background pollutant concentrations that can be attributed to a single project, even one as large as the entire Friant Ranch Specific Plan, is a theoretical exercise. The SJVAPCD brief noted that it "would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have" (SJVAPCD 2015). The situation is further complicated by the fact that background concentrations of regional pollutants are not uniform either temporally or geographically throughout an air basin, but are constantly fluctuating based upon meteorology and other environmental factors. SJVAPCD noted that the currently available modeling tools are equipped to model the impact of all emission sources in the San Joaquin Valley Air Basin on attainment (SJVAPCD 2015). The SJVAPCD brief then indicated that, "Running the photochemical grid model used for predicting O_3 attainment with the emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_x and VOC in the Valley) is not likely to yield valid information given the relative scale involved" (SJVAPCD 2015).

SCAQMD and SJVAPCD have indicated that it is not feasible to quantify project-level health impacts based on existing modeling (SCAQMD 2015; SJVAPCD 2015). Even if a metric could be calculated, it would not be reliable because the models are equipped to model the impact of all emission sources in an air basin on attainment and would likely not yield valid information or a measurable increase in O_3 concentrations sufficient to accurately quantify O_3-related health impacts for an individual project.

Nonetheless, following the Supreme Court's Friant Ranch decision, some EIRs where estimated criteria air pollutant emissions exceeded applicable air district thresholds have included a quantitative analysis of potential project-generated health effects using a combination of a regional photochemical grid model (PGM)[8] and the EPA Benefits Mapping and Analysis Program (BenMAP or BenMAP–Community Edition [CE])[9]. The publicly available health impact assessments (HIAs) typically present results in terms of an increase in health incidences and/or the increase in background health incidence for various health outcomes resulting from the project's estimated increase in concentrations of O_3 and $PM_{2.5}$.[10] To date, the five publicly available HIAs reviewed herein have concluded that the evaluated project's health effects associated with the estimated project-generated increase in concentrations of O_3 and $PM_{2.5}$ represent a small increase in incidences and a very small percent of the number of background incidences, indicating that these health impacts are negligible and potentially within the models' margin of error. It is also important to note that while the results of the five available HIAs conclude that the project emissions do not result in a substantial increase in health incidences, the estimated emissions and assumed toxicity is also conservatively inputted into the HIA and thus, overestimate health incidences, particularly for $PM_{2.5}$.

As explained in the SJVAPCD brief and noted previously, running the PGM used for predicting O_3 attainment with the emissions solely from an individual project like the Friant Ranch project or the proposed project is not likely to yield valid information given the relative scale involved. The five examples reviewed support the SJVAPCD's brief contention that consistent, reliable, and meaningful results may not be provided by methods applied at this time. Accordingly, additional work in the industry and more importantly, air district participation, is needed to develop a more meaningful analysis to correlate project-level mass criteria air pollutant emissions and health effects for decision makers and the public. Furthermore, at the time of writing, no HIA has concluded that health effects estimated using the PGM and BenMAP approach are substantial provided that the estimated project-generated incidences represent a very small percent of the number of background incidences, potentially within the models' margin of error.

project-generated construction emissions are less than the SDAPCD mass daily thresholds for all pollutants and health effects associated with project-generated criteria air pollutant emissions are less than significant. The project would result in a **potentially significant** impact regarding the construction HRA and mitigation is required.

---

8 The first step in the publicly available HIAs includes running a regional PGM, such as the Community Multiscale Air Quality (CMAQ) model or the Comprehensive Air Quality Model with extensions (CAMx) to estimate the increase in concentrations of O_3 and $PM_{2.5}$ as a result of project-generated emissions of criteria and precursor pollutants. Air districts, such as the SCAQMD, use photochemical air quality models for regional air quality planning. These photochemical models are large-scale air quality models that simulate the changes of pollutant concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere (EPA 2017).

9 After estimating the increase in concentrations of O_3 and $PM_{2.5}$, the second step in the five examples includes use of BenMAP or BenMAP-CE to estimate the resulting associated health effects. BenMAP estimates the number of health incidences resulting from changes in air pollution concentrations (EPA 2018c). The health impact function in BenMAP-CE incorporates four key sources of data: (i) modeled or monitored air quality changes, (ii) population, (iii) baseline incidence rates, and (iv) an effect estimate. All of the five example HIAs focused on O_3 and $PM_{2.5}$.

10 The following CEQA documents included a quantitative HIA to address Friant Ranch: (1) California State University Dominguez Hills 2018 Campus Master Plan EIR (CSU Dominguez Hills 2019), (2) March Joint Powers Association K4 Warehouse and Cactus Channel Improvements EIR (March JPA 2019), (3) Mineta San Jose Airport Amendment to the Airport Master Plan EIR (City of San Jose 2019), (4) City of Inglewood Basketball and Entertainment Center Project EIR (City of Inglewood 2019), and (5) San Diego State University Mission Valley Campus Master Plan EIR (SDSU 2019).

Mitigation Measures

The following mitigation measure is required to reduce TACs (DPM) generated during project construction and associated health risk (cancer risk) impacts to offsite sensitive receptors:

MM-AQ-1 Prior to the commencement of construction activities for the project, the grading and construction plan notes shall specify that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Interim engines or better.

An exemption from this requirement may be granted if (1) the applicant documents equipment with Tier 4 Interim engines or better are not reasonably available, and (2) the required corresponding reductions in diesel particulate matter (DPM) emissions can be achieved for the project from other combinations of construction equipment. Before an exemption may be granted, the applicant's construction contractor shall: (1) demonstrate that at least two construction fleet owners/operators in San Diego County were contacted and that those owners/operators confirmed Tier 4 Interim equipment or better could not be located within San Diego County during the desired construction schedule; and (2) the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the City of San Diego to confirm that project-generated construction emissions do not exceed applicable San Diego Air Pollution Control District's carcinogenic (cancer) risk threshold.

Level of Significance After Mitigation

MM-AQ-1 would be implemented to reduce project-generated exhaust PM_{10} (DPM) emissions. Potential health risk at the maximally exposed individual resident resulting from proposed construction activities with incorporation of **MM-AQ-1** is shown in Table 13.

Table 13. Construction Health Risk Assessment Results – Mitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
MICR (residential)	Per Million	2.21	10.0	Less than Significant
HIC	Not Applicable	0.0013	1.0	Less than Significant

Source: Appendix A.
Notes: CEQA = California Environmental Quality Act; MICR = Maximum Individual Cancer Risk. HIC = Chronic Hazard Index.

As shown in Table 13, **MM-AQ-1** would reduce construction emissions to below the 10 in a million cancer risk threshold and the HIC threshold. With mitigation, the project would result in a **less than significant impact** with regards to TAC emissions generated during construction.

Issue AQ-4. Would the proposed project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Construction

Section 41700 of the California Health and Safety Code and SDAPCD Rule 51 (Public Nuisance), prohibit emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative and will focus on the existing and potential surrounding uses and location of sensitive receptors.

The occurrence and severity of potential odor impacts depends on numerous factors: the nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during proposed construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be **less than significant.**

Operational

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project includes residential uses. Therefore, proposed project operations would result in an odor impact that would be **less than significant.**

3 Greenhouse Gas Emissions

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate—such as temperature, precipitation, or wind patterns—lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (EPA 2017; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system as discussed further in Section 3.3.2, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, CO_2, methane (CH_4), nitrous oxide (N_2O), O_3, water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[11] Some GHGs—such as CO_2, CH_4, and N_2O—occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from

11 California Health and Safety Code 38505 identifies seven GHGs that CARB is responsible for monitoring and regulating to reduce emissions: CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, and nitrogen trifluoride.

human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases (e.g., HFCs, HCFCs, PFCs, and SF_6), which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[12] Also included is a discussion of other climate-forcing substances.

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels (e.g., coal, oil, natural gas, and wood) and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers; manure management; industrial processes, such as in nitric acid production, nylon production, and fossil-fuel-fired power plants; vehicle emissions; and using N_2O as a propellant (such as in rockets, race cars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric O_3-depleting substances (e.g., chlorofluorocarbons [CFCs], HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to O_3-depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** Nitrogen trifluoride is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

12 The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Terms Used in GHG Inventories (CARB 2016a), and the EPA's Glossary of Climate Change Terms (EPA 2016e).

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds with a structure very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter ($PM_{2.5}$), which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is short lived and varies spatially, which makes it difficult to quantify its global warming potential (GWP). DPM emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining DPM from CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014a).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen, plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016e). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of carbon dioxide equivalent (CO_2e).

The current version of CalEEMod (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of one MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

3.2 Regulatory Setting

3.2.1 Federal Regulations

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the *Massachusetts v. EPA* ruling, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011. In 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022 through 2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6% to 23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

On September 27, 2019, EPA and NHTSA published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310), which became effective November 26, 2019. The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. The Part One Rule impacts some of the underlying assumptions in the CARB EMFAC 2014 and EMFAC 2017 models for criteria air pollutant emissions from gasoline light-duty vehicles, which CARB released off-model adjustment factors for on November 20, 2019, primarily for use in federal Clean Air Act conformity demonstration analyses. Part Two of these regulations has not been adopted yet. Because CARB does not know the full impacts of these rules until Part Two is released, no off-model adjustments factors are available for GHG emissions at this time. In addition, the EMFAC off-model adjustments have not yet been incorporated into CalEEMod. This issue is evolving as California and 22 other states, as well as the District of Columbia and two cities, filed suit against the EPA over the vehicle waiver revocation on November 15, 2019 and a petition for reconsideration of the rule was filed on November 26, 2019 by California and 22 other states, the District of Columbia, and four cities. Accordingly, the timing and consequences of these types of federal decisions and subsequent challenges are speculative at this time.

3.2.2 State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

Executive Order S-3-05

EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

Assembly Bill 32 and CARB's Climate Change Scoping Plan

In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million metric tons [MMT] CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code, Section 38550.

Further, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020 (CARB 2008). The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 29% from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations [referred to as "business-as-usual"]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document (Final Supplement), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG-reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 22% (down from 29%) from the business-as-usual conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009 through 2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 29%) from the business-as-usual conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014b). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are energy, transportation (e.g., vehicles/equipment, sustainable communities, housing, fuels, infrastructure), agriculture, water, waste management, and natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal (CARB 2014b).

Based on CARB's research efforts presented in the First Update, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies (CARB 2014b).

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 29% or 16%) from the business-as-usual conditions (CARB 2014b).

On January 20, 2017, CARB released the 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB 2017). This update proposed CARB's strategy for achieving the state's 2030 GHG target as established in SB 32 (discussed below), including continuing the Cap-and-Trade Program through 2030. The Second Update incorporated approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived

Climate Pollutant Reduction Strategy (a planning document adopted by CARB in March 2017; SLCP Reduction Strategy), and acknowledged the need for reducing emissions in agriculture and highlighted the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2017). When discussing project-level GHG emissions-reduction actions and thresholds, the Second Update stated, "Achieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA" (CARB 2017). The Second Update was approved by CARB's Governing Board on December 14, 2017.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 called for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; made changes to CARB's membership and increased legislative oversight of CARB's climate change-based activities; and expanded dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; required CARB to make available and update (at least annually through its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and required CARB to identify specific information for GHG emissions-reduction measures when updating the Scoping Plan.

SB 605 and SB 1383

SB 605 (2014) required CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state; SB 1383 (2016) required CARB to approve and implement the SLCP Reduction Strategy. SB 1383 also established specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provided direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its SLCP Reduction Strategy in March 2017, which established a framework for the statewide reduction of emissions of black carbon, CH4, and fluorinated gases.

EO B-55-18

EO B-55-18 (September 2018) established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This executive order directed CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

Building Energy

Title 24, Part 6 of the California Code of Regulations

Title 24 of the California Code of Regulations was established in 1978, and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]), and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The 2019 standards continue to improve upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards went into effect on January 1, 2020.

Title 24, Part 11 of the California Code of Regulations

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR 11) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, schools, and hospitals. The CALGreen 2019 standards went into effect on January 1, 2020, and continue to improve upon the 2016 CALGreen standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

Title 20 of the California Code of Regulations

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwashers; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

AB 1109

Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

Renewable Energy and Energy Procurement

SB 1078

SB 1078 (2002) established the RPS program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

SB 1368

SB 1368 (2006) required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. This effort helps protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

SB X1 2

SB X1 2 (2011) expanded the RPS by establishing that 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350

SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also required the California Public Utilities Commission, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100

SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. Under SB 100, it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not occur through resource shuffling.

Mobile Sources

EO S-1-07

Issued on January 18, 2007, EO S-1-07 set a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations were then responsible for preparing an SCS within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, would achieve, if feasible, the GHG reduction targets. If a SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code, Section 65080(b)(2)(K), a SCS does not (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for SANDAG are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

SANDAG completed and adopted its 2050 Regional Transportation Plan (2050 RTP/SCS) in October 2011 (SANDAG 2011). In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the 2050 RTP/SCS would achieve CARB's 2020 and 2035 GHG emissions-reduction targets for the region.

In October 2015, SANDAG adopted the Regional Plan. Like the 2050 RTP/SCS, the Regional Plan meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the Regional Plan would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025, cars will emit 75% less smog-forming pollution than the average new car sold before 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018 to 2025 model years.

EO B-16-12

EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions-reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236

AB 1236 (2015) requires local land use jurisdictions to approve applications for the installation of electric vehicle (EV) charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. AB 1236 requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, which creates an expedited and streamlined permitting process for EV charging stations, as specified. The City added Section 86.0151, *Electric Vehicle Parking Regulations*, to its municipal code in August 2015 in response to the AB 1236 requirements.

SB 350

In 2015, SB 350—the Clean Energy and Pollution Reduction Act—was enacted into law. As one of its elements, SB 350 established a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code, Section 740.12).

EO B-48-18

EO B-48-18 (2018) launched an eight-year initiative to accelerate the sale of EVs through a mix of rebate programs and infrastructure improvements. The order also set a new EV target of 5 million EVs in California by 2030. EO B-48-18 included funding for multiple state agencies, including the CEC, to increase EV charging infrastructure and for CARB to provide rebates for the purchase of new EVs and purchase incentives for low-income customers.

Solid Waste

AB 939 and AB 341

In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery to develop strategies to achieve the state's policy goal. The California Department of Resources Recycling and Recovery has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the state in reaching the 75% goal by 2020 (CalRecycle 2015).

Water

EO B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Other State Regulations and Goals

SB 97

SB 97 (August 2007) directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resources Agency (CNRA) adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines, Section 15064.4(a), state that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009a), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018).

Biological Diversity v. California Department of Fish and Wildlife

In its decision in *Center for Biological Diversity v. California Department of Fish and Wildlife* (*Newhall*) 62 Cal.4th 204 (2015), the California Supreme Court set forth several options that lead agencies may consider for evaluating the cumulative significance of a proposed project's GHG emissions:

1. A calculation of emissions reductions compared to a "business as usual" scenario based upon the emissions reductions in CARB's Scoping Plan, including examination of the data to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals.
2. A lead agency might assess consistency with AB 32's goals by looking to compliance with regulatory programs designed to reduce GHG emissions from particular activities.

3. Use of geographically specific GHG emission reduction plans to provide a basis for tiering and streamlining of project-level CEQA analysis.
4. A lead agency may rely on existing numerical thresholds of significance for GHG emissions, though use of such thresholds is not required.

The Newhall decision specifically found that use of a numerical threshold is not required.

3.2.3 Local Regulations

3.2.3.1 San Diego Air Pollution Control District

The SDAPCD does not have established GHG rules, regulations, or policies.

3.2.3.2 City of San Diego

General Plan

The State of California requires cities and counties to prepare and adopt a general plan to set out a long-range vision and comprehensive policy framework for its future. The state also mandates that the plan be updated periodically to ensure relevance and utility. The City of San Diego General Plan 2008 (General Plan) was unanimously adopted by the City Council on March 10, 2008. The General Plan builds upon many of the goals and strategies of the former 1979 General Plan, in addition to offering new policy direction in the areas of urban form, neighborhood character, historic preservation, public facilities, recreation, conservation, mobility, housing affordability, economic prosperity, and equitable development. It recognizes and explains the critical role of the community planning project as the vehicle to tailor the City of Villages strategy for each neighborhood. It also outlines the plan amendment process, and other implementation strategies, and considers the continued growth of the City beyond the year 2020 (City of San Diego 2015a).

Conservation Element. The Conservation Element contains policies to guide the conservation of resources that are fundamental components of San Diego's environment, that help define the City's identity, and that are relied upon for continued economic prosperity. The purpose of this element is to help the City become an international model of sustainable development and conservation and to provide for the long-term conservation and sustainable management of the rich natural resources that help define the City's identity, contribute to its economy, and improve its quality of life.

The City has adopted the following General Plan Conservation Element policies (City of San Diego 2008) related to climate change:

- **CE-A.8.** Reduce construction and demolition waste in accordance with Public Facilities Element, Policy PF-1.2, or by renovating or adding on to existing buildings, rather than constructing new buildings.
- **CE-A.9.** Reuse building materials, use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible, through factors including:
    - Scheduling time for deconstruction and recycling activities to take place during project demolition and construction phases;

  - Using life cycle costing in decision-making for materials and construction techniques. Life cycle costing analyzes the costs and benefits over the life of a particular product, technology, or system.
- **CE-I.4.** Maintain and promote water conservation and waste diversion projects to conserve energy.
- **CE-I.5.** Support the installation of photovoltaic panels, and other forms of renewable energy production.
  - Promote the use and installation of renewable energy alternatives in new and existing development.
- **CE-I.10.** Use renewable energy sources to generate energy to the extent feasible.

City of San Diego Climate Action Plan

On January 29, 2002, the San Diego City Council unanimously approved the San Diego Sustainable Community Program. Actions identified include:

1. Participation in the Cities for Climate Protection program coordinated through the International Council of Local Environmental Initiatives;
2. Establishment of a 15% GHG reduction goal set for 2010, using 1990 as a baseline; and
3. Direction to use the recommendations of a scientific Ad Hoc Advisory Committee as a means to improve the GHG Emission Reduction Action Plan within the City organization and to identify additional community actions.

In 2005, the City released a Climate Protection Action Plan. This report includes many of the recommendations provided by the Ad Hoc Advisory Committee and City staff. By implementing these recommendations, the City could directly address the challenges relating to mitigation for state and federal ozone standards nonattainment (with associated health benefits) and enhanced economic prosperity, specifically related to the tourism and agricultural sectors.

The Climate Protection Action Plan evaluated citywide GHG emissions, particularly three contentions: (1) the GHG projection in 2010 resulting from no action taken to curb emissions; (2) the GHG emission reductions due to City of San Diego actions implemented between 1990 and 2003; and, (3) the GHG reductions needed by 2010 to achieve 15% reduction. The Climate Protection Action Plan does not recommend or require specific strategies or measures for projects within the City to reduce emissions.

In December 2015, the City adopted its final CAP (City of San Diego 2015b). With implementation of the CAP, the City aims to reduce emissions 15% below the baseline to approximately 11.1 MMT CO_2e by 2020, 40% below the baseline to approximately 7.8 MMT CO_2e by 2030, and 50% below the baseline of 2010 to approximately 6.5 MMT CO_2e by 2035. It is anticipated that the City would exceed its reduction target by 1.3 MMT CO_2e in 2020, 176,528 MT CO_2e in 2030, and 127,135 MT CO_2e in 2035 with implementation of the CAP. The CAP relies on significant City and regional actions, continued implementation of federal and state mandates, and five local strategies with associated action steps for target attainment. The City has identified the following five strategies to reduce GHG emissions to achieve the 2020 and 2035 targets:

1. Energy and water efficient buildings
2. Clean and renewable energy
3. Bicycling, walking, transit, and land use
4. Zero waste (gas and waste management)
5. Climate resiliency

Implementation of the CAP is divided into three actions:

- Early Actions (Adoption of the CAP–December 31, 2017)
- Mid-Term Actions (January 1, 2018–December 31, 2020)
- Longer-Term Actions (2021–2035)

The CAP contains five chapters: Background, Reducing Emissions, Implementation and Monitoring, Social Equity and Job Creation, and Adaptation. The 2015 CAP demonstrates to San Diego businesses and residents that the City acknowledges the existing and potential impacts of a changing climate and is committed to keeping it in the forefront of decision making. Successful implementation of the CAP will: (1) prepare for anticipated climate change impacts in the coming decades, (2) help the State of California achieve its reduction target by contributing the City's fair share of GHG reductions, and (3) have a positive impact on the regional economy.

Through 2020, the CAP meets the requirements set forth in CEQA Guidelines Section 15183.5, whereby a lead agency (e.g., the City of San Diego) may analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan, a long-range development plan, or a separate plan to reduce GHG emissions.

On July 12, 2016, the City amended the CAP to include a consistency review checklist, which is intended to provide a streamlined review process for the GHG emissions analysis of proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to CEQA. The checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

3.3 Greenhouse Gas Inventories and Climate Change Conditions

3.3.1 Sources of Greenhouse Gas Emissions

Global Inventory

Anthropogenic GHG emissions worldwide in 2017 (the most recent year for which data is available) totaled approximately 50,860 MMT of CO_2e, excluding land use change and forestry (Olivier and Peters 2018). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, or approximately 33,290 MMT CO_2e (Olivier and Peters 2018). Table 14 presents the top GHG-emissions-producing countries, as well as the European Union.

Table 14. Six Top GHG Producer Countries and the European Union

Emitting Countries	2014 GHG Emissions (MMT CO_2e)[a,b]
China	13,530
United States	6,640
European Union	4,560
India	3,650
Russian Federation	2,220
Japan	1,490
Brazil	1,200
Total	**33,290**

Source: Olivier and Peters 2018.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Column may not add due to rounding.
[b] GHG emissions do not include land use change and forestry-related GHG emissions.

National and State Inventories

Per the 2019 EPA Inventory of U.S. GHG Emissions and Sinks: 1990–2017, total U.S. GHG emissions were approximately 6,457 MMT CO_2e in 2017 (EPA 2019c). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6% of total GHG emissions (6,457 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.2% of CO_2 emissions in 2017 (4,912.0 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2017 were 1.3% higher; however, the gross emissions were down from a high of 15.7% above the 1990 level that occurred in 2007. GHG emissions decreased from 2016 to 2017 by 0.5% (35.5 MMT CO_2e) and, overall, net emissions in 2017 were 13% below 2005 levels (EPA 2019c).

According to California's 2000 through 2016 GHG emissions inventory (2018 edition), California emitted 429 MMT CO_2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2016 are presented in Table 15.

Table 15. GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Transportation	176.1	41%
Industrial	98.8	23%
Electricity (in state)	42.9	10%
Electricity (imports)	25.8	6%
Agriculture	34.4	8%
Residential	30.1	7%
Commercial	21.5	5%
Total	**429.4**	**100%**

Source: CARB 2018.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
* Column may not add due to rounding.

Between 2000 and 2016, per-capita GHG emissions in California dropped from a peak of 14 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23% decrease. In addition, total GHG emissions in 2015 were approximately 12 MMT CO_2e less than 2015 emissions (CARB 2018).

The City provided an update to their GHG emission inventory in their 2018 CAP Annual Report Appendix (City of San Diego 2018). The City's GHG emissions for 2017 are presented in Table 16.

Table 16. GHG Emissions Sources in the City of San Diego

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Transportation	5.53	54.3%
Electricity	2.19	21.5%
Natural Gas	2.10	20.6%
Wastewater and Solid Waste	0.29	2.8%
Water	0.07	0.7%
Totals	**10.18**	**100%**

Source: City of San Diego 2018.
Notes: Emissions reflect the 2017 City of San Diego GHG inventory.
MMT CO_2e = million metric tons of carbon dioxide equivalent per year.
* Percentage of total has been rounded, and total may not sum due to rounding.

3.3.2 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C [0.36°F]) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the Western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been the greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). It is predicted that the Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the state's water supply, will decline by 30% to as much as 90% over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in Safeguarding California: Reducing Climate Risk (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. The agriculture sector and farmers face some specific challenges that include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding and extreme drought to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if climate change is not managed or mitigated.

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites, and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts among public, private, and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea-level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants, since power plant cooling is less efficient at higher ambient temperatures. Increased temperatures will also increase electricity demand associated with air conditioning. Natural gas infrastructure in coastal California is threatened by sea-level rise and extreme storm events.

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits, such as wildlife habitat, absorption of CO_2, renewable energy, and building materials. The most significant climate change-related risks to forests are accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and, combined with increasing temperatures, have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes or quickly occupy areas denuded by fire, insect mortality, or other climate change effects on vegetation.

Ocean and Coastal Ecosystems and Resources. Sea-level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea-level rise, in addition to more frequent and severe coastal storms and erosion, are threatening vital infrastructure, such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets, such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the 21st century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events, such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness, such as asthma and allergies. Additional health impacts that may be caused by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality.

Transportation. Residents of California rely on airports, seaports, public transportation, and an extensive roadway network to gain access to destinations, goods, and services. While the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea-level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes, and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter. Increased risk of flooding has a variety of public health concerns, including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence. Droughts can negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat.

In May 2017, the CNRA released the draft Safeguarding California Plan: 2017 Update, which was a survey of programmatic responses for climate change and contained recommendations for further actions (CNRA 2017).

3.4 Significance Criteria and Methodology

3.4.1 Thresholds of Significance

City of San Diego

Under the City's CEQA Thresholds, the method for determining significance for project-level environmental documents is through the CAP Consistency Checklist (City of San Diego 2017b). The CAP Consistency Checklist is the primary document used by the City to verify project-by-project consistency with the underlying assumptions in the CAP and ensure that the City would achieve its emissions reduction targets. The CAP Checklist includes a three-step process to determine project consistency (City of San Diego 2017b). Step 1 consists of an evaluation to determine a project's consistency with existing General Plan, Community Plan, and zoning designations for the site. If a proposed project is able to answer "yes" to Step 1 and demonstrate the proposed project would be consistent with existing General Plan, Community Plan, and zoning designations for the site, or the proposed project can demonstrate consistency with existing land uses by comparing the proposed project's GHG emissions with those that would be generated under existing land uses, then the proposed project may proceed to Step 2. If a proposed project must answer "no" to Step 1, then a proposed project would be deemed inconsistent with the CAP, and GHG impacts as identified under CEQA would be considered significant and unavoidable.

Step 2 includes a list of measures each project would be required to implement. Regardless of whether a project would answer "yes" or "no" to Step 1, implementation of the measures listed in Step 2 would be required for all projects, if applicable.

Step 3 would only be applicable for projects that would not be consistent with existing land use designations and would not be consistent with planned site land use GHG emissions, but that would be located in a Transit Priority Area (TPA) as defined by the City's Development Services Department. In accordance with SB 743, a TPA is defined as "an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations (City of San Diego 2016b). Appendix B, Transit Priority Areas per SB 743, of the CAP includes a map of TPAs as designated by the City. The TPA map is based on the adopted SANDAG San Diego Forward Regional Plan. The project is not located within a TPA.

3.4.2 Approach and Methodology

As discussed in Section 3.1.3, Global Warming Potential, this analysis assumes that the GWP for CH_4 is 25 and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007).

3.4.2.1 Construction

CalEEMod Version 2016.3.2 was used to estimate potential project-generated GHG emissions during construction. Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, blasting and rock crushing, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 2.4.2.1 are also applicable for the estimation of construction-related GHG emissions. As such, see Section 2.4.2.1 for a discussion of construction emissions calculation methodology and assumptions.

3.4.2.2 Operation

CalEEMod Version 2016.3.2 was used to estimate potential project-generated operational GHG emissions from area sources (landscape maintenance), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment. Emissions from each category are discussed in the following text with respect to the proposed project. For additional details, see Section 2.4.2.2, Operation, for a discussion of operational emission calculation methodology and assumptions, specifically for area, energy (natural gas), and mobile sources. Operational year 2024 was assumed as the first operational year after construction is complete.

Energy Sources

As represented in CalEEMod, energy sources include GHG emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to GHGs, since GHG emissions occur at the site of the power plant, which is typically off site. Emissions were calculated by multiplying the energy use by the utility's carbon intensity (pounds of GHGs per megawatt-hour for electricity or 1,000 British thermal units for natural gas) for CO_2 and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for San Diego Gas and Electric (SDG&E), which would be the energy source provider for the proposed project. For operational year 2024, the emission factors for SDG&E were adjusted to reflect SDG&E's compliance with the RPS standards, which is based on the renewable procurement percentage of 44% from the 2017 SDG&E RPS submittal (CEC 2018a).

CalEEMod default values for energy consumption for each residential land use were applied for analysis of the proposed project. The energy use from residential land uses is calculated in CalEEMod based on the California Residential End-Use Survey database. The program uses data collected during the Residential Appliance Saturation Survey to develop energy intensity values (electricity and natural gas usage per square foot per year) for residential buildings. Energy use in buildings (both natural gas and electricity) is divided by the program into end use categories subject to Title 24 requirements (end uses associated with the building envelope, such as the heating, ventilation, and air conditioning system; water heating system; and integrated lighting) and those not subject to Title 24 requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

The proposed project would be subject to the 2019 Title 24 standards, which went into effect on January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018b). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018b).

The proposed project would include solar for all residential units in accordance with the 2019 Title 24 standards. Similarly, the proposed project would include EV charging stations in accordance with the CALGreen and 2019 Title 24 standards; however, the EV charging stations were not quantified in this analysis.

Solid Waste

The proposed project would generate solid waste and would, therefore, result in CO_2 and CH_4 emissions associated with landfill off-gassing. Solid waste generation was derived from the CalEEMod default rates for each residential land use type. Emission estimates associated with solid waste were estimated using CalEEMod. A solid waste diversion rate of 50% was assumed in accordance with AB 341.

Water Supply and Wastewater

Water supplied to the proposed project would require the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through use of electricity. Annual water use for the proposed project and GHG emissions associated with the electricity used for water supply were calculated based upon default water use estimates for each residential land use type, as estimated by CalEEMod and SDG&E factors. The proposed project would include low-flow fixtures in all buildings. The proposed project would be connected to municipal sewer.

3.5 Impact Analysis

Issue GHG-1. Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

Construction of the proposed project would result in GHG emissions, which are primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using CalEEMod. A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.4.2.1, Construction, of this report.

Table 17 shows the estimated annual GHG construction emissions associated with the proposed project, as well as the amortized construction emissions over a 30-year project life.

Table 17. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2022	803.52	0.20	0.00	808.46
2023	419.40	0.08	0.00	421.33
			Total	**2,225.79**
			Amortized Emissions	**74.19**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

As shown in Table 17, the estimated GHG emissions during construction of would be approximately 808 MT CO_2e in 2022 and 421 MT CO_2e in 2023, for a total of 2,226 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 74 MT CO_2e per year. As Because there is no separate GHG threshold for construction, the evaluation of construction GHG emissions is discussed in the operational emissions analysis in the following text.

Operational Emissions

Operation of the proposed project would generate GHG emissions through motor vehicle trips to and from the project site; landscape maintenance equipment operation; hearth usage (wood-burning and natural gas fireplaces); energy use (natural gas and generation of electricity consumed by the proposed project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution, as well as wastewater treatment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 3.4.2.2, Operation.

Table 18 shows the estimated operational (year 2024) project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation.

Table 18. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	47.58	0.03	<0.01	49.14
Energy	81.46	<0.01	<0.01	81.93
Mobile	460.48	0.02	0.00	461.05
Solid waste	2.99	0.18	0.00	7.40
Water supply and wastewater	9.15	0.07	<0.01	11.38
			Total	**610.90**
			Amortized Construction Emissions	*74.19*
			Operation + Amortized Construction Total	**685.09**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for detailed results.
These emissions reflect California Emissions Estimator Model “unmitigated” output and operational year 2024.

As shown in Table 18, estimated annual project-generated GHG emissions in 2024 would be approximately 611 MT CO2e per year as a result of proposed project operations. Estimated annual project-generated emissions in 2024 from area, energy, mobile, solid waste, and water/wastewater sources and amortized project-generated construction emissions would be approximately 685 MT CO2e per year. As discussed in Section 3.4.1, the significance determination is based on consistency with the City's CAP using its CAP Consistency Checklist. This CAP Consistency Checklist and the proposed project's GHG impacts are discussed in Threshold GHG-2.

Issue GHG-2. Would the proposed project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Consistency with the City's CAP

As discussed in Section 3.4.1, the City of San Diego evaluates GHG significance based on a project's consistency with the City's CAP using the CAP Consistency Checklist (see Appendix C) and, in some instances, a quantification of greenhouse gas emissions. Step 1 of the Checklist determines the proposed project's consistency with the land use assumptions used in the CAP. The proposed project is within the Rancho Peñasquitos Community Plan and is currently designated as Open Space. Through coordination with SANDAG (pers. comm. Marshall and Cortes, January 21, 2020), it was also determined that the Series 12 growth projects assumed the site included roadway right of way and open space. As the project proposed multi-family residential, it is not consistent with the Community Plan's existing land use designation or the growth assumptions utilized in the CAP. Currently, the site zoning is RM-2-5 and RS-1-14. The project proposes a Community Plan Amendment to allow for multi-family residential uses, as well as a rezone of Lot 1 to RM-1-1 and Lot 2 to OC-1-1. Thus, the proposed project would generate more GHG emissions relative the existing passive open space use as discussed under Issue GHG-1. Additionally, the proposed project site is not within a TPA (Transit Priority Area). Therefore, the proposed project would respond "NO" to Step 1 of the CAP Checklist.

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Table 19 shows the project's consistency with each item within the CAP Consistency Checklist.

Table 19. Climate Action Plan Consistency Checklist

CAP Checklist Item	Project Compliance
1. Cool/Green Roofs: • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options?	**Consistent.** The project would include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than that provided in Table 1 of Attachment A of the CAP Checklist. This has been incorporated as mitigation consistent with the CAP Checklist. See Section 1.3, Project Description, for the list of sustainability measures.

Table 19. Climate Action Plan Consistency Checklist

CAP Checklist Item	Project Compliance
Check "N/A" only if the project does not include a roof component.	
2. Plumbing Fixtures and Fittings: With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings.	**Consistent.** The project would include low-flow fixtures and appliances consistent with the requirements of this Checklist item 2. This has been incorporated as a mitigation consistent with the CAP Checklist. See Section 1.3, Project Description, for the list of sustainability measures.
3. Electric Vehicle Charging: • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use?	**Consistent.** Per **mitigation**, the project would have a total of 18 parking spaces out of 117 (15%) that will be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations. Of those 18 spaces, 9 would have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents.

Table 19. Climate Action Plan Consistency Checklist

CAP Checklist Item	Project Compliance
Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces.	
4. Bicycle Parking Spaces: Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)? Check "N/A" only if the project is a residential project.	**Not Applicable.** The project is residential.
5. Shower Facilities: If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below? Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).	**Not Applicable.** The project is residential.
6. Designated Parking Spaces: If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table? This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements. Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it. Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.	**Not Applicable.** The project is residential.
7. Transportation Demand Management Program: If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools	**Not Applicable.** The project is residential.

Table 19. Climate Action Plan Consistency Checklist

CAP Checklist Item	Project Compliance
• Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either on site or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees).	

Source: City of San Diego 2017
See Appendix C.

As shown in Table 19 above, the project would be consistent with all applicable GHG reduction strategies found within the CAP Consistency Checklist. However, the project would result in a change in land use that would generate GHG emissions in excess of the project site's existing land use designation (CAP Checklist Step 1). Therefore, the project would not be consistent with the City's CAP and would have a **significant** impact.

Level of Significance before Mitigation

The project would have a ***potentially* significant** impact without mitigation.

Mitigation Measures

The project would include all the reduction measures outlined in the City's CAP that are applicable to the proposed including Cool/Green Roofs, Low-flow plumbing fixtures, and electrical vehicular changing as discussed below.

MM-GHG-1 **CAP Strategy 1- Cool Roofs.** Prior to the issuance of residential building permits, the project applicant or its designee shall submit building plans illustrating that residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar reflectance index (SRI) of 64 for a low-sloped roof and an SRI of 32 for a high-sloped roof.

MM-GHG-2 **CAP Strategy 1 - Low Flow Plumbing Fixtures.** Prior to the issuance of residential building permits, the project applicant or its designee shall submit building plans illustrating that residential structures shall have low flow fixtures including; kitchen faucets with a maximum flow rate not to exceed 1.5 gallons per minute at 60psi; standard dishwashers at 4.25 gallons per cycle; compact dishwashers at 3.5 gallons per cycle and clothes washers with a water factor of 6 gallons per cubic feet of drum capacity.

MM-GHG-3 **CAP Strategy 2 - Electrical Vehicle Charging Stations.** Prior to the issuance of building permits, the proposed project applicant or its designee shall submit building plans illustrating that the project provides electrical vehicle charging stations at 5% of the on-site parking (6 spaces).

MM-GHG-4 **Beyond CAP Strategy 2 - Electrical Vehicle Charging Stations.** Prior to the issuance of building permits, the proposed project applicant or its designee shall submit building plans illustrating that the project provides an additional 5% of on-site parking as EV capable spaces above Title 24 code and half of those additional spaces as EV charging stations.

MM-GHG-5 **Pedestrian Improvements.** Prior to the issuance of residential building permits, the project applicant or its designee shall submit project site plans detailing sidewalk retrofit improvements along the south side Paseo Montril to current standards per the Street Design Manual (City of San Diego 2017). This providing a continuous concrete sidewalk from the project access to the Rancho Penasquitos Boulevard.

MM-GHG-6 **Bike Parking.** Prior to the issuance of residential building permits, the project applicant or its designee shall submit project site plans showing 10 bike parking spaces will be provided onsite.

MM-GHG-7 **Transit Passes.** Prior to the issuance of occupancy permits, the City shall verify that the Declaration of Covenants, Conditions, and Restrictions of the Home Owners Association includes a transit subsidy program to provide a 25% transit subsidy to residents of the development for the first five year period. The subsidy value will be limited to the equivalent value of 25% of the cost of an MTS "Regional Adult Monthly/30-Day Pass" (currently $72, which equates to a subsidy value of $18 per month). Subsidies will be available on a per unit basis to residential tenants for a period of five years (five years after issuance of the first occupancy permit). In no event shall the total subsidy exceed $59,400.

Level of Significance After Mitigation

The project would implement MM-GHG-1 to MM-GHG-7 to reduce the project's GHG emission impact, as described below.

MM-GHG-1 and MM-GHG-2 would reduce energy usage and associated GHG emissions. MM-GHG-1 would reduce the energy usage required by HVAC equipment at the project site, which would reduce resulting GHG emissions from building energy demand. MM-GHG-2 would reduce water consumption at the project site, which would reduce resulting energy demand required to transport water to and from the project, further reducing GHG emissions associated with the project.

MM-GHG-3 and MM-GHG-4 would allow for additional on-site charging of electric vehicles. Based on the current plans (117 on-site parking spaces), the project is already required to provide 12 EV capable spaces (i.e., 10% of on-site parking spaces as EV capable) per Title 24 and 6 of those spaces as EV charging stations (i.e., 50% of the EV capable spaces installed with EV charging stations) per the CAP Checklist. An additional 5% would entail an additional 6 EV capable spaces, and 3 of those spaces as EV charging stations. Overall with mitigation, the project would provide 9 spaces that are only prewired for EV charging stations and 9 spaces that include full EV charging stations. While onsite charging would increase energy demand at the project site, it would reduce overall energy demand and would encourage electric vehicle use by expanding vehicle charging locations. GHG emissions generated by gasoline-powered vehicles would also decrease.

MM-GHG-5 and MM-GHG-7 would provide an improved pedestrian connection to transit, and would encourage transit usage to reduce overall vehicular GHG emissions associated with the project. MM-GHG-7 would further encourage transit use by subsidizing transit passes for residents for 5 years. These measures are intended to reduce personal vehicle usage to reduce GHG emissions associated with the project.

MM-GHG-6 would provide for additional bike parking, which would encourage residents toutilize bicycles instead of vehicles for transportation. The project's vehicular GHG emissions would be reduced by this measure.

In addition to the above mitigation measures, the project would also include several sustainability features that would reduce GHG emissions(see Section 1.3 above). While these measures are expected to reduce GHG emissions, the GHG emission reductions are not quantified, because the GHG reductions from these mitigation measures can't be substantiated within an acceptable level of accuracy (CAPCOA 2009). Per the City of San Diego's CAP guidance, a project that was not accounted for in the CAP would have a significant impact with regards to GHGs. As the site is designated as open space, the CAP assumed the site would generate no emissions. To meet the assumptions in the CAP, the project would have to obtain net zero or negative GHG emissions. While the proposed mitigation measures would reduce GHG emissions, the associated reduction were not quantified. Thus, it cannot be demonstrated that the project would achieve net zero emissions consistent with the CAP. In conclusion, the proposed project's GHG emission impact would be significant and unavoidable after mitigation.

INTENTIONALLY LEFT BLANK

4 References Cited

ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers Inc.). 2007. Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. ANSI/ASHRAE Standard 52.2-2007.

BAAQMD (Bay Area Air Quality Management District). 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards. March.

California Department of Public Health. 2017. Epidemiologic Summary of Coccidioidomycosis in California, 2016. June. Accessed November 2017. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2016.pdf.

CalRecycle (California Department of Resources, Recycling, and Recovery). 2015. *AB 341 Report to the Legislature*. August 2015.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

CAPCOA. 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2* Prepared by Trinity Consultants and the California Air Districts. Accessed October 2017. http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. Accessed August 2016. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf.

CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005. Accessed August 2016. http://www.arb.ca.gov/ch/landuse.htm.

CARB. 2008. *Climate Change Scoping Plan: A Framework for Change.* December 2008. Accessed December 9, 2009. http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.

CARB. 2011. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document*. August 19, 2011. https://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.

CARB. 2014a. "California Greenhouse Gas Inventory for 2000–2012—by Category as Defined in the 2008 Scoping Plan." Last updated March 24, 2014. Accessed October 2017. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf.

CARB. 2014b. First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006. May 2014. Accessed October 2017. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

CARB. 2016a. "Glossary of Air Pollution Terms." CARB website. Accessed June 2016. http://www.arb.ca.gov/html/gloss.htm.

CARB. 2016b. "Ambient Air Quality Standards." May 4, 2016. Accessed August 2016. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2016c. "Area Designation Maps/State and National." Last updated May 5, 2016. http://www.arb.ca.gov/desig/adm/adm.htm.

CARB. 2017. The 2017 Climate Change Scoping Plan Update. January 20. Accessed January 2017. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

CARB. 2018. "California Greenhouse Gas Inventory – 2018 Edition." July 11, 2018. Accessed July 2019. https://ww3.arb.ca.gov/cc/inventory/data/data.htm.

CARB. 2019. "iADAM: Air Quality Data Statistics." Accessed July 2016. http://www.arb.ca.gov/adam/topfour/topfour1.php.

CARB, CalEPA, CDFA, and CNRA (California Air Resources Board, California Environmental Protection Agency, California Department of Food and Agriculture, and California Natural Resources Agency). 2018. *Natural and Working Lands Climate Change Implementation Plan Concept Paper*. May 2018. Accessed January 3, 2019. https://arb.ca.gov/cc/natandworkinglands/nwl-implementation-plan-concept-paper.pdf.

Caltrans (California Department of Transportation). 2020. Performance Measurement System (PeMS). Accessed October 2020. http://pems.dot.ca.gov/.

California Air Pollution Control Officers Association (CAPCOA) 2009. Model Policies for Greenhouse Gasses in General Plans. June 2009.

CAT (California Climate Action Team). 2006. *Climate Action Team Report to the Governor Schwarzenegger and the Legislature*. Sacramento, California. March 2006. Accessed August 2016. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010. *Climate Action Team Biennial Report*. Sacramento, California. April 2010. Accessed August 2016. http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CCCC (California Climate Change Center). 2006. *Our Changing Climate: Assessing the Risks to California*. CEC-500-2006-077. July 2006. Accessed August 2016. http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF.

CCCC. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. July 2012. Accessed August 2016. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

CEC (California Energy Commission). 2018a. 2017 Power Content Label for San Diego Gas & Electric. July. Accessed July 2019. https://ww2.energy.ca.gov/pcl/labels/2017_labels/SDG_and_E_2017_PCL.pdf.

CEC. 2018b. 2019 Building Energy Efficiency Standards Fact Sheet. March 2018. https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

City of San Diego. 2008. "Conservation Element." In *City of San Diego General Plan 2008*. March 10, 2008. Accessed December 2018. https://www.sandiego.gov/planning/genplan#genplan.

City of San Diego. 2010. San Diego Municipal Code, Chapter 14, Article 2, Division 7, Section 142.0710, Air Contaminant Regulations. January 1, 2010. Accessed December 2016. http://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art02Division07.pdf.

City of San Diego. 2016. *California Environmental Quality Act Significance Determination Thresholds*. July 2016. Accessed November 2016. https://www.sandiego.gov/sites/default/files/july_2016_ceqa_thresholds_final_0.pdf.

City of San Diego. 2017. *Street Design Manual*. March 2017 Edition. Accessed January 2021. https://www.sandiego.gov/sites/default/files/street_design_manual_march_2017-final.pdf. CNRA (California Natural Resources Agency). 2009a. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.

CNRA. 2009b. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.* Accessed August 2016. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

CNRA. 2014. Safeguarding California: Reducing Climate Risk. An update to the 2009 California Climate Adaptation Strategy. Accessed October 2017. http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

CNRA. 2016. Safeguarding California: Implementing Action Plans. March 2016. Accessed October 2017. http://resources.ca.gov/docs/climate/safeguarding/Safeguarding%20California-Implementation%20Action%20Plans.pdf.

CNRA. 2017. *Draft Report Safeguarding California Plan: 2017 Update. California's Climate Adaptation Strategy*. May 2017. Accessed October 2017. http://resources.ca.gov/wp-content/uploads/2017/05/DRAFT-Safeguarding-California-Plan-2017-Update.pdf.

CNRA. 2018. *Safeguarding California Plan: 2018 Update, California's Climate Adaptation Strategy*. January 2018. http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf.

County of San Diego. 2007. *Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality*. Department of Planning and Land Use, Department of Public Works. March 19, 2007.

County of San Diego. 2018. County of San Diego Communicable Disease Registry. County of San Diego, Health and Human Services Agency, Public Health Services, Epidemiology and Immunization Services Branch. August 16, 2018.

EPA (U.S. Environmental Protection Agency). 1980. "Explosives Detonation." Section 13.3 in *Compilation of Air Pollutant Emission Factors*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. February 1980 (Reformatted January 1995). https://www3.epa.gov/ttn/chief/ap42/ch13/index.html.

EPA. 1998. "Western Surface Coal Mining." Section 11.9 in *Compilation of Air Pollutant Emission Factors*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. October 1998. http://www.epa.gov/ttn/chief/ap42/ch11/index.html

EPA. 2004. "Crushed Stone Processing and Pulverized Mineral Processing." Section 11.19.2 of *Compilation of Air Pollutant Emission Factors.* Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. August 2004. http://www.epa.gov/ttn/chief/ ap42/ch11/index.html.

EPA. 2006. "Aggregate Handling and Storage Piles." Chap. 13.2.4 in *Compilation of Air Pollutant Emission Factors. Vol. 1, Stationary Point and Area Sources*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA, Office of Air and Radiation, Office of Air Quality Planning and Standards. November 2006. http://www.epa.gov/ttn/chief/ap42/ch13/index.html.

EPA. 2007. The Energy Independence and Security Act of 2007. December 19. Accessed October 2017. https://www.gpo.gov/fdsys/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf.

EPA. 2009. *Integrated Science Assessment for Particulate Matter*. U.S. EPA, EPA/600/R-08/139F, 2009.

EPA. 2013. *Integrated Science Assessment of Ozone and Related Photochemical Oxidants*. U.S. EPA, EPA/600R-10/076F, 2013.

EPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas - Appendices. November. https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses

EPA. 2016a. "Criteria Air Pollutants." July 21, 2016. Accessed August 2016. https://www.epa.gov/criteria-air-pollutants.

EPA. 2016b. *Integrated Science Assessment for Oxides of Nitrogen-Health Criteria (2016 Final Report)*. U.S. EPA, EPA/600/R-15/068, 2016.

EPA. 2016c. "Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard – Round 3." July 22, 2016. Accessed February 2017. https://www.epa.gov/sites/production/files/2016-07/documents/areadesign.pdf.

EPA. 2016d. "EPA Region 9 Air Quality Maps and Geographic Information." Last updated April 27, 2016. Accessed August 2016. http://www.epa.gov/region9/air/maps/.

EPA. 2016e. "Glossary of Climate Change Terms." August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2017. "Climate Change." Last updated January 19, 2017. Accessed January 2017. https://www.epa.gov/climatechange.

EPA. 2019a. "AirData: Access to Air Pollution Data." Last updated February 23, 2016. Accessed August 2016. http://www.epa.gov/airdata/ad_rep_mon.html.

EPA. 2019b. AERMOD Implementation Guide. August. https://www3.epa.gov/ttn/scram/models/aermod/aermod_implementation_guide.pdf.

EPA. 2019c. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2017.* EPA 430-R-19-001. April 11, 2019. Accessed May 2, 2019. https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf.

EPA and NHTSA (Department of Transportation's National Highway Traffic Safety Administration). 2016. Regulations and Standards: Heavy-Duty. EPA and DOT Finalize Greenhouse Gas and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles. Last updated on August 30, 2016. Accessed October 2017. https://www3.epa.gov/otaq/climate/regs-heavy-duty.htm.

Fisk, W.J., D. Faulkner, J. Palonen, and O. Seppanen. 2002. "Performance and Costs of Particle Air Filtration Technologies." *Indoor Air* 12:223–234.

IPCC (Intergovernmental Panel on Climate Change). 1995. *IPCC Second Assessment: Climate Change 1995. A Report of the Intergovernmental Panel on Climate Change*. Accessed July 2019. https://www.ipcc.ch/site/assets/uploads/2018/06/2nd-assessment-en.pdf.

IPCC. 2007. *IPCC Fourth Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2013. *Climate Change 2013: The Physical Science Basis*. *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Accessed October 2017. http://www.ipcc.ch/report/ar5/wg1.

IPCC. 2014. *Climate Change 2014 Synthesis Report: A Report of the Intergovernmental Panel on Climate Change.* Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Accessed August 2016. http://www.ipcc.ch/report/ar5/syr/.

Klepeis, N. et. al. 2001. The National Human Activity Pattern Survey (NHAPS): a resource for assessing exposure to environmental pollutants. Journal of Exposure Analysis and Environmental Epidemiology. 24 July. https://www.nature.com/articles/7500165.

LOS. 2019. Draft Transportation *Impact Study for Paseo Montril*. December 20, 2019.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* California Environmental Protection Agency, OEHHA. February 2015. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

Olivier, J.G.J., and J.A.H.W. Peters. 2018. *Trends in Global CO_2 and Total Greenhouse Gas Emissions – 2018 Report*. The Hague, Netherlands: PBL Netherlands Environmental Assessment Agency. December 2018. Accessed May 2019. https://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2018-trends-in-global-co2-and-total-greenhouse-gas-emissons-2018-report_3125.pdf.

Pers. comm. Marshall and Cortes, January 21, 2020. Series 12 Growth Projection Discussion with SANDAG Staff.

OPR (Governor's Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.*

SANDAG (San Diego Association of Governments). 2011. *2050 Regional Transportation Plan/Sustainable Communities Strategy*. October 2011.

SANDAG. 2013. "Series 13 Regional Growth Forecast: City of Poway." October 2013. Accessed June 2017. http://datasurfer.sandag.org/download/sandag_forecast_13_jurisdiction_poway.pdf.

SANDAG. 2015. *San Diego Forward: The Regional Plan*. October 2015. Accessed April 2017. http://www.sdforward.com/pdfs/RP_final/The%20Plan%20-%20combined.pdf.

SANDAG. 2016. *2016 Regional Transportation Improvement Program*. Accessed November 2016. http://www.sandag.org/uploads/publicationid/publicationid_2071_21174.pdf.

SANDAG. 2017a. *Series 13: 2050 Regional Growth Forecast.* Accessed June 2017. http://www.sandag.org/index.asp?classid=12&subclassid=84&projectid=503&fuseaction=projects.detail.

SANDAG. 2017b. *2050 Regional Transportation Plan.* Accessed June 2017. http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail.

SCAQMD (South Coast Air Quality Management District). 1993. *CEQA Air Quality Handbook*.SCAQMD (South Coast Air Quality Management District).. 2008. Final Localized Significance Threshold Methodology. July. Accessed October 2019. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

SBCAPCD (Santa Barbara County Air Pollution Control District). 2020. Modeling Guidelines for Health Risk Assessments. Form-15i. June 2020. https://www.ourair.org/wp-content/uploads/apcd-15i.pdf

SDAPCD (San Diego Air Pollution Control District). 1969. Rules and Regulations. Regulation IV. Prohibitions. Rule 51. Nuisance. Effective January 1, 1969.

SDAPCD. 1995. Rules and Regulations. Regulation XV. Federal Conformity. Rule 1501. Conformity with General Federal Actions. Adopted March 7, 1995.

SDAPCD. 1997. Rules and Regulations. Regulation IV. Prohibitions. Rule 50. Visible Emissions. Effective August 13, 1997. Accessed June 2017. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R50.pdf.

SDAPCD. 2005. *Measures to Reduce Particulate Matter in San Diego County*. December 2005. Accessed October 2017. http://www.sdapcd.org/planning/plan.html.

SDAPCD. 2009a. *2009 Regional Air Quality Strategy Revision*. April 2009. Accessed October 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2009-RAQS.pdf.

SDAPCD. 2009b. SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. June 24, 2009. Accessed October 2017. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R55.pdf.

SDAPCD. 2012. *Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County*. Adopted December 5, 2012. San Diego, California: SDAPCD. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8_Hour_O3_Maint-Plan.pdf.

SDAPCD. 2015a. 5-Year Air Quality Monitoring Network Assessment 2015. July. Accessed December 2017. http://www.sdapcd.org/content/dam/sdc/apcd/monitoring/2015_Network_Assessment.pdf.

SDAPCD. 2015b. SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. June 24. Accessed May 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R67-0-1.pdf.

SDAPCD. 2016a. *2008 Eight-Hour Ozone Attainment Plan for San Diego County*. Updated December 2016. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality %20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.

SDAPCD. 2016b. *2016 Revision of the Regional Qir Quality Strategy for San Diego County*. December 2016. Accessed June 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf.

SDAPCD. 2016c. SDAPCD Regulation II: Permits; Rule 20.2: New Source Review—Non-Major Sources. January 29, 2016. Accessed October 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Permits/APCD_R20-2.pdf.

SDAPCD. 2017a. Regulation XII. Toxic Air Contaminates; Rule 1200: Toxic Air Contaminates – New Source Review. Accessed October 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Toxic_Air_Cotaminants/ACPD_R1200.pdf.

SDAPCD. 2017b. Regulation XII. Toxic Air Contaminates; Rule 1210: Toxic Air Contaminates – Public Notification and Risk Reduction. Accessed October 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Toxic_Air_Cotaminants/APCD_R1210.pdf.

SDAPCD. 2019. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs).* May 2019. https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Toxics_Program/APCD_Hot_Spots_Supplemental_Guidelines.pdf.

WRCC (Western Region Climate Center). 2017. Climate Summary for Poway Valley, California. Accessed June 2019. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7111.

INTENTIONALLY LEFT BLANK

5 List of Preparers

Nicholas Lorenzen, Air Quality Specialist
Jennifer Reed, Air Quality Services Manager

INTENTIONALLY LEFT BLANK

Appendix A

CalEEMod Output Files

Paseo Montril

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	32.00	Dwelling Unit	13.07	45,490.00	92
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Parking Lot	37.00	Space	0.33	14,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Complinace with RPS and operational year matches traffic.

Land Use - Residential building square footage and acreage based on project specific information

Construction Phase - Construction phasing information provided by the project applicant.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - Utiltites equipement information provided by the project applicant.

Grading - 44,800 CY of earthwork material to be exported.

Trips and VMT - Odd trip values were rounded up to an even value.

Architectural Coating - Compliance with SDAPCD Rule 67.0.1

Vehicle Trips - Weekday trip rate is consistent with traffic report. Weekend trip ratios was kept consistent with CalEEMod defaults.

Area Coating - Compliance with SDAPCD Rule 67.0.1

Energy Use - CalEEMod Defaults.

Construction Off-road Equipment Mitigation - Compliance with SDAPCD Rule 55

Waste Mitigation - Compliance with AB 341

Water Mitigation - Low flow fixtures per MM-GHG-2.

Area Mitigation - Compliance with SDAPCD Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	300.00	86.00
tblConstructionPhase	NumDays	30.00	98.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	4/13/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	12/23/2021	3/15/2022
tblConstructionPhase	PhaseEndDate	3/16/2023	8/15/2022
tblConstructionPhase	PhaseEndDate	11/11/2021	10/28/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	10/3/2022

tblConstructionPhase	PhaseStartDate	12/24/2021	7/4/2022
tblConstructionPhase	PhaseStartDate	11/12/2021	10/29/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	3/16/2022
tblConstructionPhase	PhaseStartDate	10/29/2021	10/1/2021
tblGrading	MaterialExported	0.00	44,800.00
tblLandUse	LandUseSquareFeet	32,000.00	45,490.00
tblLandUse	LotAcreage	2.00	13.07
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblTripsAndVMT	VendorTripNumber	19.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	7.16	8.69
tblVehicleTrips	SU_TR	6.07	7.37
tblVehicleTrips	WD_TR	6.59	8.00

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					

2021	0.1474	1.8170	1.0224	2.8600e-003	0.4990	0.0672	0.5661	0.2022	0.0618	0.2640	0.0000	263.3563	263.3563	0.0605	0.0000	264.8691
2022	0.5282	3.2941	3.1879	7.0100e-003	0.3773	0.1353	0.5126	0.1239	0.1253	0.2492	0.0000	630.0408	630.0408	0.1532	0.0000	633.8717
Maximum	**0.5282**	**3.2941**	**3.1879**	**7.0100e-003**	**0.4990**	**0.1353**	**0.5661**	**0.2022**	**0.1253**	**0.2640**	**0.0000**	**630.0408**	**630.0408**	**0.1532**	**0.0000**	**633.8717**

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					
2021	0.1474	1.8170	1.0224	2.8600e-003	0.2502	0.0672	0.3174	0.0977	0.0618	0.1596	0.0000	263.3561	263.3561	0.0605	0.0000	264.8689
2022	0.5282	3.2941	3.1879	7.0100e-003	0.2180	0.1353	0.3533	0.0686	0.1253	0.1939	0.0000	630.0403	630.0403	0.1532	0.0000	633.8712
Maximum	**0.5282**	**3.2941**	**3.1879**	**7.0100e-003**	**0.2502**	**0.1353**	**0.3533**	**0.0977**	**0.1253**	**0.1939**	**0.0000**	**630.0403**	**630.0403**	**0.1532**	**0.0000**	**633.8712**

	ROG	**NOx**	**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**	**46.56**	**0.00**	**37.82**	**49.00**	**0.00**	**31.13**	**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	**10-1-2021**	**12-31-2021**	1.9520	1.9520
2	**1-1-2022**	**3-31-2022**	1.6272	1.6272
3	**4-1-2022**	**6-30-2022**	0.7610	0.7610
4	**7-1-2022**	**9-30-2022**	1.0087	1.0087
		Highest	1.9520	1.9520

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2198	0.0420	2.7167	4.5000e-003		0.3488	0.3488		0.3488	0.3488	33.0547	14.2515	47.3061	0.0309	2.6000e-003	48.8529
Energy	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	47.8383	47.8383	2.2200e-003	7.4000e-004	48.1129
Mobile	0.0731	0.3270	0.8828	3.1100e-003	0.2758	2.6000e-003	0.2784	0.0738	2.4300e-003	0.0763	0.0000	287.1538	287.1538	0.0149	0.0000	287.5264
Waste						0.0000	0.0000		0.0000	0.0000	2.9880	0.0000	2.9880	0.1766	0.0000	7.4027
Water						0.0000	0.0000		0.0000	0.0000	0.6615	8.4899	9.1513	0.0685	1.7200e-003	11.3754
Total	**2.2948**	**0.3855**	**3.6066**	**7.7200e-003**	**0.2758**	**0.3528**	**0.6285**	**0.0738**	**0.3526**	**0.4264**	**36.7041**	**357.7334**	**394.4375**	**0.2931**	**5.0600e-003**	**403.2703**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2142	0.0223	0.2466	1.4000e-004		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	23.0731	23.0731	8.1000e-004	4.2000e-004	23.2173
Energy	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	47.8383	47.8383	2.2200e-003	7.4000e-004	48.1129
Mobile	0.0731	0.3270	0.8828	3.1100e-003	0.2758	2.6000e-003	0.2784	0.0738	2.4300e-003	0.0763	0.0000	287.1538	287.1538	0.0149	0.0000	287.5264
Waste						0.0000	0.0000		0.0000	0.0000	1.4940	0.0000	1.4940	0.0883	0.0000	3.7014
Water						0.0000	0.0000		0.0000	0.0000	0.5292	7.3858	7.9150	0.0548	1.3800e-003	9.6975
Total	**0.2892**	**0.3658**	**1.1364**	**3.3600e-003**	**0.2758**	**6.8400e-003**	**0.2826**	**0.0738**	**6.6700e-003**	**0.0805**	**2.0232**	**365.4510**	**367.4742**	**0.1611**	**2.5400e-003**	**372.2555**

	ROG	**NOx**	**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	**87.40**	**5.09**	**68.49**	**56.48**	**0.00**	**98.06**	**55.04**	**0.00**	**98.11**	**81.12**	**94.49**	**-2.16**	**6.84**	**45.05**	**49.80**	**7.69**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	10/28/2021	5	20	
2	Grading	Grading	10/29/2021	3/15/2022	5	98	
3	Paving	Paving	3/16/2022	8/15/2022	5	109	
4	Trenching for Utilties	Trenching	3/16/2022	8/15/2022	5	109	
5	Building Construction	Building Construction	7/4/2022	10/31/2022	5	86	
6	Architectural Coating	Architectural Coating	10/3/2022	10/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 245

Acres of Paving: 2.13

Residential Indoor: 92,117; Residential Outdoor: 30,706; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Trenching for Utilties	Excavators	2	8.00	158	0.38
Trenching for Utilties	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Trenching for Utilties	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching for Utilties	5	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,600.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	62.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.5000e-004	4.5000e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2609	1.2609	4.0000e-005	0.0000	1.2618
Total	**6.3000e-004**	**4.5000e-004**	**4.5000e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2609**	**1.2609**	**4.0000e-005**	**0.0000**	**1.2618**

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					0.0813	0.0000	0.0813	0.0447	0.0000	0.0447	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.0813**	**0.0204**	**0.1017**	**0.0447**	**0.0188**	**0.0635**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.5000e-004	4.5000e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2609	1.2609	4.0000e-005	0.0000	1.2618
Total	**6.3000e-004**	**4.5000e-004**	**4.5000e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2609**	**1.2609**	**4.0000e-005**	**0.0000**	**1.2618**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2716	0.0000	0.2716	0.0906	0.0000	0.0906	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0964	1.0672	0.7102	1.4300e-003		0.0457	0.0457		0.0420	0.0420	0.0000	125.3385	125.3385	0.0405	0.0000	126.3519
Total	**0.0964**	**1.0672**	**0.7102**	**1.4300e-003**	**0.2716**	**0.0457**	**0.3172**	**0.0906**	**0.0420**	**0.1327**	**0.0000**	**125.3385**	**125.3385**	**0.0405**	**0.0000**	**126.3519**

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	9.8700e-003	0.3433	0.0847	1.0100e-003	0.0416	1.0400e-003	0.0426	0.0109	9.9000e-004	0.0119	0.0000	100.0988	100.0988	9.0300e-003	0.0000	100.3246
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	1.6000e-003	1.1400e-003	0.0115	4.0000e-005	3.6900e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2224	3.2224	9.0000e-005	0.0000	3.2247
Total	**0.0115**	**0.3444**	**0.0962**	**1.0500e-003**	**0.0453**	**1.0700e-003**	**0.0463**	**0.0119**	**1.0100e-003**	**0.0129**	**0.0000**	**103.3212**	**103.3212**	**9.1200e-003**	**0.0000**	**103.5493**

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					0.1222	0.0000	0.1222	0.0408	0.0000	0.0408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0964	1.0672	0.7102	1.4300e-003		0.0457	0.0457		0.0420	0.0420	0.0000	125.3383	125.3383	0.0405	0.0000	126.3517
Total	**0.0964**	**1.0672**	**0.7102**	**1.4300e-003**	**0.1222**	**0.0457**	**0.1679**	**0.0408**	**0.0420**	**0.0828**	**0.0000**	**125.3383**	**125.3383**	**0.0405**	**0.0000**	**126.3517**

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	9.8700e-003	0.3433	0.0847	1.0100e-003	0.0416	1.0400e-003	0.0426	0.0109	9.9000e-004	0.0119	0.0000	100.0988	100.0988	9.0300e-003	0.0000	100.3246
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	1.6000e-003	1.1400e-003	0.0115	4.0000e-005	3.6900e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.2224	3.2224	9.0000e-005	0.0000	3.2247

Total	0.0115	0.3444	0.0962	1.0500e-003	0.0453	1.0700e-003	0.0463	0.0119	1.0100e-003	0.0129	0.0000	103.3212	103.3212	9.1200e-003	0.0000	103.5493

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2896	0.0000	0.2896	0.1006	0.0000	0.1006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0943	1.0099	0.7551	1.6100e-003		0.0425	0.0425		0.0391	0.0391	0.0000	141.7900	141.7900	0.0459	0.0000	142.9364
Total	**0.0943**	**1.0099**	**0.7551**	**1.6100e-003**	**0.2896**	**0.0425**	**0.3321**	**0.1006**	**0.0391**	**0.1397**	**0.0000**	**141.7900**	**141.7900**	**0.0459**	**0.0000**	**142.9364**

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	0.0105	0.3548	0.0950	1.1200e-003	0.0423	9.9000e-004	0.0433	0.0111	9.5000e-004	0.0121	0.0000	111.6708	111.6708	0.0101	0.0000	111.9234
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	1.7100e-003	1.1800e-003	0.0121	4.0000e-005	4.1700e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1300e-003	0.0000	3.5092	3.5092	1.0000e-004	0.0000	3.5116
Total	**0.0122**	**0.3559**	**0.1071**	**1.1600e-003**	**0.0465**	**1.0200e-003**	**0.0475**	**0.0122**	**9.8000e-004**	**0.0132**	**0.0000**	**115.1800**	**115.1800**	**0.0102**	**0.0000**	**115.4350**

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					0.1303	0.0000	0.1303	0.0453	0.0000	0.0453	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0943	1.0099	0.7551	1.6100e-003		0.0425	0.0425		0.0391	0.0391	0.0000	141.7898	141.7898	0.0459	0.0000	142.9362
Total	**0.0943**	**1.0099**	**0.7551**	**1.6100e-003**	**0.1303**	**0.0425**	**0.1728**	**0.0453**	**0.0391**	**0.0844**	**0.0000**	**141.7898**	**141.7898**	**0.0459**	**0.0000**	**142.9362**

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	0.0105	0.3548	0.0950	1.1200e-003	0.0423	9.9000e-004	0.0433	0.0111	9.5000e-004	0.0121	0.0000	111.6708	111.6708	0.0101	0.0000	111.9234
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	1.7100e-003	1.1800e-003	0.0121	4.0000e-005	4.1700e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1300e-003	0.0000	3.5092	3.5092	1.0000e-004	0.0000	3.5116
Total	**0.0122**	**0.3559**	**0.1071**	**1.1600e-003**	**0.0465**	**1.0200e-003**	**0.0475**	**0.0122**	**9.8000e-004**	**0.0132**	**0.0000**	**115.1800**	**115.1800**	**0.0102**	**0.0000**	**115.4350**

3.4 Paving - 2022

Unmitigated Construction On-Site

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

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
Off-Road	0.0601	0.6063	0.7946	1.2400e-003		0.0310	0.0310		0.0285	0.0285	0.0000	109.1502	109.1502	0.0353	0.0000	110.0327
Paving	2.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0629**	**0.6063**	**0.7946**	**1.2400e-003**		**0.0310**	**0.0310**		**0.0285**	**0.0285**	**0.0000**	**109.1502**	**109.1502**	**0.0353**	**0.0000**	**110.0327**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	1.9700e-003	0.0202	7.0000e-005	6.9900e-003	5.0000e-005	7.0400e-003	1.8600e-003	4.0000e-005	1.9000e-003	0.0000	5.8846	5.8846	1.6000e-004	0.0000	5.8886
Total	**2.8700e-003**	**1.9700e-003**	**0.0202**	**7.0000e-005**	**6.9900e-003**	**5.0000e-005**	**7.0400e-003**	**1.8600e-003**	**4.0000e-005**	**1.9000e-003**	**0.0000**	**5.8846**	**5.8846**	**1.6000e-004**	**0.0000**	**5.8886**

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	0.0601	0.6063	0.7946	1.2400e-003		0.0310	0.0310		0.0285	0.0285	0.0000	109.1501	109.1501	0.0353	0.0000	110.0326
Paving	2.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0629**	**0.6063**	**0.7946**	**1.2400e-003**		**0.0310**	**0.0310**		**0.0285**	**0.0285**	**0.0000**	**109.1501**	**109.1501**	**0.0353**	**0.0000**	**110.0326**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	1.9700e-003	0.0202	7.0000e-005	6.9900e-003	5.0000e-005	7.0400e-003	1.8600e-003	4.0000e-005	1.9000e-003	0.0000	5.8846	5.8846	1.6000e-004	0.0000	5.8886
Total	**2.8700e-003**	**1.9700e-003**	**0.0202**	**7.0000e-005**	**6.9900e-003**	**5.0000e-005**	**7.0400e-003**	**1.8600e-003**	**4.0000e-005**	**1.9000e-003**	**0.0000**	**5.8846**	**5.8846**	**1.6000e-004**	**0.0000**	**5.8886**

3.5 Trenching for Utilties - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0560	0.5423	0.6834	1.2500e-003		0.0248	0.0248		0.0228	0.0228	0.0000	109.4517	109.4517	0.0354	0.0000	110.3367
Total	**0.0560**	**0.5423**	**0.6834**	**1.2500e-003**		**0.0248**	**0.0248**		**0.0228**	**0.0228**	**0.0000**	**109.4517**	**109.4517**	**0.0354**	**0.0000**	**110.3367**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5100e-003	1.7300e-003	0.0177	6.0000e-005	6.1200e-003	4.0000e-005	6.1600e-003	1.6300e-003	4.0000e-005	1.6600e-003	0.0000	5.1491	5.1491	1.4000e-004	0.0000	5.1526
Total	**2.5100e-003**	**1.7300e-003**	**0.0177**	**6.0000e-005**	**6.1200e-003**	**4.0000e-005**	**6.1600e-003**	**1.6300e-003**	**4.0000e-005**	**1.6600e-003**	**0.0000**	**5.1491**	**5.1491**	**1.4000e-004**	**0.0000**	**5.1526**

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	0.0560	0.5423	0.6834	1.2500e-003		0.0248	0.0248		0.0228	0.0228	0.0000	109.4516	109.4516	0.0354	0.0000	110.3366
Total	**0.0560**	**0.5423**	**0.6834**	**1.2500e-003**		**0.0248**	**0.0248**		**0.0228**	**0.0228**	**0.0000**	**109.4516**	**109.4516**	**0.0354**	**0.0000**	**110.3366**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5100e-003	1.7300e-003	0.0177	6.0000e-005	6.1200e-003	4.0000e-005	6.1600e-003	1.6300e-003	4.0000e-005	1.6600e-003	0.0000	5.1491	5.1491	1.4000e-004	0.0000	5.1526

Total	2.5100e-003	1.7300e-003	0.0177	6.0000e-005	6.1200e-003	4.0000e-005	6.1600e-003	1.6300e-003	4.0000e-005	1.6600e-003	0.0000	5.1491	5.1491	1.4000e-004	0.0000	5.1526

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0734	0.6715	0.7036	1.1600e-003		0.0348	0.0348		0.0327	0.0327	0.0000	99.6419	99.6419	0.0239	0.0000	100.2386
Total	**0.0734**	**0.6715**	**0.7036**	**1.1600e-003**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**99.6419**	**99.6419**	**0.0239**	**0.0000**	**100.2386**

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	2.4700e-003	0.0835	0.0223	2.3000e-004	5.7100e-003	1.6000e-004	5.8700e-003	1.6500e-003	1.5000e-004	1.8000e-003	0.0000	22.2709	22.2709	1.6200e-003	0.0000	22.3113
Worker	8.7700e-003	6.0300e-003	0.0618	2.0000e-004	0.0214	1.5000e-004	0.0215	5.6800e-003	1.4000e-004	5.8200e-003	0.0000	17.9913	17.9913	4.9000e-004	0.0000	18.0036
Total	**0.0112**	**0.0895**	**0.0842**	**4.3000e-004**	**0.0271**	**3.1000e-004**	**0.0274**	**7.3300e-003**	**2.9000e-004**	**7.6200e-003**	**0.0000**	**40.2622**	**40.2622**	**2.1100e-003**	**0.0000**	**40.3149**

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	0.0734	0.6715	0.7036	1.1600e-003		0.0348	0.0348		0.0327	0.0327	0.0000	99.6417	99.6417	0.0239	0.0000	100.2385
Total	**0.0734**	**0.6715**	**0.7036**	**1.1600e-003**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**99.6417**	**99.6417**	**0.0239**	**0.0000**	**100.2385**

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	2.4700e-003	0.0835	0.0223	2.3000e-004	5.7100e-003	1.6000e-004	5.8700e-003	1.6500e-003	1.5000e-004	1.8000e-003	0.0000	22.2709	22.2709	1.6200e-003	0.0000	22.3113
Worker	8.7700e-003	6.0300e-003	0.0618	2.0000e-004	0.0214	1.5000e-004	0.0215	5.6800e-003	1.4000e-004	5.8200e-003	0.0000	17.9913	17.9913	4.9000e-004	0.0000	18.0036
Total	**0.0112**	**0.0895**	**0.0842**	**4.3000e-004**	**0.0271**	**3.1000e-004**	**0.0274**	**7.3300e-003**	**2.9000e-004**	**7.6200e-003**	**0.0000**	**40.2622**	**40.2622**	**2.1100e-003**	**0.0000**	**40.3149**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

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

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
Archit. Coating	0.2103					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1500e-003	0.0148	0.0190	3.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6809	2.6809	1.7000e-004	0.0000	2.6853
Total	**0.2125**	**0.0148**	**0.0190**	**3.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**2.6809**	**2.6809**	**1.7000e-004**	**0.0000**	**2.6853**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	2.9200e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8503	0.8503	2.0000e-005	0.0000	0.8509
Total	**4.1000e-004**	**2.8000e-004**	**2.9200e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8503**	**0.8503**	**2.0000e-005**	**0.0000**	**0.8509**

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					
Archit. Coating	0.2103					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1500e-003	0.0148	0.0190	3.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6809	2.6809	1.7000e-004	0.0000	2.6853
Total	**0.2125**	**0.0148**	**0.0190**	**3.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**2.6809**	**2.6809**	**1.7000e-004**	**0.0000**	**2.6853**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	2.9200e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8503	0.8503	2.0000e-005	0.0000	0.8509
Total	**4.1000e-004**	**2.8000e-004**	**2.9200e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8503**	**0.8503**	**2.0000e-005**	**0.0000**	**0.8509**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0731	0.3270	0.8828	3.1100e-003	0.2758	2.6000e-003	0.2784	0.0738	2.4300e-003	0.0763	0.0000	287.1538	287.1538	0.0149	0.0000	287.5264
Unmitigated	0.0731	0.3270	0.8828	3.1100e-003	0.2758	2.6000e-003	0.2784	0.0738	2.4300e-003	0.0763	0.0000	287.1538	287.1538	0.0149	0.0000	287.5264

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate Weekday	Saturday	Sunday	Unmitigated Annual VMT	Mitigated Annual VMT
Apartments Low Rise	256.00	278.11	235.78	731,728	731,728
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	256.00	278.11	235.78	731,728	731,728

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Other Asphalt Surfaces	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Parking Lot	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	28.6691	28.6691	1.8500e-003	3.8000e-004	28.8299

Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	28.6691	28.6691	1.8500e-003	3.8000e-004	28.8299
NaturalGas Mitigated	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1691	19.1691	3.7000e-004	3.5000e-004	19.2830
NaturalGas Unmitigated	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1691	19.1691	3.7000e-004	3.5000e-004	19.2830

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	359216	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1691	19.1691	3.7000e-004	3.5000e-004	19.2830
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9400e-003**	**0.0166**	**7.0400e-003**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**19.1691**	**19.1691**	**3.7000e-004**	**3.5000e-004**	**19.2830**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	359216	1.9400e-003	0.0166	7.0400e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1691	19.1691	3.7000e-004	3.5000e-004	19.2830
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9400e-003**	**0.0166**	**7.0400e-003**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**19.1691**	**19.1691**	**3.7000e-004**	**3.5000e-004**	**19.2830**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	135807	27.6158	1.7900e-003	3.7000e-004	27.7706
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5180	1.0533	7.0000e-005	1.0000e-005	1.0592
Total		**28.6691**	**1.8600e-003**	**3.8000e-004**	**28.8298**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	135807	27.6158	1.7900e-003	3.7000e-004	27.7706
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5180	1.0533	7.0000e-005	1.0000e-005	1.0592
Total		**28.6691**	**1.8600e-003**	**3.8000e-004**	**28.8298**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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					
Mitigated	0.2142	0.0223	0.2466	1.4000e-004		2.9000e-003	2.9000e-003		2.9000e-003	2.9000e-003	0.0000	23.0731	23.0731	8.1000e-004	4.2000e-004	23.2173
Unmitigated	2.2198	0.0420	2.7167	4.5000e-003		0.3488	0.3488		0.3488	0.3488	33.0547	14.2515	47.3061	0.0309	2.6000e-003	48.8529

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	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					
Architectural Coating	0.0210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1837					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.0079	0.0392	2.4785	4.4900e-003		0.3475	0.3475		0.3475	0.3475	33.0547	13.8626	46.9173	0.0305	2.6000e-003	48.4547
Landscaping	7.2200e-003	2.7500e-003	0.2382	1.0000e-005		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	0.3888	0.3888	3.8000e-004	0.0000	0.3982
Total	**2.2198**	**0.0420**	**2.7167**	**4.5000e-003**		**0.3488**	**0.3488**		**0.3488**	**0.3488**	**33.0547**	**14.2515**	**47.3061**	**0.0309**	**2.6000e-003**	**48.8529**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1837					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.2900e-003	0.0196	8.3400e-003	1.3000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.6843	22.6843	4.3000e-004	4.2000e-004	22.8191
Landscaping	7.2200e-003	2.7500e-003	0.2382	1.0000e-005		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	0.3888	0.3888	3.8000e-004	0.0000	0.3982
Total	**0.2142**	**0.0223**	**0.2466**	**1.4000e-004**		**2.9000e-003**	**2.9000e-003**		**2.9000e-003**	**2.9000e-003**	**0.0000**	**23.0731**	**23.0731**	**8.1000e-004**	**4.2000e-004**	**23.2173**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.9150	0.0548	1.3800e-003	9.6975
Unmitigated	9.1513	0.0685	1.7200e-003	11.3754

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.08493 / 1.31441	9.1513	0.0685	1.7200e-003	11.3754
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.1513**	**0.0685**	**1.7200e-003**	**11.3754**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.66794 / 1.31441	7.9150	0.0548	1.3800e-003	9.6975
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.9150**	**0.0548**	**1.3800e-003**	**9.6975**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.4940	0.0883	0.0000	3.7014
Unmitigated	2.9880	0.1766	0.0000	7.4027

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	14.72	2.9880	0.1766	0.0000	7.4027
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.9880**	**0.1766**	**0.0000**	**7.4027**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
Apartments Low Rise	7.36	1.4940	0.0883	0.0000	3.7014
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.4940**	**0.0883**	**0.0000**	**3.7014**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Paseo Montril

San Diego County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	32.00	Dwelling Unit	13.07	45,490.00	92
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Parking Lot	37.00	Space	0.33	14,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Complinace with RPS and operational year matches traffic.

Land Use - Residential building square footage and acreage based on project specific information

Construction Phase - Construction phasing information provided by the project applicant.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - Utiltites equipement information provided by the project applicant.

Grading - 44,800 CY of earthwork material to be exported.

Trips and VMT - Odd trip values were rounded up to an even value.

Architectural Coating - Compliance with SDAPCD Rule 67.0.1

Vehicle Trips - Weekday trip rate is consistent with traffic report. Weekend trip ratios was kept consistent with CalEEMod defaults.

Area Coating - Compliance with SDAPCD Rule 67.0.1

Energy Use - CalEEMod Defaults.

Construction Off-road Equipment Mitigation - Compliance with SDAPCD Rule 55

Waste Mitigation - Compliance with AB 341

Water Mitigation - Low flow fixtures per MM-GHG-2.

Area Mitigation - Compliance with SDAPCD Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	300.00	86.00
tblConstructionPhase	NumDays	30.00	98.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	4/13/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	12/23/2021	3/15/2022
tblConstructionPhase	PhaseEndDate	3/16/2023	8/15/2022
tblConstructionPhase	PhaseEndDate	11/11/2021	10/28/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	10/3/2022

tblConstructionPhase	PhaseStartDate	12/24/2021	7/4/2022
tblConstructionPhase	PhaseStartDate	11/12/2021	10/29/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	3/16/2022
tblConstructionPhase	PhaseStartDate	10/29/2021	10/1/2021
tblGrading	MaterialExported	0.00	44,800.00
tblLandUse	LandUseSquareFeet	32,000.00	45,490.00
tblLandUse	LotAcreage	2.00	13.07
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblTripsAndVMT	VendorTripNumber	19.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	7.16	8.69
tblVehicleTrips	SU_TR	6.07	7.37
tblVehicleTrips	WD_TR	6.59	8.00

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					

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2021	4.6845	61.0924	34.9924	0.1077	18.2141	2.0455	20.2596	9.9699	1.8819	11.8517	0.0000	11,002.3904	11,002.3904	2.3743	0.0000	11,061.7485
2022	22.2376	52.2884	46.2440	0.1070	10.5687	1.8399	12.2425	4.0875	1.7097	5.6288	0.0000	10,937.7404	10,937.7404	2.3711	0.0000	10,997.0190
Maximum	**22.2376**	**61.0924**	**46.2440**	**0.1077**	**18.2141**	**2.0455**	**20.2596**	**9.9699**	**1.8819**	**11.8517**	**0.0000**	**11,002.3904**	**11,002.3904**	**2.3743**	**0.0000**	**11,061.7485**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.6845	61.0924	34.9924	0.1077	8.2777	2.0455	10.3232	4.5080	1.8819	6.3899	0.0000	11,002.3904	11,002.3904	2.3743	0.0000	11,061.7485
2022	22.2376	52.2884	46.2440	0.1070	5.7630	1.8399	7.4369	2.1041	1.7097	3.6454	0.0000	10,937.7404	10,937.7404	2.3711	0.0000	10,997.0190
Maximum	**22.2376**	**61.0924**	**46.2440**	**0.1077**	**8.2777**	**2.0455**	**10.3232**	**4.5080**	**1.8819**	**6.3899**	**0.0000**	**11,002.3904**	**11,002.3904**	**2.3743**	**0.0000**	**11,061.7485**

	ROG	**NOx**	**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**	**51.22**	**0.00**	**45.36**	**52.96**	**0.00**	**42.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	50.1746	0.9869	63.0983	0.1097		8.4905	8.4905		8.4905	8.4905	888.6954	377.4681	1,266.1634	0.8247	0.0699	1,307.6126
Energy	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mobile	0.4601	1.8911	5.4290	0.0194	1.6838	0.0155	1.6993	0.4500	0.0145	0.4645		1,971.0656	1,971.0656	0.0986		1,973.5316
Total	**50.6453**	**2.9687**	**68.5658**	**0.1296**	**1.6838**	**8.5133**	**10.1971**	**0.4500**	**8.5123**	**8.9623**	**888.6954**	**2,464.3163**	**3,353.0116**	**0.9256**	**0.0720**	**3,397.6149**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2578	0.5083	2.8501	3.1900e-003		0.0532	0.0532		0.0532	0.0532	0.0000	614.6445	614.6445	0.0163	0.0112	618.3840
Energy	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Mobile	0.4601	1.8911	5.4290	0.0194	1.6838	0.0155	1.6993	0.4500	0.0145	0.4645		1,971.0656	1,971.0656	0.0986		1,973.5316
Total	**1.7285**	**2.4901**	**8.3177**	**0.0232**	**1.6838**	**0.0761**	**1.7598**	**0.4500**	**0.0750**	**0.5250**	**0.0000**	**2,701.4927**	**2,701.4927**	**0.1172**	**0.0133**	**2,708.3862**

	ROG	NOx	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	**96.59**	**16.12**	**87.87**	**82.13**	**0.00**	**99.11**	**82.74**	**0.00**	**99.12**	**94.14**	**100.00**	**-9.62**	**19.43**	**87.34**	**81.53**	**20.29**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	10/28/2021	5	20	
2	Grading	Grading	10/29/2021	3/15/2022	5	98	
3	Paving	Paving	3/16/2022	8/15/2022	5	109	
4	Trenching for Utilties	Trenching	3/16/2022	8/15/2022	5	109	
5	Building Construction	Building Construction	7/4/2022	10/31/2022	5	86	
6	Architectural Coating	Architectural Coating	10/3/2022	10/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 245

Acres of Paving: 2.13

Residential Indoor: 92,117; Residential Outdoor: 30,706; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Trenching for Utilties	Excavators	2	8.00	158	0.38
Trenching for Utilties	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Trenching for Utilties	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching for Utilties	5	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,600.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	62.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0623	0.0405	0.4774	1.4700e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		146.5994	146.5994	4.1800e-003		146.7040
Total	**0.0623**	**0.0405**	**0.4774**	**1.4700e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**146.5994**	**146.5994**	**4.1800e-003**		**146.7040**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.1298**	**2.0445**	**10.1743**	**4.4688**	**1.8809**	**6.3497**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0623	0.0405	0.4774	1.4700e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		146.5994	146.5994	4.1800e-003		146.7040

Total	0.0623	0.0405	0.4774	1.4700e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		146.5994	146.5994	4.1800e-003		146.7040

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7376	0.0000	8.7376	3.6062	0.0000	3.6062			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.7376**	**1.9853**	**10.7229**	**3.6062**	**1.8265**	**5.4327**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.4242	14.6476	3.5834	0.0441	1.8525	0.0447	1.8972	0.4833	0.0428	0.5260		4,832.4588	4,832.4588	0.4269		4,843.1307
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	0.0692	0.0449	0.5305	1.6300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		162.8882	162.8882	4.6500e-003		163.0044
Total	**0.4934**	**14.6925**	**4.1139**	**0.0457**	**2.0168**	**0.0458**	**2.0627**	**0.5269**	**0.0438**	**0.5707**		**4,995.3470**	**4,995.3470**	**0.4315**		**5,006.1351**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9319	0.0000	3.9319	1.6228	0.0000	1.6228			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.9319**	**1.9853**	**5.9173**	**1.6228**	**1.8265**	**3.4493**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.4242	14.6476	3.5834	0.0441	1.8525	0.0447	1.8972	0.4833	0.0428	0.5260		4,832.4588	4,832.4588	0.4269		4,843.1307
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	0.0692	0.0449	0.5305	1.6300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		162.8882	162.8882	4.6500e-003		163.0044
Total	**0.4934**	**14.6925**	**4.1139**	**0.0457**	**2.0168**	**0.0458**	**2.0627**	**0.5269**	**0.0438**	**0.5707**		**4,995.3470**	**4,995.3470**	**0.4315**		**5,006.1351**

3.3 Grading - 2022

Unmitigated Construction On-Site

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

Fugitive Dust					8.7376	0.0000	8.7376	3.6062	0.0000	3.6062			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.7376**	**1.6349**	**10.3725**	**3.6062**	**1.5041**	**5.1103**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.3983	13.4039	3.5614	0.0434	1.6668	0.0379	1.7047	0.4377	0.0362	0.4739		4,769.4179	4,769.4179	0.4227		4,779.9846
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	0.0654	0.0410	0.4933	1.5700e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		156.9120	156.9120	4.2600e-003		157.0185
Total	**0.4637**	**13.4449**	**4.0547**	**0.0450**	**1.8311**	**0.0390**	**1.8701**	**0.4813**	**0.0372**	**0.5185**		**4,926.3298**	**4,926.3298**	**0.4269**		**4,937.0031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9319	0.0000	3.9319	1.6228	0.0000	1.6228			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.9319**	**1.6349**	**5.5668**	**1.6228**	**1.5041**	**3.1269**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.3983	13.4039	3.5614	0.0434	1.6668	0.0379	1.7047	0.4377	0.0362	0.4739		4,769.4179	4,769.4179	0.4227		4,779.9846
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	0.0654	0.0410	0.4933	1.5700e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		156.9120	156.9120	4.2600e-003		157.0185
Total	**0.4637**	**13.4449**	**4.0547**	**0.0450**	**1.8311**	**0.0390**	**1.8701**	**0.4813**	**0.0372**	**0.5185**		**4,926.3298**	**4,926.3298**	**0.4269**		**4,937.0031**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1540**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0523	0.0328	0.3946	1.2600e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		125.5296	125.5296	3.4100e-003		125.6148
Total	**0.0523**	**0.0328**	**0.3946**	**1.2600e-003**	**0.1314**	**8.9000e-004**	**0.1323**	**0.0349**	**8.2000e-004**	**0.0357**		**125.5296**	**125.5296**	**3.4100e-003**		**125.6148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1540**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0523	0.0328	0.3946	1.2600e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		125.5296	125.5296	3.4100e-003		125.6148

Total	0.0523	0.0328	0.3946	1.2600e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		125.5296	125.5296	3.4100e-003		125.6148

3.5 Trenching for Utilties - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0278	9.9495	12.5395	0.0229		0.4542	0.4542		0.4178	0.4178		2,213.7588	2,213.7588	0.7160		2,231.6581
Total	**1.0278**	**9.9495**	**12.5395**	**0.0229**		**0.4542**	**0.4542**		**0.4178**	**0.4178**		**2,213.7588**	**2,213.7588**	**0.7160**		**2,231.6581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0287	0.3453	1.1000e-003	0.1150	7.8000e-004	0.1158	0.0305	7.2000e-004	0.0312		109.8384	109.8384	2.9800e-003		109.9129
Total	**0.0458**	**0.0287**	**0.3453**	**1.1000e-003**	**0.1150**	**7.8000e-004**	**0.1158**	**0.0305**	**7.2000e-004**	**0.0312**		**109.8384**	**109.8384**	**2.9800e-003**		**109.9129**

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	1.0278	9.9495	12.5395	0.0229		0.4542	0.4542		0.4178	0.4178	0.0000	2,213.7587	2,213.7587	0.7160		2,231.6581
Total	**1.0278**	**9.9495**	**12.5395**	**0.0229**		**0.4542**	**0.4542**		**0.4178**	**0.4178**	**0.0000**	**2,213.7587**	**2,213.7587**	**0.7160**		**2,231.6581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0287	0.3453	1.1000e-003	0.1150	7.8000e-004	0.1158	0.0305	7.2000e-004	0.0312		109.8384	109.8384	2.9800e-003		109.9129
Total	**0.0458**	**0.0287**	**0.3453**	**1.1000e-003**	**0.1150**	**7.8000e-004**	**0.1158**	**0.0305**	**7.2000e-004**	**0.0312**		**109.8384**	**109.8384**	**2.9800e-003**		**109.9129**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

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

Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.0562	1.9247	0.4915	5.3600e-003	0.1354	3.6800e-003	0.1391	0.0390	3.5200e-003	0.0425		577.2276	577.2276	0.0404		578.2366
Worker	0.2027	0.1271	1.5292	4.8800e-003	0.5093	3.4400e-003	0.5128	0.1351	3.1700e-003	0.1383		486.4270	486.4270	0.0132		486.7573
Total	**0.2590**	**2.0517**	**2.0207**	**0.0102**	**0.6447**	**7.1200e-003**	**0.6518**	**0.1741**	**6.6900e-003**	**0.1808**		**1,063.6546**	**1,063.6546**	**0.0536**		**1,064.9939**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.0562	1.9247	0.4915	5.3600e-003	0.1354	3.6800e-003	0.1391	0.0390	3.5200e-003	0.0425		577.2276	577.2276	0.0404		578.2366
Worker	0.2027	0.1271	1.5292	4.8800e-003	0.5093	3.4400e-003	0.5128	0.1351	3.1700e-003	0.1383		486.4270	486.4270	0.0132		486.7573
Total	**0.2590**	**2.0517**	**2.0207**	**0.0102**	**0.6447**	**7.1200e-003**	**0.6518**	**0.1741**	**6.6900e-003**	**0.1808**		**1,063.6546**	**1,063.6546**	**0.0536**		**1,064.9939**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.0286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**20.2332**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0392	0.0246	0.2960	9.4000e-004	0.0986	6.7000e-004	0.0992	0.0262	6.1000e-004	0.0268		94.1472	94.1472	2.5600e-003		94.2111
Total	**0.0392**	**0.0246**	**0.2960**	**9.4000e-004**	**0.0986**	**6.7000e-004**	**0.0992**	**0.0262**	**6.1000e-004**	**0.0268**		**94.1472**	**94.1472**	**2.5600e-003**		**94.2111**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.0286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**20.2332**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0392	0.0246	0.2960	9.4000e-004	0.0986	6.7000e-004	0.0992	0.0262	6.1000e-004	0.0268		94.1472	94.1472	2.5600e-003		94.2111

Total	0.0392	0.0246	0.2960	9.4000e-004	0.0986	6.7000e-004	0.0992	0.0262	6.1000e-004	0.0268		94.1472	94.1472	2.5600e-003		94.2111

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4601	1.8911	5.4290	0.0194	1.6838	0.0155	1.6993	0.4500	0.0145	0.4645		1,971.0656	1,971.0656	0.0986		1,973.5316
Unmitigated	0.4601	1.8911	5.4290	0.0194	1.6838	0.0155	1.6993	0.4500	0.0145	0.4645		1,971.0656	1,971.0656	0.0986		1,973.5316

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	256.00	278.11	235.78	731,728	731,728
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	256.00	278.11	235.78	731,728	731,728

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Other Asphalt Surfaces	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Parking Lot	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
NaturalGas Unmitigated	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Apartments Low Rise	984.153	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0106**	**0.0907**	**0.0386**	**5.8000e-004**		**7.3300e-003**	**7.3300e-003**		**7.3300e-003**	**7.3300e-003**		**115.7827**	**115.7827**	**2.2200e-003**	**2.1200e-003**	**116.4707**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.984153	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0106**	**0.0907**	**0.0386**	**5.8000e-004**		**7.3300e-003**	**7.3300e-003**		**7.3300e-003**	**7.3300e-003**		**115.7827**	**115.7827**	**2.2200e-003**	**2.1200e-003**	**116.4707**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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

Mitigated	1.2578	0.5083	2.8501	3.1900e-003		0.0532	0.0532		0.0532	0.0532	0.0000	614.6445	614.6445	0.0163	0.0112	618.3840
Unmitigated	50.1746	0.9869	63.0983	0.1097		8.4905	8.4905		8.4905	8.4905	888.6954	377.4681	1,266.1634	0.8247	0.0699	1,307.6126

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	48.9726	0.9564	60.4514	0.1095		8.4759	8.4759		8.4759	8.4759	888.6954	372.7059	1,261.4013	0.8201	0.0699	1,302.7352
Landscaping	0.0802	0.0305	2.6469	1.4000e-004		0.0146	0.0146		0.0146	0.0146		4.7622	4.7622	4.6100e-003		4.8774
Total	**50.1746**	**0.9869**	**63.0983**	**0.1097**		**8.4905**	**8.4905**		**8.4905**	**8.4905**	**888.6954**	**377.4681**	**1,266.1634**	**0.8247**	**0.0699**	**1,307.6126**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0559	0.4777	0.2033	3.0500e-003		0.0386	0.0386		0.0386	0.0386	0.0000	609.8824	609.8824	0.0117	0.0112	613.5066

Landscaping	0.0802	0.0305	2.6469	1.4000e-004		0.0146	0.0146		0.0146	0.0146		4.7622	4.7622	4.6100e-003		4.8774
Total	**1.2578**	**0.5083**	**2.8501**	**3.1900e-003**		**0.0533**	**0.0533**		**0.0533**	**0.0533**	**0.0000**	**614.6445**	**614.6445**	**0.0163**	**0.0112**	**618.3840**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Paseo Montril

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	32.00	Dwelling Unit	13.07	45,490.00	92
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Parking Lot	37.00	Space	0.33	14,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	448.3	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Complinace with RPS and operational year matches traffic.

Land Use - Residential building square footage and acreage based on project specific information

Construction Phase - Construction phasing information provided by the project applicant.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - CalEEMod Defaults.

Off-road Equipment - Utiltites equipement information provided by the project applicant.

Grading - 44,800 CY of earthwork material to be exported.

Trips and VMT - Odd trip values were rounded up to an even value.

Architectural Coating - Compliance with SDAPCD Rule 67.0.1

Vehicle Trips - Weekday trip rate is consistent with traffic report. Weekend trip ratios was kept consistent with CalEEMod defaults.

Area Coating - Compliance with SDAPCD Rule 67.0.1

Energy Use - CalEEMod Defaults.

Construction Off-road Equipment Mitigation - Compliance with SDAPCD Rule 55

Waste Mitigation - Compliance with AB 341

Water Mitigation - Low flow fixtures per MM-GHG-2.

Area Mitigation - Compliance with SDAPCD Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	300.00	86.00
tblConstructionPhase	NumDays	30.00	98.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	4/13/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	10/31/2022
tblConstructionPhase	PhaseEndDate	12/23/2021	3/15/2022
tblConstructionPhase	PhaseEndDate	3/16/2023	8/15/2022
tblConstructionPhase	PhaseEndDate	11/11/2021	10/28/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	10/3/2022

tblConstructionPhase	PhaseStartDate	12/24/2021	7/4/2022
tblConstructionPhase	PhaseStartDate	11/12/2021	10/29/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	3/16/2022
tblConstructionPhase	PhaseStartDate	10/29/2021	10/1/2021
tblGrading	MaterialExported	0.00	44,800.00
tblLandUse	LandUseSquareFeet	32,000.00	45,490.00
tblLandUse	LotAcreage	2.00	13.07
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblProjectCharacteristics	CO2IntensityFactor	720.49	448.3
tblTripsAndVMT	VendorTripNumber	19.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	7.16	8.69
tblVehicleTrips	SU_TR	6.07	7.37
tblVehicleTrips	WD_TR	6.59	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2021	4.7055	61.2242	35.1861	0.1069	18.2141	2.0455	20.2596	9.9699	1.8819	11.8517	0.0000	10,908.9200	10,908.9200	2.3881	0.0000	10,968.6223
2022	22.2738	52.3939	46.1589	0.1062	10.5687	1.8400	12.2434	4.0875	1.7098	5.6297	0.0000	10,844.9030	10,844.9030	2.3842	0.0000	10,904.5075
Maximum	**22.2738**	**61.2242**	**46.1589**	**0.1069**	**18.2141**	**2.0455**	**20.2596**	**9.9699**	**1.8819**	**11.8517**	**0.0000**	**10,908.9200**	**10,908.9200**	**2.3881**	**0.0000**	**10,968.6223**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.7055	61.2242	35.1861	0.1069	8.2777	2.0455	10.3232	4.5080	1.8819	6.3899	0.0000	10,908.9199	10,908.9199	2.3881	0.0000	10,968.6223
2022	22.2738	52.3939	46.1589	0.1062	5.7630	1.8400	7.4377	2.1041	1.7098	3.6462	0.0000	10,844.9030	10,844.9030	2.3842	0.0000	10,904.5075
Maximum	**22.2738**	**61.2242**	**46.1589**	**0.1069**	**8.2777**	**2.0455**	**10.3232**	**4.5080**	**1.8819**	**6.3899**	**0.0000**	**10,908.9199**	**10,908.9199**	**2.3881**	**0.0000**	**10,968.6223**

	ROG	**NOx**	**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**	**51.22**	**0.00**	**45.36**	**52.96**	**0.00**	**42.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	50.1746	0.9869	63.0983	0.1097		8.4905	8.4905		8.4905	8.4905	888.6954	377.4681	1,266.1634	0.8247	0.0699	1,307.6126
Energy	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707

Mobile	0.4462	1.9435	5.3178	0.0184	1.6838	0.0156	1.6994	0.4500	0.0146	0.4646		1,869.902 1	1,869.9021	0.0990		1,872.376 5
Total	**50.6314**	**3.0211**	**68.4546**	**0.1286**	**1.6838**	**8.5134**	**10.1972**	**0.4500**	**8.5124**	**8.9624**	**888.6954**	**2,363.152 8**	**3,251.8482**	**0.9259**	**0.0720**	**3,296.459 7**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2578	0.5083	2.8501	3.1900e-003		0.0532	0.0532		0.0532	0.0532	0.0000	614.6445	614.6445	0.0163	0.0112	618.3840
Energy	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Mobile	0.4462	1.9435	5.3178	0.0184	1.6838	0.0156	1.6994	0.4500	0.0146	0.4646		1,869.902 1	1,869.9021	0.0990		1,872.376 5
Total	**1.7147**	**2.5424**	**8.2065**	**0.0222**	**1.6838**	**0.0762**	**1.7599**	**0.4500**	**0.0751**	**0.5251**	**0.0000**	**2,600.329 3**	**2,600.3293**	**0.1175**	**0.0133**	**2,607.231 1**

	ROG	**NOx**	**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	**96.61**	**15.84**	**88.01**	**82.77**	**0.00**	**99.11**	**82.74**	**0.00**	**99.12**	**94.14**	**100.00**	**-10.04**	**20.04**	**87.31**	**81.53**	**20.91**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2021	10/28/2021	5	20	
2	Grading	Grading	10/29/2021	3/15/2022	5	98	
3	Paving	Paving	3/16/2022	8/15/2022	5	109	
4	Trenching for Utilties	Trenching	3/16/2022	8/15/2022	5	109	
5	Building Construction	Building Construction	7/4/2022	10/31/2022	5	86	
6	Architectural Coating	Architectural Coating	10/3/2022	10/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 245

Acres of Paving: 2.13

Residential Indoor: 92,117; Residential Outdoor: 30,706; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Trenching for Utilties	Excavators	2	8.00	158	0.38
Trenching for Utilties	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Trenching for Utilties	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching for Utilties	5	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	5,600.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	62.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0706	0.0454	0.4488	1.3800e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		137.6186	137.6186	3.9500e-003		137.7174
Total	**0.0706**	**0.0454**	**0.4488**	**1.3800e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**137.6186**	**137.6186**	**3.9500e-003**		**137.7174**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.1298**	**2.0445**	**10.1743**	**4.4688**	**1.8809**	**6.3497**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0706	0.0454	0.4488	1.3800e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		137.6186	137.6186	3.9500e-003		137.7174

Total	**0.0706**	**0.0454**	**0.4488**	**1.3800e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**137.6186**	**137.6186**	**3.9500e-003**		**137.7174**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7376	0.0000	8.7376	3.6062	0.0000	3.6062			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.7376**	**1.9853**	**10.7229**	**3.6062**	**1.8265**	**5.4327**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.4359	14.7740	3.8090	0.0433	1.8525	0.0456	1.8982	0.4833	0.0437	0.5269		4,748.9670	4,748.9670	0.4409		4,759.9895
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	0.0785	0.0505	0.4987	1.5300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		152.9095	152.9095	4.3900e-003		153.0193
Total	**0.5143**	**14.8244**	**4.3077**	**0.0448**	**2.0168**	**0.0468**	**2.0636**	**0.5269**	**0.0447**	**0.5716**		**4,901.8765**	**4,901.8765**	**0.4453**		**4,913.0089**

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					3.9319	0.0000	3.9319	1.6228	0.0000	1.6228			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.9319**	**1.9853**	**5.9173**	**1.6228**	**1.8265**	**3.4493**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.4359	14.7740	3.8090	0.0433	1.8525	0.0456	1.8982	0.4833	0.0437	0.5269		4,748.9670	4,748.9670	0.4409		4,759.9895
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	0.0785	0.0505	0.4987	1.5300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		152.9095	152.9095	4.3900e-003		153.0193
Total	**0.5143**	**14.8244**	**4.3077**	**0.0448**	**2.0168**	**0.0468**	**2.0636**	**0.5269**	**0.0447**	**0.5716**		**4,901.8765**	**4,901.8765**	**0.4453**		**4,913.0089**

3.3 Grading - 2022

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					

Fugitive Dust					8.7376	0.0000	8.7376	3.6062	0.0000	3.6062			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.7376**	**1.6349**	**10.3725**	**3.6062**	**1.5041**	**5.1103**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.4094	13.5044	3.7757	0.0426	1.6668	0.0387	1.7055	0.4377	0.0370	0.4747		4,686.1874	4,686.1874	0.4360		4,697.0860
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	0.0743	0.0460	0.4627	1.4800e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		147.3051	147.3051	4.0200e-003		147.4057
Total	**0.4838**	**13.5504**	**4.2384**	**0.0441**	**1.8311**	**0.0398**	**1.8709**	**0.4813**	**0.0381**	**0.5193**		**4,833.4925**	**4,833.4925**	**0.4400**		**4,844.4917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9319	0.0000	3.9319	1.6228	0.0000	1.6228			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.9319**	**1.6349**	**5.5668**	**1.6228**	**1.5041**	**3.1269**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.4094	13.5044	3.7757	0.0426	1.6668	0.0387	1.7055	0.4377	0.0370	0.4747		4,686.1874	4,686.1874	0.4360		4,697.0860
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	0.0743	0.0460	0.4627	1.4800e-003	0.1643	1.1100e-003	0.1654	0.0436	1.0200e-003	0.0446		147.3051	147.3051	4.0200e-003		147.4057
Total	**0.4838**	**13.5504**	**4.2384**	**0.0441**	**1.8311**	**0.0398**	**1.8709**	**0.4813**	**0.0381**	**0.5193**		**4,833.4925**	**4,833.4925**	**0.4400**		**4,844.4917**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1540**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0368	0.3702	1.1800e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		117.8441	117.8441	3.2200e-003		117.9245
Total	**0.0595**	**0.0368**	**0.3702**	**1.1800e-003**	**0.1314**	**8.9000e-004**	**0.1323**	**0.0349**	**8.2000e-004**	**0.0357**		**117.8441**	**117.8441**	**3.2200e-003**		**117.9245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1540**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0368	0.3702	1.1800e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		117.8441	117.8441	3.2200e-003		117.9245

Total	0.0595	0.0368	0.3702	1.1800e-003	0.1314	8.9000e-004	0.1323	0.0349	8.2000e-004	0.0357		117.8441	117.8441	3.2200e-003		117.9245

3.5 Trenching for Utilties - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0278	9.9495	12.5395	0.0229		0.4542	0.4542		0.4178	0.4178		2,213.7588	2,213.7588	0.7160		2,231.6581
Total	**1.0278**	**9.9495**	**12.5395**	**0.0229**		**0.4542**	**0.4542**		**0.4178**	**0.4178**		**2,213.7588**	**2,213.7588**	**0.7160**		**2,231.6581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0322	0.3239	1.0300e-003	0.1150	7.8000e-004	0.1158	0.0305	7.2000e-004	0.0312		103.1136	103.1136	2.8200e-003		103.1840
Total	**0.0520**	**0.0322**	**0.3239**	**1.0300e-003**	**0.1150**	**7.8000e-004**	**0.1158**	**0.0305**	**7.2000e-004**	**0.0312**		**103.1136**	**103.1136**	**2.8200e-003**		**103.1840**

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	1.0278	9.9495	12.5395	0.0229		0.4542	0.4542		0.4178	0.4178	0.0000	2,213.7587	2,213.7587	0.7160		2,231.6581
Total	**1.0278**	**9.9495**	**12.5395**	**0.0229**		**0.4542**	**0.4542**		**0.4178**	**0.4178**	**0.0000**	**2,213.7587**	**2,213.7587**	**0.7160**		**2,231.6581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0322	0.3239	1.0300e-003	0.1150	7.8000e-004	0.1158	0.0305	7.2000e-004	0.0312		103.1136	103.1136	2.8200e-003		103.1840
Total	**0.0520**	**0.0322**	**0.3239**	**1.0300e-003**	**0.1150**	**7.8000e-004**	**0.1158**	**0.0305**	**7.2000e-004**	**0.0312**		**103.1136**	**103.1136**	**2.8200e-003**		**103.1840**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

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

Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.0593	1.9181	0.5472	5.2200e-003	0.1354	3.8400e-003	0.1392	0.0390	3.6700e-003	0.0426		562.2052	562.2052	0.0428		563.2755
Worker	0.2305	0.1426	1.4344	4.5800e-003	0.5093	3.4400e-003	0.5128	0.1351	3.1700e-003	0.1383		456.6459	456.6459	0.0125		456.9576
Total	**0.2898**	**2.0607**	**1.9815**	**9.8000e-003**	**0.6447**	**7.2800e-003**	**0.6520**	**0.1741**	**6.8400e-003**	**0.1809**		**1,018.8511**	**1,018.8511**	**0.0553**		**1,020.2330**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.0593	1.9181	0.5472	5.2200e-003	0.1354	3.8400e-003	0.1392	0.0390	3.6700e-003	0.0426		562.2052	562.2052	0.0428		563.2755
Worker	0.2305	0.1426	1.4344	4.5800e-003	0.5093	3.4400e-003	0.5128	0.1351	3.1700e-003	0.1383		456.6459	456.6459	0.0125		456.9576
Total	**0.2898**	**2.0607**	**1.9815**	**9.8000e-003**	**0.6447**	**7.2800e-003**	**0.6520**	**0.1741**	**6.8400e-003**	**0.1809**		**1,018.8511**	**1,018.8511**	**0.0553**		**1,020.2330**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.0286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**20.2332**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0276	0.2776	8.9000e-004	0.0986	6.7000e-004	0.0992	0.0262	6.1000e-004	0.0268		88.3831	88.3831	2.4100e-003		88.4434
Total	**0.0446**	**0.0276**	**0.2776**	**8.9000e-004**	**0.0986**	**6.7000e-004**	**0.0992**	**0.0262**	**6.1000e-004**	**0.0268**		**88.3831**	**88.3831**	**2.4100e-003**		**88.4434**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	20.0286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**20.2332**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0276	0.2776	8.9000e-004	0.0986	6.7000e-004	0.0992	0.0262	6.1000e-004	0.0268		88.3831	88.3831	2.4100e-003		88.4434

Total	**0.0446**	**0.0276**	**0.2776**	**8.9000e-004**	**0.0986**	**6.7000e-004**	**0.0992**	**0.0262**	**6.1000e-004**	**0.0268**		**88.3831**	**88.3831**	**2.4100e-003**		**88.4434**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4462	1.9435	5.3178	0.0184	1.6838	0.0156	1.6994	0.4500	0.0146	0.4646		1,869.9021	1,869.9021	0.0990		1,872.3765
Unmitigated	0.4462	1.9435	5.3178	0.0184	1.6838	0.0156	1.6994	0.4500	0.0146	0.4646		1,869.9021	1,869.9021	0.0990		1,872.3765

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	256.00	278.11	235.78	731,728	731,728
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	256.00	278.11	235.78	731,728	731,728

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Other Asphalt Surfaces	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Parking Lot	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
NaturalGas Unmitigated	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Apartments Low Rise	984.153	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0106**	**0.0907**	**0.0386**	**5.8000e-004**		**7.3300e-003**	**7.3300e-003**		**7.3300e-003**	**7.3300e-003**		**115.7827**	**115.7827**	**2.2200e-003**	**2.1200e-003**	**116.4707**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	0.984153	0.0106	0.0907	0.0386	5.8000e-004		7.3300e-003	7.3300e-003		7.3300e-003	7.3300e-003		115.7827	115.7827	2.2200e-003	2.1200e-003	116.4707
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0106**	**0.0907**	**0.0386**	**5.8000e-004**		**7.3300e-003**	**7.3300e-003**		**7.3300e-003**	**7.3300e-003**		**115.7827**	**115.7827**	**2.2200e-003**	**2.1200e-003**	**116.4707**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	1.2578	0.5083	2.8501	3.1900e-003		0.0532	0.0532		0.0532	0.0532	0.0000	614.6445	614.6445	0.0163	0.0112	618.3840
Unmitigated	50.1746	0.9869	63.0983	0.1097		8.4905	8.4905		8.4905	8.4905	888.6954	377.4681	1,266.1634	0.8247	0.0699	1,307.6126

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	48.9726	0.9564	60.4514	0.1095		8.4759	8.4759		8.4759	8.4759	888.6954	372.7059	1,261.4013	0.8201	0.0699	1,302.7352
Landscaping	0.0802	0.0305	2.6469	1.4000e-004		0.0146	0.0146		0.0146	0.0146		4.7622	4.7622	4.6100e-003		4.8774
Total	**50.1746**	**0.9869**	**63.0983**	**0.1097**		**8.4905**	**8.4905**		**8.4905**	**8.4905**	**888.6954**	**377.4681**	**1,266.1634**	**0.8247**	**0.0699**	**1,307.6126**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0065					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0559	0.4777	0.2033	3.0500e-003		0.0386	0.0386		0.0386	0.0386	0.0000	609.8824	609.8824	0.0117	0.0112	613.5066

Landscaping	0.0802	0.0305	2.6469	1.4000e-004		0.0146	0.0146		0.0146	0.0146		4.7622	4.7622	4.6100e-003		4.8774
Total	**1.2578**	**0.5083**	**2.8501**	**3.1900e-003**		**0.0533**	**0.0533**		**0.0533**	**0.0533**	**0.0000**	**614.6445**	**614.6445**	**0.0163**	**0.0112**	**618.3840**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Blasting and Rock Crushing Emission Estimates

Project Name
Rock Crushing Operation

Phase 1

Source	VOC		NOx		CO		SOx		PM_{10}		$PM_{2.5}$		CO_2E
	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	MT/yr
Rock Crushing	—	—	—	—	—	—	—		14.40		1.92		—
Engine-Generator	3.65	0.00	52.96	0.00	14.72	0.00	0.07	0.00	1.24	0.00	1.24	0.00	84.20
Total	3.65	0.00	52.96	0.00	14.72	0.00	0.07	0.00	15.64	0.00	3.16	0.00	84.20

Paseo Montril
Rock Crusher Emissions
Per Crushing Facility

Equation:

Drop Operations Formula

$EF(PM) = (k*0.0032)*(U/5)^{1.3}/(M/2)^{1.4}$

k (PM_{10}) =	0.35	
k ($PM_{2.5}$) =	0.053	
U =	2.98	mph
M =	3	%
EF PM_{10} =	0.000323	
EF PM_{10} =	0.000049	

1.33 m/s - mean wind speed Escondido data (2010-2012)

Where:
EF = emission factor (pounds per ton)
k =particle size multiplier (dimensionsless)
U = mean wind speed, meters per second (m/s) (miles per hour (mph))
M = material moisture content (%)

Reference:
AP42 Section 13.2.4.3 - Predictive Emission Factor Equations

Assumptions:

Production Rate Information

2,140	cubic yard/day	53,500 CY of cut/25 days
2.26	tons/cubic yard	
4,836	ton/day	

Emissions Calculations:

	Throughput	PM_{10}		$PM_{2.5}$		
Equipment Type	**Tons/day**	**Emission Factor (lb/ton)**	**Daily (lb/day)**	**Emission Factor (lb/ton)**	**Daily (lb/day)**	**Daily (lb/hour)**
Hopper Loading	4,836	0.000323	1.56	0.000049	0.237	9.87E-03
Primary Crusher	4,836	0.00054	2.61	0.0001	0.484	
Conveyor Transfer	4,836	0.000046	0.22	0.000013	0.063	
Screen 1	4,836	0.00074	3.58	0.00005	0.242	
Conveyor Transfer	1,451	0.000046	0.07	0.000013	0.019	
Conveyor Transfer to Pile	1,451	0.000323	0.47	0.000049	0.071	2.62E-03
Conveyor Transfer	3,385	0.000046	0.16	0.000013	0.044	
Secondary Crusher	3,385	0.00054	1.83	0.000100	0.339	1.41E-02
Conveyor Transfer	3,385	0.000046	0.16	0.000013	0.044	1.83E-03
Screen 2	3,385	0.00074	2.51	0.00005	0.169	1.01E-02
Conveyor Transfer	3,385	0.000046	0.16	0.000013	0.044	7.86E-04
Conveyor Transfer to Pile	3,385	0.000323	1.09	0.000049	0.166	2.96E-03
Total Rock Crushing			***14.40***		***1.92***	***1.01***

Phase 1

No. of Rock Crushing Facilities 1

	PM_{10}	$PM_{2.5}$
Total Rock Crushing	14.40	1.92

References/Notes:
Emission Factors from AP-42, Section 11.19.2 (Crushed Stone Processing), Table 11.19.2-2 (controlled factors).

Emission Factor for drop operation (conveyor to product pile) from AP-42, Section 13.2.4 (Aggregate Handling and Storage Piles), Equation 1.
Wind speed is obtained from mean of Northern San Diego 2010-2012 meteorlogical data. Moisture content is assumed to be 3%.

Paseo Montril
Rock Crushing Operation
Diesel Engine-Generator Emissions

Phase 1

Assumptions:

Engine Rating	750	kW
	1000	HP
No. of Units	1	
Load Factor (1)	0.74	
Operating Schedule	8.0	hr/day
	25	days/yr
Process Rate	5,560	
Operating Days	25	

Emissions Calculations:

	VOC	NOx	CO	SOx	PM10	PM2.5	CO2	CH4
gm/BHP-hr (1)	0.280	4.058	1.128	0.005	0.095	0.095	568.299	0.025
lb/day	3.65	52.96	14.72	0.07	1.24	1.24	7,417	0.33
metric ton/yr							84	0.00

Notes:
Emissions calculated using factors derived from CalEEMod for 1000 HP generator.

Appendix C

CAP Consistency Checklist

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

This page intentionally left blank

CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: Paseo Montril

Property Address: 10198 Paseo Montril, San Diego

Applicant Name/Co.: Jimmy Ayala, Pardee Homes

Contact Phone: ______ Contact Email: ______

Was a consultant retained to complete this checklist? ■ Yes ☐ No If Yes, complete the following

Consultant Name: ______ Contact Phone: ______

Company Name: Dudek Contact Email: ______

Project Information

1. What is the size of the project (acres)? 15.2
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units): ______
   - ■ Residential (indicate # of multi-family units): 55
   - ☐ Commercial (total square footage): ______
   - ☐ Industrial (total square footage): ______
   - ☐ Other (describe): ______
3. Is the project or a portion of the project located in a Transit Priority Area? ☐ Yes ■ No
4. Provide a brief description of the project proposed:

The project proposes a Vesting Tentative Map, Site Development Permit, Planned Development Permit, Neighborhood Development Permit, Easement Vacation, Rezone, and Community Plan Amendment to construct a 55-unit multi-family residential development with supporting improvements. Specifically, the project proposes a Community Plan Amendment to change Lot 1 to Medium Density Residential to allow for multi-family residential uses. The project also proposes to rezone the portion of Lot 1 that is RS-1-14 & RM-2-5 to RM-1-1. Lot 2 would be rezoned from RM-2-5 to OC-1-1.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☐	☑

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

The site is within the Rancho Peñasquitos Community Plan, and is currently designated as Open Space. The site zoning is RM-2-5 and RS-1-14. The SANDAG Series 12 growth projections assume the site is open space, and the CAP projections assume the site would generate zero GHG emissions. The site is not in a TPA.

The project proposes a Community Plan Amendment to change Lot 1 to Low-Medium Density Residential to allow for multi-family residential uses. The project also proposes to rezone the portion of Lot 1 that is RS-1-14 & RM-2-5 to RM-1-1. Lot 2 would be rezoned from RM-2-5 to OC-1-1. The intent is to provide for consistency between thezoning and General Plan land use designations in accordance with City policy.

Pursuant to Section C, a report was prepared. Per the Air Quality and Greenhouse Gas Emissions Technical Analysis Report (Dudek 2021), the project would generate 685.09 MTCO2E. As the proposed multi-family residential development would generate GHG emissions above zero, it would generate more GHG emissions than assumed in the CAP. Thus, this project is not consistent with the CAP and would result in a significant GHG emission impact.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. The project will include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than that provided in Table 1 of Attachment A.	☑	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings*

With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following:

Residential buildings:

- Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi;
- Standard dishwashers: 4.25 gallons per cycle;
- Compact dishwashers: 3.5 gallons per cycle; and
- Clothes washers: water factor of 6 gallons per cubic feet of drum capacity?

Nonresidential buildings:

- Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and
- Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)?

Check "N/A" only if the project does not include any plumbing fixtures or fittings.

☑ ☐ ☐

The project will include low-flow fixtures and appliances consistent with the requirements of this checklist item.

Strategy 3: Bicycling, Walking, Transit & Land Use			
3. *Electric Vehicle Charging* • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces. Consistent with requirements, the project would include 50% of the EV capable spaces as EV charging stations. As 16 spaces would be required to be EV capable per Title 24, this would entail 8 EV charging stations be provided pursuant to the CAP Checklist requirements. See Sheet 7 of the VTM. The project would provide an additional 8 EV capable spaces and 4 EV charging stations (see the Air Quality and Greenhouse Gas Emissions Analysis Technical Report (Dudek 2021).	☑	☐	☐
Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
4. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project. NA. The project is residential. None-the-less, it is noted the project would provide 10 bicycle parking spaces in common areas.	☐	☐	☑

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

☐ ☐ ☑

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

NA. The project is residential and would not have over 10 employees.

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

NA. The project is residential.

☐ ☐ ☑

7. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees). NA. The project is residential and would have fewer than 50 employees.	☐	☐	☑

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1	**Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**			
Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3 Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan

Appliance/Fixture Type	Standard	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)