Appendix A
Air Quality Study

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AIR QUALITY & GREENHOUSE GAS IMPACT ASSESSMENT

FOR

Susan Street Agricultural Housing PROJECT

PAJARO, CA

NOVEMBER 2021

PREPARED FOR:
DENISE DUFFY & ASSOCIATES, INC.
947 CASS STREET, SUITE 5
MONTEREY, CA 93940

PREPARED BY:
AMBIENT AIR QUALITY & NOISE CONSULTING
75 HIGUERA ST, SUITE 105
SAN LUIS OBISPO CA 93401

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LIST OF COMMON TERMS & ACRONYMS

AAM	Annual Arithmetic Mean
AHERA	Asbestos Hazard Emergency Response Act
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BSC	Building Standards Code
CAAQS	California Ambient Air Quality Standards
CBSC	California Building Standards Code
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
LOS	Level of Service
MBARD	Monterey Bay Air Resources District
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NCCAB	North Central Coast Air Basin
NO_x	Oxides of Nitrogen
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter (less than 10 µm)
$PM_{2.5}$	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
sq.ft.	Square Feet
TAC	Toxic Air Contaminant
TOG	Total Organic Gases
µg/m^3	Micrograms per cubic meter
UNFCCC	United Nations Framework Convention on Climate Change
U.S. EPA	United State Environmental Protection Agency
VOC	Volatile Organic Gases

INTRODUCTION

This report provides an evaluation of potential air quality and greenhouse gas (GHG) impacts associated with the proposed Susan Street Agricultural Housing Project (project). An overview of the existing environmental setting related to air quality and GHGs, including a summary of the existing regulatory framework has also been included. The analysis was prepared in accordance with Monterey Bay Air Resources District (MBARD)-recommended guidance.

PROPOSED PROJECT SUMMARY

The proposed project consists of the construction of four (4) two-story apartment style buildings on the 3.41-acre property, consisting of 60 apartment units, two (2) laundry facilities, one (1) manager unit, one (1) recreation room, open space, and informal recreation fields. The housing project would be occupied primarily during the Salinas Valley harvest season from April through November.

The proposed apartment complex includes approximate 65,144-square-feet living space designed to accommodate a maximum of 480 agricultural employees without dependents. Each apartment unit would be suitable to house up to eight individuals. Construction of the proposed project is anticipated to be completed in five phases over an approximately ten-month period.

PROPOSED PROJECT LOCATION

The proposed project is located at the north end of Susan Street, in Pajaro, California. The census-designated place is within the County of Monterey (County) and is located approximately 0.7 miles (mi) southeast of the City of Watsonville and 16 mi northwest of Salinas city center. The project site is made up of a single 3.41-acre parcel (APN) 117-361-016-000 and is located approximately a 1.8 miles northeast of State Route 1 (SR 1) (see Figure 1, Project Vicinity Map). The project site is currently used for agricultural row-crop production and has historically been used for agricultural land uses.

AIR QUALITY

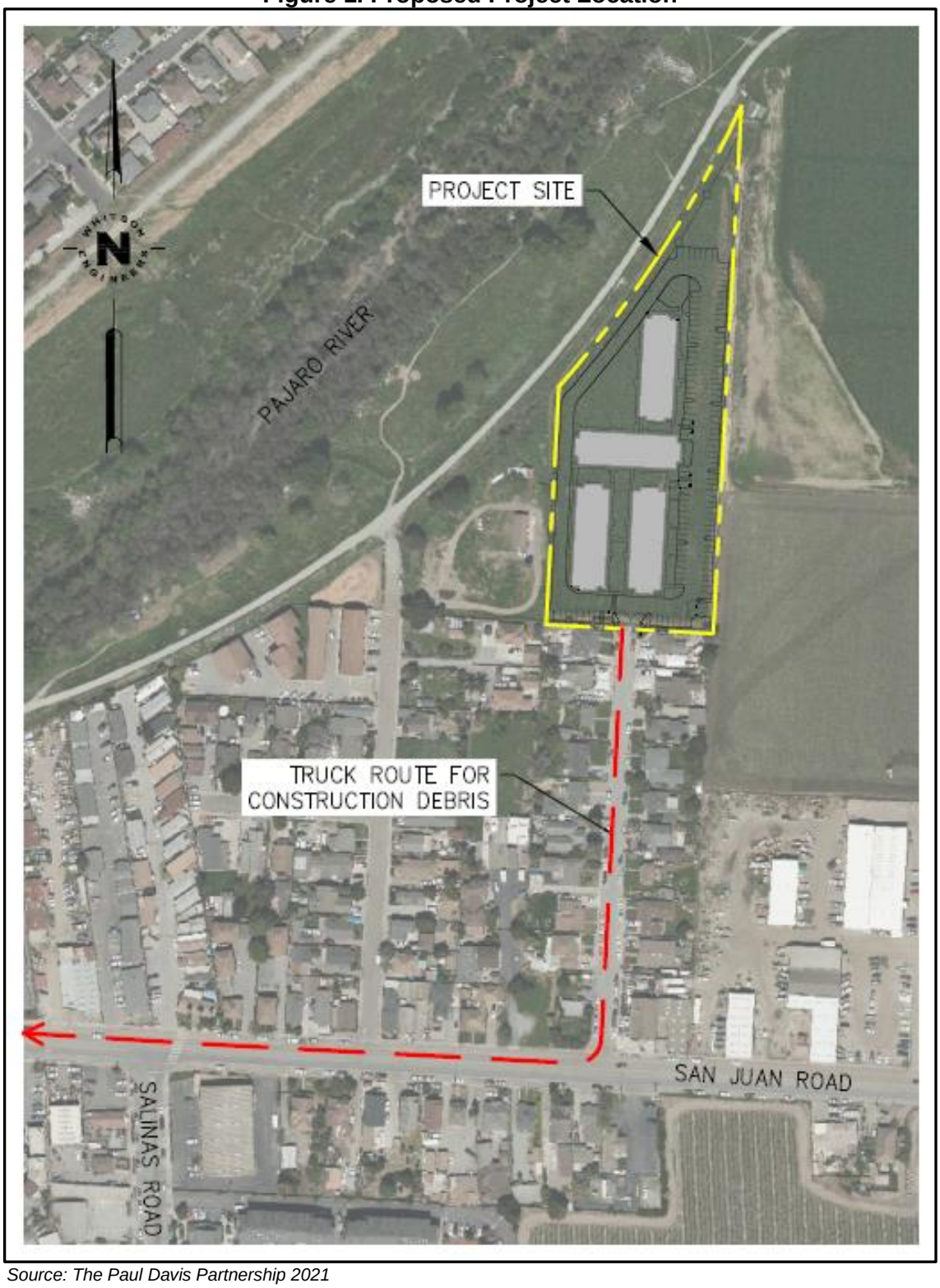
EXISTING SETTING

The proposed project is located within the North Central Coast Air Basin (NCCAB) and within the jurisdiction of the Monterey Bay Air Resources District (MBARD). Air quality in a region is affected by its topography, meteorology, and climate. These factors are discussed in more detail in the following sections:

Topography

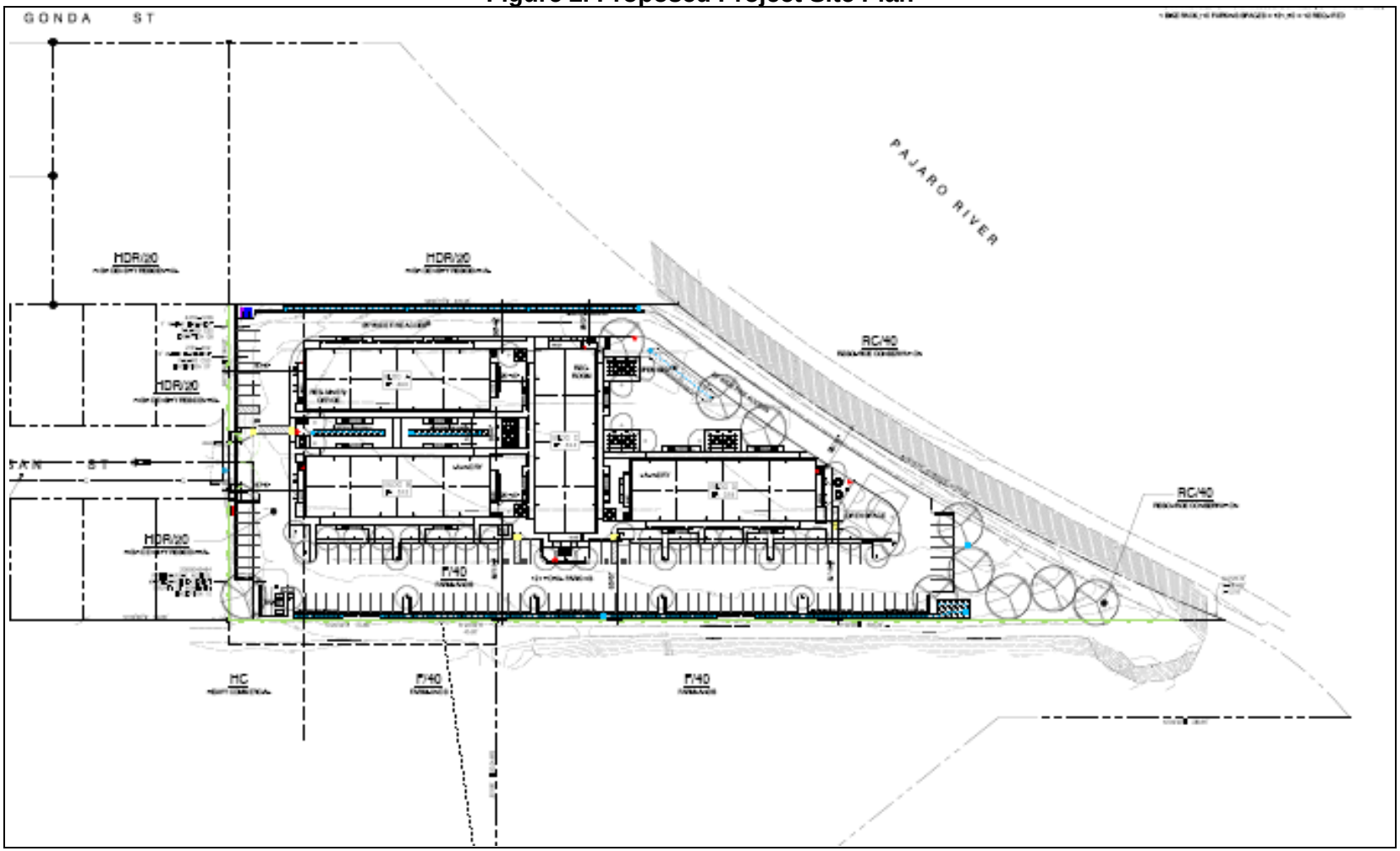
The NCCAB encompasses Santa Cruz, San Benito, and Monterey counties. The NCCAB is generally bounded by the Diablo Range to the northeast, which together with the southern portion of the Santa Cruz Mountains forms the Santa Clara Valley which extends into the northeastern tip of the NCCAB. Further south, the Santa Clara Valley transitions into the San Benito Valley, which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley that extends from Salinas at the northwest end to King City at the southeast end. The northwest portion of the NCCAB is dominated by the Santa Cruz Mountains.

Figure 1. Proposed Project Location



Source: The Paul Davis Partnership 2021

Figure 2. Proposed Project Site Plan



Source: The Paul Davis Partnership 2021

Meteorology and Climate

The climate of the NCCAB is dominated by a semi-permanent high-pressure cell over the Pacific Ocean. In the summer, the dominant high-pressure cell results in persistent west and northwest winds across the majority of coastal California. As air descends in the Pacific high-pressure cell, a stable temperature inversion is formed. As temperatures increase, the warmer air aloft expands, forcing the coastal layer of air to move onshore producing a moderate sea breeze over the coastal plains and valleys. Temperature inversions inhibit vertical air movement and often result in increased transport of air pollutants to inland receptor areas. Predominant wind flow during most times of the year is typically from the west to the east.

In the winter, when the high-pressure cell is weakest and farthest south, the inversion associated with the Pacific high-pressure cell is typically absent in the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito valleys in the NCCAB. The predominant offshore flow during this time of year tends to aid in pollutant dispersal producing relatively healthful to moderate air quality throughout the majority of the region. Conditions during this time are often characterized by afternoon and evening land breezes and occasional rainstorms. However, local inversions caused by the cooling of air close to the ground can form in some areas during the evening and early morning hours.

Winter daytime temperatures in the NCCAB typically average in the mid-50s during the day, with nighttime temperatures averaging in the low 40s. Summer daytime temperatures typically average in the 60s during the day, with nighttime temperatures averaging in the 50s. Precipitation varies within the region, but in general, annual rainfall is lowest in the coastal plain and inland valley, higher in the foothills, and highest in the mountains.

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of air pollutants that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. The health effects of common criteria air pollutants are also summarized in Table 1.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and volatile organic compounds (VOC), also referred to as reactive organic gases (ROG) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground-level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Table 1. Summary of Criteria Air Pollutants and Health Effects

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Ozone (O_3)	Formed by a chemical reaction between volatile organic compounds (VOC) and nitrous oxides (NOx) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and others.	Can get deep into your lungs or even enter your blood stream, and cause serious health problems; Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Carbon Monoxide (CO)	Formed when carbon in fuel is not burned completely;' a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	Fuel combustion in motor vehicles and industrial sources. Motor vehicles; electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Sulfur Dioxide (SO_2)	Formed when fuel containing sulfur, such as coal and oil, is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, large ships, and fuel combustion in diesel engines.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Source: CAPCOA 2019.		

Reactive Organic Gas (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment. Total Organic Gases (TOGs) includes all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and VOC are subsets of TOG.

Volatile Organic Compounds (VOC) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and may also be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen (NO_X) are a family of gaseous nitrogen compounds and is a precursor to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. U.S. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. U.S. EPA groups particle pollution into three categories based on their size and where they are deposited:

- Inhalable coarse particles ($PM_{2.5}$- PM_{10}), such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5\text{-}10}$ is deposited in the thoracic region of the lungs.
- Fine particles ($PM_{2.5}$), such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- Ultrafine particles (UFP), are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossils fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Numerous scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and also acute (short-term) bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short term exposures, although they may experience temporary minor irritation when particle levels are elevated.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO is on-road motor vehicles. Other CO sources include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Because of the local nature of CO problems, ARB and U.S. EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover (Caltrans 1996).

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NO_X, suspended SO_X particles contribute to poor visibility. These SO_X particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically.

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). OSHA regulates workplace exposure to H_2S.

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The California Air Resources Board (CARB) has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO_4^{2-}) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (C_2H_3Cl or **VCM)** is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Odors

Typically odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact, an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon is known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The MBARD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to MBARD *Rule 402, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the MBARD.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA) and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with MBARD rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40 percent of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2013a).

In October 2000, the ARB issued a report entitled: "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles", which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to the year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRPP will significantly reduce emissions from both old and new diesel-fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues

to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013a, ARB 2000).

Exposure to DPM can have immediate health effects. DPM can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, DPM has been identified as a carcinogen.

Acetaldehyde is a federal hazardous air pollutant. The ARB identified acetaldehyde as a TAC in April 1993. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. A majority of the statewide acetaldehyde emissions can be attributed to mobile sources, including on-road motor vehicles, construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area sources of emissions include the burning of wood in residential fireplaces and wood stoves. The primary stationary sources of acetaldehyde are from fuel combustion from the petroleum industry (ARB 2013a).

Acute exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic intoxication of acetaldehyde resemble those of alcoholism. The U.S. EPA has classified acetaldehyde as a probable human carcinogen. In California, acetaldehyde was classified on April 1, 1988, as a chemical known to the state to cause cancer (U.S. EPA 2018a; ARB 2013a).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 88 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products. The primary area sources include residential combustion of various types such as cooking and water heating (ARB 2013a).

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as a known human carcinogen for all routes of exposure (U.S. EPA 2018a).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2013a).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013a). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risks (ARB 2013a).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that the ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent chromium was identified as a TAC in 1986. Sources of Hexavalent chromium include industrial metal finishing processes, such as chrome plating and chromic acid anodizing, and firebrick lining of glass furnaces. Other sources include mobile sources, including gasoline motor vehicles, trains, and ships (ARB 2013a).

The respiratory tract is the major target organ for hexavalent chromium toxicity, for acute and chronic inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to hexavalent chromium, while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled hexavalent chromium is a human carcinogen, resulting in an increased risk of lung cancer. In California, hexavalent chromium has been identified as a carcinogen.

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions (ARB 2013a).

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. The U.S. EPA has classified para-dichlorobenzene as a possible human carcinogen.

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2013a).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen.

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic

product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2013a).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a carcinogen.

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft parts, equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2013a).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a carcinogen.

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900s; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos-containing products.

Naturally-occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures that prohibit the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the

intensity of the exposure, the greater the chances for a health problem. Asbestos-related diseases, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

REGULATORY FRAMEWORK

Air quality within the NCCAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the MBARD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

Federal

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish NAAQS, and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has the responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

State

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel, engine used.

Table 2. Summary of National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards*	National Standards* (Primary)
Ozone (O_3)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	AAM	20 µg/m^3	–
	24-hour	50 µg/m^3	150 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	12 µg/m^3
	24-hour	No Standard	35 µg/m^3
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppb
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	0.5 ppm (1300 µg/m^3)**
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m^3	–
	Calendar Quarter	–	1.5 µg/m^3
	Rolling 3-Month Average	–	0.15 µg/m^3
Sulfates	24-hour	25 µg/m^3	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.	

ppm=parts per million; ppb=parts per billion; AAM=Annual Arithmetic Mean; µg/m^3=micrograms per cubic meter
** For more information on standards visit: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf*
***Secondary Standard*
Source: ARB 2020

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practicable date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce

emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating Government Code Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

California Building Standards Code

The California Building Standards Code (CBSC), commonly referred to as Title 24, contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. Included in the CBSC are energy efficiency standards, which are commonly referred to as green building standards or CalGreen standards. The CBSC is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBSC was most recently updated in 2016.

Monterey Bay Air Resources District

The MBARD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the NCCAB, within which the project is located. Responsibilities of the MBARD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. In an attempt to achieve NAAQS and CAAQS and maintain air quality, the MBARD has most recently completed the *2012 Air Quality Management Plan (AQMP)* for achieving the state ozone standards and the *2007 Federal Maintenance Plan* for maintaining federal ozone standards (MBARD 2008).

REGULATORY ATTAINMENT DESIGNATIONS

An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation(s) was caused by an exceptional event, as defined in the criteria. Unclassified designations indicate insufficient data is available to determine attainment status.

The attainment status of the NCCAB is summarized in Table 3. Under the CCAA, the basin is designated as a nonattainment transitional area for the state ozone Ambient Air Quality Standards (AAQS). The basin is designated attainment or unclassified for the NAAQS.

Table 3. NCCAB Attainment Status Designations

Pollutant	State Designation	National Designation
Ozone (O_3)	Attainment [1]	Attainment
Inhalable Particulates (PM_{10})	Nonattainment	Attainment
Fine Attainment ($PM_{2.5}$)	Attainment	Attainment
Carbon Monoxide (CO)	Monterey County-Attainment San Benito County-Unclassified Santa Cruz County-Unclassified	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment

Notes:
1) Effective July 26, 2007, the ARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.
Source: ARB 2020

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in Monterey County. The "Salinas #3" is the closest representative monitoring site to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. This monitoring station monitors ambient concentrations of ozone, nitrogen Dioxide, and $PM_{2.5}$. The "King City-415 Pearl Street" is the closest monitor with sufficient data for PM_{10}. Carbon monoxide has not been exceeded in recent years and, as a result, is no longer monitored in Monterey County. Ambient monitoring data for the last three years of available measurement data (i.e., 2018 through 2020) are summarized in Table 4. As depicted, state and federal standards for ozone and nitrogen dioxide did not exceed ambient air quality standards during the last three years of available data. The national ambient air quality standard for $PM_{2.5}$ was exceeded every year at the Salinas #3 monitoring station during the last three years. The national standard for PM_{10} at the King City monitoring station was exceeded on 2 days in the last 3 years. Given that prevailing winds typically flow from the west to the east, ambient PM concentrations along coastal areas, including the project site, are anticipated to be less.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Nearby sensitive land uses consist predominantly of residential land uses. The nearest residence is located approximately 20 feet south of the project site.

Table 4. Summary of Ambient Air Quality Monitoring Data[1]

	2018	2019	2020
Ozone[3]			
Maximum concentration, ppm (1-hour/8-hour average)	0.089/ 0.052	0.072/0.063	0.073/0.057
Number of days state/national 1-hour standard exceeded	0/0	0/0	0/0
Number of days state/national 8-hour standard exceeded	0/0	0/0	0/0
Nitrogen Dioxide (NO_2)[3]			
Maximum concentration, ppm (1-hour average)	47	30	32
Annual average	5	4	4
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter (PM_{10})[4]			
Maximum concentration, µg/m^3 (state/national)	78.9	89.7	238.6
Annual Average	28.5	19.7	26.8
Number of days state/national standard exceeded	*/0	*/0	*/2
Suspended Particulate Matter ($PM_{2.5}$)[3]			
Maximum concentration, µg/m^3 (state/national)	64	53	87
Annual Average	6.1	4.1	6.8
Number of days national standard exceeded (measured/calculated[2])	5/5	1/1	9/9

ppm = parts per million by volume, µg/m^3 = micrograms per cubic meter
1. Measured days are those days that an actual measurement was greater than the standard. Calculated days are the estimated number of days that measurement would have been greater than the level of the standard had measurements been collected every day.
2. Based on data obtained from the Salinas #3 Monitoring Station.
3. Based on data obtained from the King City-415 Pearl Street Monitoring Station.
** = Insufficient data available to determine the value.*
Source: ARB 2021a

PROJECT IMPACTS

Thresholds of Significance

Criteria for determining the significance of air quality impacts were developed based on information contained in the California Environmental Quality Act Guidelines (CEQA Guidelines, Appendix G). According to those guidelines, a project may have a significant effect on the environment if it would result in the following conditions:

1. Conflict with or obstruct implementation of any 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.

To assist local jurisdictions in the evaluation of air quality impacts, the MBARD has published the *CEQA Air Quality Guidelines* (MBARD 2008). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. These thresholds were developed taking into consideration potential impacts to regional and local air quality and related public-health concerns. The following MBARD-recommended thresholds of significance were relied upon for the determination of impact significance:

- **Short-term Emissions of Criteria Air Pollutants**. Construction impacts would be significant if the proposed project would emit greater than 82 pounds per day (lbs/day) of PM_{10}, or will cause a violation of PM_{10} National or State AAQS at nearby receptors. Construction-generated emissions of

ozone precursors (i.e., ROG or NO_X) are accommodated in the emission inventories of State and federally-required air plans. For this reason, the MBARD has not identified recommended thresholds of significance for construction-generated ozone precursors.

- **Long-Term Emissions of Criteria Air Pollutants**. Emissions of 137 pounds per day or more of direct and indirect VOC emissions would have a significant impact on regional air quality by emitting substantial amounts of ozone precursors (i.e., ROG or NO_X) (MBARD 2008). Such projects would significantly impact attainment and maintenance of ozone AAQS. In addition, operational impacts would be significant if the proposed project would emit greater than 82 lbs/day of PM_{10}, or if the project would contribute to local PM_{10} concentrations that exceed AAQS. Emissions of SO_X would be significant if the project generates direct emissions of greater than 150 lbs/day;
- **Local Mobile-Source CO Concentrations**. Local mobile-source impacts would be significant if the project generates direct emissions of greater than 550 lbs/day of CO or if the project would contribute to local CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. (Indirect emissions are typically considered to include mobile sources that access the project site but generally emit off-site; direct emissions typically include sources that emitted on-site (e.g., stationary sources, on-site mobile equipment).
- **Toxic Air Contaminants**. TAC impacts would be significant if the project would expose the public to substantial levels of TACs so that the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million and/or so that ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index (HI) greater than 1 for the Maximally Exposed Individual.
- **Odorous Emissions**. Odor impacts would be significant if the project has the potential to frequently expose members of the public to objectionable odors.

Methodology

Short-term Construction

Short-term construction emissions associated with the construction of the project were quantified using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. Emissions were quantified based on project-specific data provided and default modeling parameters contained in the model for Monterey County. Emissions modeling assumptions are summarized in Table 5. Refer to Appendix A for emissions modeling assumptions and results.

Long-term Operation

Long-term operational increases in emissions of criteria air pollutants were calculated using the CalEEMod, version 2020.4.0. Mobile-source emissions were based on vehicle trip-generation rates derived from the traffic report prepared for the proposed project (Higgins 2021). Other modeling assumptions, including fleet mix, average trip distances, and energy usage rates, were based on CalEEMod model defaults for Monterey County. Refer to Appendix A for emissions modeling assumptions and results.

Table 5. Construction Modeling Assumptions

Construction Phase	Duration (Days) [1]	Off-Road Equipment [2]	Construction Vehicle Trips [3]
Site Preparation	1	3 Rubber Tired Dozers 4 Tractor/Loader/Backhoes	18 Worker Trips 638 Hauling Trips
Grading	10	1 Excavator 1 Grader 1 Rubber Tired Dozer 3 Tractor/Loader/Backhoes	15 Worker Trips 1,438 Hauling Trips
Building Construction	204	1 Crane 3 Forklifts 1 Generator Set 3 Tractor/Loader/Backhoe 2 Welder	64 Worker Trips
Paving	2	2 Cement Mixer 1 Pavers 2 Paving Equipment 2 Rollers 1 Tractor/Loader/Backhoe	20 Worker Trips
Architectural Coating	96	1 Air Compressor	13 Worker Trips

1. *Based on an approximate 10-month construction duration and default activity durations contained in the CalEEMod computer program.*
2. *Based on default activity equipment usage contained in the CalEEMod computer program.*
3. *Based on CalEEMod default assumptions. Haul truck trips are based on an estimated 5,100 cubic yards of material to be exported during site preparation and 11,500 cubic yards of material to be imported during the site grading phase, based on project-specific information provided.*

Project Impacts

Impact AQ-1: Conflict with or obstruct implementation of any applicable air quality plan.

Consistency with the AQMP is assessed by comparing the proposed growth associated with a proposed project with the population and dwelling unit forecasts adopted by the Association of Monterey Bay Area Governments (AMBAG). These projections are used to generate emission forecasts upon which the AQMP is based. Projects which are consistent with AMBAG's regional forecasts would be considered consistent with the AQMP (MBARD 2008). In addition, projects that would result in a significant increase in emissions, in excess of MBARD significance thresholds, would also be considered to potentially conflict with or obstruct implementation of the AQMP.

The proposed project includes approximate 65,144-square-feet living space designed to accommodate a maximum of 480 agricultural employees. The proposed project would not result in a substantial long-term increase in employment or population growth. In addition, as noted in Impact AQ-2, the proposed project would not result in a significant increase in emissions. Furthermore, the use of shuttle buses and vans to transport workers would also result in overall reductions in regional vehicle miles traveled (VMT) and would, therefore, have a beneficial effect on regional VMT and associated emissions (Higgins 2021).For these reasons, implementation of the proposed project is not anticipated to result in a substantial increase in either direct or indirect emissions that would conflict with or obstruct implementation of the AQMP. This impact is considered **less than significant**. No mitigation is required. (Refer to Impacts AQ-2 and AQ-3 for additional discussion of air quality impacts.)

Impact AQ-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.***

Construction Emissions

Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but possess the potential to represent a significant air quality impact. The construction of the proposed uses would result in the temporary generation of emissions resulting from site preparation, grading, building construction, paving, architectural coating, and motor vehicle exhaust associated with construction equipment and on-road vehicle trips. Emissions of PM are largely associated with ground disturbance and the movement of construction vehicles and equipment on unpaved surfaces.

Construction-generated emissions associated with the project are summarized in Table 6. As depicted, the project would generate maximum daily PM_{10} emissions of approximately 41.0 lbs/day and would not exceed MBARD's significance threshold of 82 lbs/day. Furthermore, compliance with existing MBARD rules and regulations, such as Rule 402 (Nuisances) and Rule 425 (Use of Cutback Asphalt) would further minimize potential short-term air quality impacts. In addition, construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit precursors of ozone [i.e., volatile organic compounds (VOC) or oxides of nitrogen (NOx)], are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS (MBARD 2008). For these reasons, construction-generated emissions would not be anticipated to result in a substantial increase in localized or regional pollutant concentrations that would have a significant adverse impact to public health. As a result, short-term construction activities would be considered to have a **less-than-significant** air quality impact. No mitigation is required.

Long-term Operation

Long-term operational emissions associated with the proposed project would be predominantly associated with mobile sources. These emissions were quantified using CalEEMod, version 2020.4.0, based on vehicle trip-generation rates from the project's traffic report (Higgins 2021). A majority of the estimated operational emissions would be associated with motor vehicle use. To a lesser extent, emissions associated with area sources, such as landscape maintenance activities, as well as use of electricity and natural gas would also contribute to increased operational emissions.

Unmitigated operational emissions associated with the proposed project are summarized in Table 7. As depicted, maximum daily operational emissions would total approximately 3.4 lbs/day of ROG, 2.7lbs/day of NO_x, 21.2 lbs/day of CO, 3.1 lbs/day of fugitive PM_{10}, and 0.8 lbs/day of fugitive $PM_{2.5}$. Daily emissions of ROG, NO_x, CO, fugitive PM_{10}, and fugitive $PM_{2.5}$ would not exceed MBARD's corresponding significance thresholds.

It is important to note that the emission estimates identified in Table 7 are based on worst-case vehicle trip-generation rates obtained from the traffic analysis prepared for this project and does not include shuttle bus/vanpool use for the transport of workers. Based on the Trip Reduction Plan prepared for the project, the use of shuttle buses and van pools would be estimated to reduce daily vehicle use by greater than 10 percent. Assuming a minimum reduction of vehicle use of 10 percent, maximum daily operational emissions would be reduced to approximately 3.1 lbs/day of ROG, 2.4lbs/day of NO_x, 19.1 lbs/day of CO, 2.8 lbs/day of fugitive PM_{10}, and 0.7 lbs/day of fugitive $PM_{2.5}$. The use of shuttle buses and vans to transport workers would also result in overall reductions in regional vehicle miles traveled (VMT) and would, therefore, have a beneficial effect on regional VMT (Higgins 2021).

Daily operational emissions of criteria pollutants would not exceed any MBARD emissions thresholds and would not have a significant impact on regional air quality or attainment and maintenance of ozone AAQS. For these same reasons, operational emissions would not be anticipated to result in a significant adverse impact to public health. As a result, long-term operational activities would be considered to have a **less-than-significant** air quality impact. No mitigation is required.

Table 6. Construction Emissions of Criteria Air Pollutants

Construction Activity	Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Site Preparation				
On-Site:	3.2	33.1	28.7	12.4
Off-Site:	2.5	112.5	12.3	4.1
Total:	5.7	145.6	41.0	16.5
Grading				
On-Site:	1.9	20.9	8.1	4.3
Off-Site:	0.6	25.4	2.9	0.9
Total:	2.6	46.3	10.9	5.2
Building Construction				
On-Site:	0.9	15.6	0.8	0.8
Off-Site:	0.3	1.1	0.6	0.06
Total:	1.2	16.7	1.4	0.9
Paving				
On-Site:	2.4	9.5	0.5	0.5
Off-Site:	0.1	0.1	0.2	0.0
Total:	2.5	9.6	0.7	0.5
Architectural Coating				
On-Site:	9.0	1.4	0.1	0.1
Off-Site:	0.0	0.0	0.1	0.0
Total:	9.1	1.4	0.2	0.1
Maximum Daily Emissions[1]:	12.8	145.6	41.0	16.5
MBARD Significance Threshold[2]:	-	-	82	-
Exceeds Threshold/Significant Impact?	NA	NA	No	NA

1. Based on the highest daily emissions during summer or winter conditions without the implementation of fugitive dust control measures. Assumes building construction, paving, and architectural coating could potentially occur simultaneously.

2. The MBARD has not identified significance thresholds for ROG, NO_X, or $PM_{2.5}$. Emissions of ROG and NO_X are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS. Emissions of $PM_{2.5}$ are a component of PM_{10}.

Refer to Appendix A for emissions modeling assumptions and results.

Table 7. Operational Emissions Without Mitigation

Source	Emissions[1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Source	1.8	0.1	5.1	<0.1	<0.1	<0.1
Energy Use	<0.1	0.3	0.1	<0.1	<0.1	<0.1
Mobile[3]	1.6	2.3	16.1	<0.1	3.0	0.8
Total Project Emissions	3.4	2.7	21.2	<0.1	3.1	0.8
MBARD Significance Thresholds[2]	137	137	550	150	82	--
Exceeds MBARD Thresholds?	No	No	No	No	No	NA

1) Daily emissions are based on the highest emissions for summer or winter operational conditions for buildout year 2023 conditions. Totals may not sum due to rounding. Refer to Appendix C for modeling output files and assumptions.

2) The Districts 82 lbs/day operational phase threshold of significance applies only to onsite emissions and project-related exceedances along unpaved roads.

3) Based on a vehicle trip-generation rate of 447 vehicles/weekday obtained from the traffic analysis prepared for this project (Higgins 2021). Does not include vehicle trip reductions associated with implementation of shuttle buses/van pools. Includes EMFAC off-model adjustment factors to account for the SAFE Vehicle Rule and assumes traffic rate of a standard apartment.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.

With regard to public health and welfare, both the U.S. EPA and the State of California have developed AAQS for various pollutants. These standards define the maximum amount of air pollutants that can be present in ambient air. An AAQS is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. In general, the standards adopted by the State of California are equivalent to or more health-protective than the national standards established by the U.S. EPA.

To assist local jurisdictions with the evaluation of localized pollutant concentrations and potential health-related impacts, MBARD has developed recommended thresholds of significance and screening criteria for the pollutants of primary concern (e.g., PM_{10}, CO, TACs). Accordingly, project-generated emissions of PM_{10} that exceed 82 pounds per day (lbs/day) could result in a violation of PM_{10} AAQS at nearby receptors, which could result in health-related impacts to nearby receptors. In addition, ground-level concentrations of TACs that would result in an incremental increase in cancer risk of 10 in 1 million or a Hazard Index greater than 1 for the Maximally Exposed Individual would also be considered to result in a potentially significant impact to human health. Projects that contribute to or result in decreased levels of service (LOS) of E, or worse, at signalized intersections may contribute to localized CO concentrations that could exceed AAQS, which may result in health-related impacts to nearby individuals. Other pollutants of localized concern include exposure to naturally-occurring asbestos.

Short-term and long-term pollutants of primary concern with regard to potential health-related impacts include construction-generated emissions of TACs, naturally-occurring asbestos, particulate matter, and carbon monoxide. Short-term and long-term localized air quality impacts are discussed in greater detail, as follows:

Short-term Construction

Naturally-Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, the risk of exposure to asbestos during the construction process would be considered **less than significant**. No mitigation is required.

TACs (DPM Emissions)

The primary TAC of concern associated with short-term construction projects is diesel-exhaust particulate matter (DPM). Implementation of the proposed project would result in the generation of DPM emissions during construction associated with the use of off-road diesel equipment for site grading, paving and other construction activities. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. For off-site work and residential land uses, the calculation of cancer risk associated with exposure to TACs is typically calculated based on a 25-year and 30-year period of exposure, respectively. The use of diesel-powered construction equipment, however, would be temporary and episodic. Assuming that construction activities involving the use of diesel-fueled equipment would occur over an approximately 10-month period, project-related construction activities would constitute less than 3.5 percent of the typical exposure period. As a result, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 10 in one million or a hazard index greater than 1) and would have a **less-than-significant** impact to nearby receptors. No mitigation is required.

Fugitive Dust Emissions

Implementation of the proposed project would result in short-term emissions of fugitive PM associated with ground disturbance. However, compliance with applicable MBARD rules and regulations, including but not limited to, Rule 402 for the control of nuisance–related emissions would minimize potential impacts to

occupants of nearby land uses. Furthermore, as noted in Impact AQ-2, construction-generated PM_{10} would be significantly less than MBARD's daily significance threshold of 82 lbs/day. As previously noted, MBARD has determined that emissions below 82 lbs/day would not be anticipated to exceed AAQS. For these reasons, construction activities would be considered to have a **less-than-significant** short-term impact on nearby sensitive receptors. No mitigation is required.

Mobile-Source CO

As noted above, the implementation of the proposed project would not result in the installation of any major stationary sources of emissions. As a result, CO generated by mobile sources would be considered the primary pollutant of local concern associated with long-term operational activities. Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under specific meteorological and operational conditions, such as near areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the bloodstream and can inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease. For this reason, localized mobile-source CO concentrations are of potential concern near signalized intersections that experience high traffic volumes/vehicle congestion and are projected to operate at unacceptable levels of service (i.e., LOS E, or worse) (Caltrans 1996).

Based on the traffic analysis prepared for this project, the nearby signal intersections is projected to operate at LOS D, or better, with project implementation (Higgins 2021). Implementation of the proposed project would not result in or contribute to unacceptable levels of service (i.e., LOS E, or worse) at primarily affected signalized intersections. For this reason and given the regions low background CO concentrations, implementation of the proposed project would not result in or contribute to localized mobile-source CO concentrations that would be projected to exceed applicable AAQS. In addition, CalEEMod results show that maximum daily CO emissions would be approximately 21.2 lbs/day and would not exceed the MBARD recommended threshold of 550 lbs/day. As a result, the project's contribution to localized CO concentrations and potential health-related impacts on nearby receptors would be considered **less than significant**. No mitigation is required.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Implementation of the proposed project would not result in the installation of any major sources of odors. In addition, no major sources of odors have been identified in the vicinity of the project site. As a result, the implementation of the proposed project would not result in the long-term exposure of individuals to increased concentrations of odors. However, construction of the proposed facilities would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. For these reasons, this impact would be considered **less than significant**. No mitigation is required.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- **Carbon Dioxide**. Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2018b).

- **Methane**. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2018b).

- **Nitrous Oxide**. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years (U.S. EPA 2018b).

- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2018b).

- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and non-toxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F_{14}). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018b).

- **Nitrogen Trifluoride**. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin-film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO_2e). While NF_3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF_3 was listed by California as a high global warming potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).

- **Sulfur Hexafluoride**. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, non-toxic, and generally non-flammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2018b).

- **Black Carbon**. Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2018b).

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO_2e, which weighs each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 8 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHG with high GWP includes Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Table 8. Global Warming Potential for GHGs

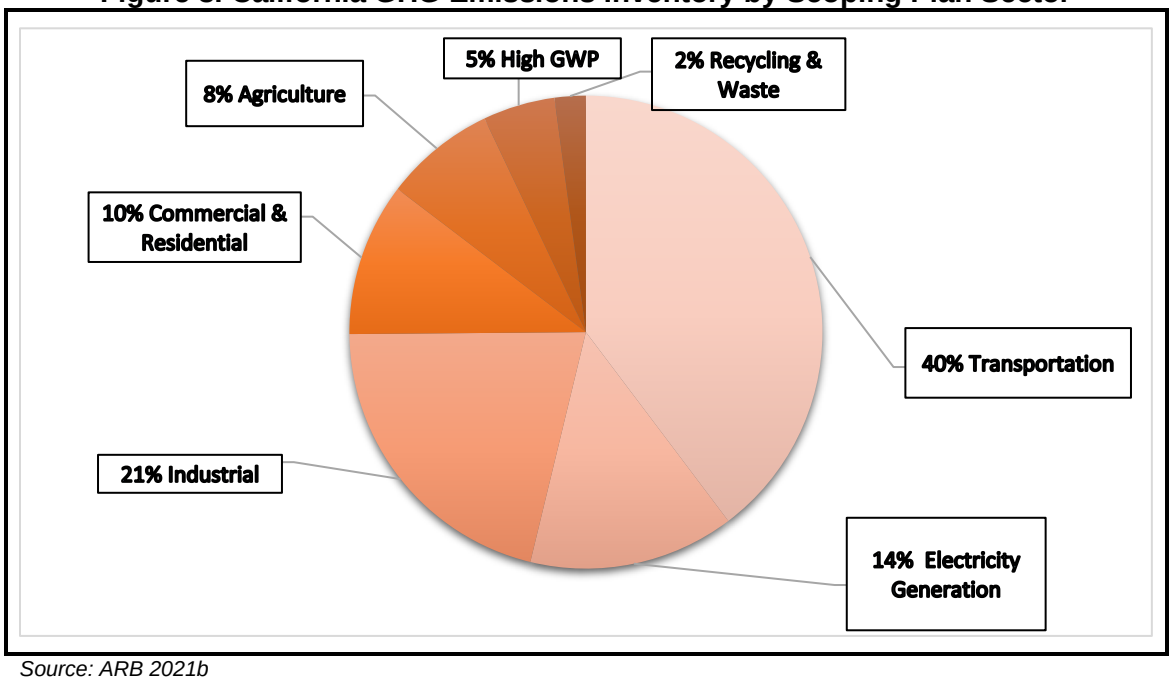
Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298
**Based on IPCC GWP values for a 100-year time horizon* *Source: IPCC 2007*	

Sources of GHG Emissions

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. Worldwide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2018b).

In 2019, GHG emissions within California totaled 418.2 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 3. Within California, the transportation sector is the largest contributor, accounting for approximately 40 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 21 percent. Electricity generation totaled roughly 14 percent (ARB 2021b).

Figure 3. California GHG Emissions Inventory by Scoping Plan Sector



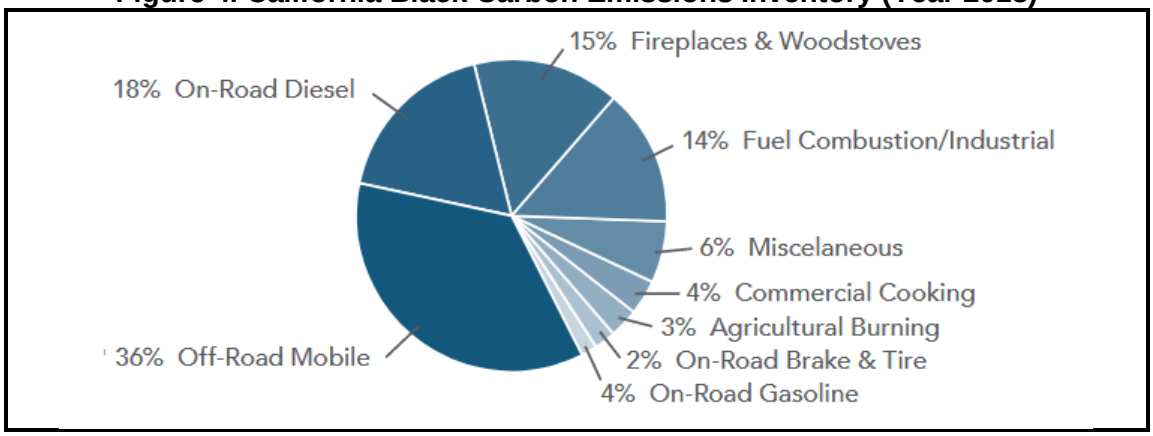
Source: ARB 2021b

Short-Lived Climate Pollutants

Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and methane also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 4. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2018d).

Figure 4. California Black Carbon Emissions Inventory (Year 2013)



Source: ARB 2018d

Effects of Global Climate Change

In 2009 and 2013 the California Natural Resources Agency prepared reports to the Governor on California's Climate Adaptation Strategy, and the Agency also produced three Climate Change Assessments based on peer reviewed science. Those reports detail the existing and expected impacts of global warming in California. These include (OAG 2021):

- **Sea level rise, coastal flooding, and coastal erosion.** Approximately 85% of California's population live and work in coastal counties. The sea level along California's coasts has risen nearly 8 inches in the past century and is projected to rise by as much as 20 to 55 inches by the end of the century. A 55-inch sea level rise could put nearly half a million people at risk of flooding by 2100, and threaten $100 billion in property and infrastructure, including roadways, buildings, hazardous waste sites, power plants, and parks and tourist destinations. Coastal erosion could have a significant impact on California's ocean-dependent economy, which is estimated to be $46 billion per year.
- As sea levels rise, saltwater contamination of the State's delta and levee systems will increase. Saltwater contamination of the Sacramento/San Joaquin Delta will threaten wildlife and the source of drinking water for 20 million Californians. Farmland in low areas may also be harmed by salt-contaminated water.
- **Losses to the Sierra snowpack and water supply.** The Sierra Nevada snowpack functions as the most important natural reservoir of water in California. Under current conditions, the snowpack is created in fall and winter and slowly releases about 15 million acre-feet of water in the spring and summer, when California needs it most. California's dams and water storage facilities are built to handle the snow melt as it happened in the past. Higher temperatures are now causing the snowpack to melt earlier and at higher rates. Earlier and larger releases of water could overwhelm California's water storage facilities, creating risk of floods and water shortages.
- **Forestry and higher risk of fires.** Forest and rangelands cover over 80% of California's 100 million acres. Climate change will affect tree survival and growth, reducing these lands' productivity and changing their habitats. In addition, climate change makes forests more vulnerable to fires by increasing temperatures and making forests and brush drier. Today's fire season in the western United States starts earlier, lasts longer, and is more intense than in the last several decades. Wildfire occurrence statewide could increase several fold by the end of the century, increasing fire suppression and emergency response costs and damage to property.
- **Damage to agriculture.** Global warming can cause drought, higher temperatures, saltwater contamination through rising sea levels, flooding, and increased risk of pests. These changes pose a very serious threat to California's agricultural industry. Declines in agriculture production could lead to food shortages and higher prices.
- **Increased demand for electricity**. Higher temperatures and more heat waves will drive up demand for cooling in the warmer periods of the year. Electricity demand is projected to increase by as much as 60 percent, particularly in southern California and the Central Valley.
- **Public health impacts.** Californians already experience some of the worst air quality in the nation. Hotter temperatures lead to more smog, which can damage lungs, and increases childhood asthma, respiratory and heart disease, and death. Certain segments of the population are at greater risk, including the elderly, infants, persons with chronic heart or lung disease. Temperature increases can cause increases in the risk of injury or death from dehydration, heatstroke, heart attack and respiratory problems. In July 2006, California experienced a heat wave that led to more than 140 deaths, and possibly 2 to 3 times that number. Heat waves similar in length and intensity to those experienced in 2006 will be more frequent and could become annual occurrences by the end of the century.
- **Habitat destruction and loss of ecosystems.** California is one of the most biologically diverse regions of the world, with the highest number of unique plant and animal species of all 50 states and the greatest number of endangered species. Climate change will adversely affect plant and wildlife habitats and the ability of the State's varied ecosystems to support clean water, wildlife, fish, timber and other goods and services important for our well-being.

REGULATORY FRAMEWORK

Federal

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. In addition, the executive order directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed 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.
- Cause or Contribute Finding: The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's "Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles", which was published on September 15, 2009. On May 7, 2010, the final "Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards" was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

State

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change,

including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, and SF_6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that were phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions (ARB 2018c).

Climate Change Scoping Plan

In October 2008, ARB published its *Climate Change Proposed Scoping Plan*, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emission sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with the implementation of Senate Bill 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The most recent update released by ARB is the *2017 Climate Change Scoping Plan*, which was released In November 2017. The *2017 Climate Change Scoping Plan* incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and EO B-30-15.

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State to come from renewable energy by 2020. Statute SB X1-2 superseded this Executive Order in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from the year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land-use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.

California Building Code

The CBC contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Code is adopted every three years by the BSC. In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the CBC and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions.

The green buildings standards were most recently updated May 2018. Referred to as the 2019 Building Energy Efficiency Standards, this most recent update focus on four key areas: smart residential photovoltaic systems,

updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under the newly adopted standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. The recently updated 2019 Building Energy Efficiency Standards also require new homes built after January 1, 2020 to be equipped with solar photovoltaic (PV) systems. The solar PV systems are to be sized based on the buildings annual electricity demand, the building square footage, and the climate zone within which the home is located. However, under the 2019 Building Energy Efficiency Standards, homes may still rely on other energy sources, such as natural gas. Compliance with the 2019 Building Energy Efficiency Standards, including the solar PV system mandate, residential dwellings will use approximately 50 to 53 percent less energy than those under the 2016 standards. Actual reduction will vary depending on various factors (e.g., building orientation, sun exposure). Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2019). These standards are currently being updated.

Senate Bill 97

Senate Bill 97 (SB 97) was enacted in 2007. SB 97 required OPR to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the "Short-Lived Climate Pollutant Reduction Strategy" (*SLCP Strategy*) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The *SLCP Strategy* also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the *SLCP Strategy* also identifies measures that can reduce hydrofluorocarbon (HFC) emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-Global Warming Potential (GWP) refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2017).

Monterey County

2040 Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS)

The 2040 MTP/SCS contains a set of integrated policies, strategies and investments to maintain and improve the transportation system to meet the diverse needs of the region through 2040. Under SB 375, AMBAG and California's 17 other MPOs must address GHG reduction as part of a broader sustainable community strategy. Transportation strategies contained in this MTP such as managing transportation demand/reducing vehicle miles traveled, including promotion of telecommuting, vanpool programs, making certain transportation system improvements and promoting the use of alternative fuels are major components of the SCS. The 2040 MTP/SCS achieves GHG emission reductions of four percent per capita in 2020 and a nearly seven percent per capita in 2035, surpassing CARB's reduction targets of zero and five percent for the same years (AMBAG 2018).

PROJECT IMPACTS

Thresholds of Significance

In accordance with CEQA Guidelines, a project would be considered to have a significant impact on climate change if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or,

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

MBARD has not yet adopted recommended GHG significance thresholds applicable to development projects. In the interim, the MBARD recommends the use of other thresholds, such as those adopted by other air districts, such as the San Luis Obispo County Air Pollution Control District (SLOAPCD). However, many of the thresholds currently recommended by other air districts, including the SLOAPCD, are based on the State's year 2020 GHG-reduction targets and have not yet been updated to reflect the State's future year 2030 GHG-reduction target.

For purposes of this analysis, GHG emissions were evaluated based on an efficiency threshold, taking into account the State's 2030 GHG-reduction target mandated by SB 32. The GHG-efficiency threshold was calculated by dividing the GHG emissions inventory goal (allowable emissions), by the estimated service population (SP). The efficiency threshold was based on ARB's GHG emissions inventory identified in the current *2017 Scoping Plan Update*. Emissions sectors that do not apply to the proposed project (i.e., industrial, agriculture) were excluded from the calculation. The GHG emissions inventory for the land use sectors applicable to the proposed project were then divided by the projected SP for both build-out year 2023 and future year 2030 operational conditions. The SP was calculated based on the most current population and employment projections derived from the California Department of Finance Demographic Research Unit and California Employment Development Department, respectively. The methodology used for quantification of the target efficiency threshold applied to the proposed project is summarized in Table 9. Project-generated GHG emissions that would exceed the efficiency threshold of 4.3 $MTCO_2e$/SP/year in year 2023 or 3.4 $MTCO_2e$/SP/year in 2030 would be considered to have a potentially significant impact on the environment that could conflict with GHG-reduction planning efforts. To be conservative, amortized construction-generated GHG emissions were included in annual operational GHG emissions estimates, consistent with SLOAPCD-recommended methodologies.

Table 9. Project-Level GHG Efficiency Threshold Calculation

	2023	2030
Land Use Sectors GHG Emissions Target[1]	255	213
Population[2]	40,354,217	41,860,549
Employment[3]	19,619,200	20,729,820
Service Population (SP)	59,973,417	62,590,369
GHG Efficiency Threshold ($MTCO_2e$/SP/yr)	4.3	3.4

Note: Employment data for interim years are estimated based on proportionality with population trends based on historical data.
Based on AB 32 Scoping Plan's land use inventory sectors for years 2023 and 2030; Includes transportation sources.
1. Based on ARB 2017 Climate Scoping Plan Update/SB 32 Scoping Plan Emissions Sector targets.
2. California Department of Finance Demographic Research Unit. 2019. Report P-1 "State Population Projections (2010 - 2060)" (DOF, 2019).
3. California Employment Development Department. Employment Projections Labor Market Information Resources and Data, "CA Long-Term. 2018-2028 Statewide Employment Projections". Projected year 2030 employment data was projected based on the average-annual increase for years 2018 through 2028.

Methodology

Short-term Construction

Short-term construction emissions associated with the construction of the project were quantified using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. Emissions were quantified based on project-specific data provided and default modeling parameters contained in the model for Monterey County. Emissions modeling assumptions are summarized in Table 5. Amortized construction emissions were calculated assuming an average project life of 30 years and were included in the analysis of long-term operational impacts for determination of impact significance. Refer to Appendix A for emissions modeling assumptions and results.

Long-term Operation

Long-term operational emissions of the project were quantified using CalEEMod, version 2020.4.0, based on vehicle trip-generation rates derived from the traffic analysis report prepared for the proposed project (Higgins, 2021). Electricity intensity factors were adjusted to account for compliance with renewable portfolio standards regulatory requirements. To be conservative, electricity was assumed to be provided by Pacific Gas & Electric. Participation in the Central Coast Community Energy program, which would provide electricity largely from renewable sources, was not included. Other modeling assumptions, including energy usage rates, water usage rates, and waste-generation rates were based on CalEEMod model defaults. Refer to Appendix A for emissions modeling assumptions and results.

Project Impacts

Impact GHG-1: ***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? and***

Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Short-term Construction

Construction-generated GHG emissions are summarized in Table 10. As depicted, the construction of the project would generate a total of approximately 415.6 $MTCO_2e$. Amortized GHG emissions, when averaged over an assumed 30-year life of the project, would total approximately 13.9 $MTCO_2e$/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Construction-generated emissions would vary, depending on the final construction schedules, equipment required, and activities conducted. Amortized construction emissions have been included in the analysis of long-term operational impacts for determination of impact significance.

Table 10. Construction GHG Emissions

Construction Activity	Annual Emissions ($MTCO_2e$/Year)
Site Preparation	22.3
Grading	60.0
Building Construction	314.8
Paving	1.8
Architectural Coating	16.7
Total Construction Emissions:	415.6
Amortized Net Change in Construction Emissions[1]:	13.9

1. Amortized emissions are quantified based on estimated 30-year project life.
Refer to Appendix A for emissions modeling assumptions and results.

Long-term Operation

Operational GHG emissions for the project are summarized in Table 11. With the inclusion of amortized construction-generated emissions, the proposed project would generate a total of approximately 589.5 $MTCO_2e$/year for year 2023 and 504.6 $MTCO_2e$/year for 2030. Project-generated GHG emissions are projected to decrease in future years due largely to improvements in vehicle fleet emissions.

As noted in Table 11, and assuming a service population of 480 residents, the project would generate approximately 1.3 $MTCO_2e$/SP for year 2023 and 1.1 $MTCO_2e$/SP for year 2030. Operational emissions would not exceed the corresponding significant thresholds of 4.3 $MTCO_2e$/SP and 3.4 $MTCO_2e$/SP, respectively.

Table 11. Operational GHG Emissions Without Mitigation

Operational Year/Source	GHG Emissions ($MTCO_2e$/Year)	
	Year 2023	Year 2030
Area Source[1]	1.1	1.1
Energy Use[2]	86.5	79.4
Motor Vehicles[3]	481.4	404.3
Waste Generation[4]	14.1	14.1
Water[5]	6.4	5.7
Total Operational Emissions:	589.5	504.6
Amortized Construction Emissions:	13.9	13.9
Total with Amortized Construction Emissions:	603.4	518.5
Service Population[6]:	480	480
$MTCO_2e$/SP:	1.3	1.1
GHG Efficiency Significance Threshold:	4.3	3.4
Exceeds Threshold?	No	No

1. Area source includes emissions associated primarily with the use of landscape maintenance equipment.
2. Includes natural gas and electricity use. Includes adjustment for renewable portfolio standards. Assumes electricity would be provided by Pacific Gas & Electric. Does not include participation in Central Coast Community Energy.
3. Based on default fleet mix contained in CalEEMod for Monterey County. Includes CH_4, N_20, and CO_2 mobile source emissions expressed in CO_2e. Does not include reductions associated with the use of shuttle buses/vans.
4. Based on an average annual waste diversion/recycling rate of 50% based on statewide averages.
5. Includes installation of low-flow water fixtures and water-efficient irrigation systems per current building standards.
6. Based on the estimated number of residents served by the proposed project.
Refer to Appendix A for emissions modeling assumptions and results.

It is important to note that the emission estimates identified in Table 11 are based on worst-case vehicle trip-generation rates obtained from the traffic analysis prepared for this project and does not include shuttle bus/vanpool use for the transport of workers (Higgins 2021). Based on the Trip Reduction Plan prepared for the project, the use of shuttle buses and van would reduce daily vehicle use by greater than 10 percent.

Assuming a minimum reduction in vehicle use of 10 percent, annual operational GHG emissions would be reduced to approximately 541.4 $MTCO_2e$/year (1.2 $MTCO_2e$/SP) for year 2023 and 464.2 $MTCO_2e$/year (1.0 $MTCO_2e$/SP) for 2030. Furthermore, the use of shuttle buses and vans to transport workers would also result in overall reductions in regional vehicle miles traveled (VMT) and would, therefore, have a beneficial effect on VMT (Higgins 2021). As a result, the proposed project would not result in GHG emissions that would have a significant impact on the environment and would not conflict with applicable GHG-reduction plans, policies or regulations. This impact would be considered ***less than significant***. No mitigation is required.

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APPENDIX A

Emissions Modeling & Supportive Documentation

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Pajaro Susan St Farm Housing

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	121.00	Space	1.09	48,400.00	0
Apartments Low Rise	60.00	Dwelling Unit	2.26	65,144.00	172
Condo/Townhouse	1.00	Dwelling Unit	0.06	975.00	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	186.66	**CH4 Intensity (lb/MWhr)**	0.03	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment factors.

Land Use - Unit count, Acerage, and square footage is based on project discription.

Construction Phase - Based on condtuction duration provided by project applicant. Conservitly assumes all contruction occurs on same year.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Bsed on model defaults.

Trips and VMT - Based on model defaults.

On-road Fugitive Dust - Based on model defaults.

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - 5,100 Cubic yards exported and 11,500 cubic yards imported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Based on information provided and model defaults.

Construction Off-road Equipment Mitigation - Mitigation will use tier 3 engines, will water exposed surfaces 3 times per day, water roads to reduce PM, and speed limit of 15mph.

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Based on model defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	96.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	230.00	204.00
tblConstructionPhase	NumDays	18.00	2.00
tblGrading	AcresOfGrading	10.00	8.00
tblGrading	AcresOfGrading	1.50	7.50
tblGrading	MaterialExported	0.00	5,100.00
tblGrading	MaterialImported	0.00	11,500.00
tblLandUse	LandUseSquareFeet	60,000.00	65,144.00
tblLandUse	LandUseSquareFeet	1,000.00	975.00
tblLandUse	LotAcreage	3.75	2.26
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.03
tblProjectCharacteristics	CO2IntensityFactor	203.98	186.66

2.0 Emissions Summary

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2022	11.0472	139.5627	41.7991	0.4418	38.4101	2.6323	41.0423	14.0491	2.4591	16.5083						49,221.0255
Maximum	**11.0472**	**139.5627**	**41.7991**	**0.4418**	**38.4101**	**2.6323**	**41.0423**	**14.0491**	**2.4591**	**16.5083**						**49,221.0255**

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					
2022	9.8697	125.5448	45.0613	0.4418	21.8705	1.9659	23.8363	7.3665	1.9217	9.2882						49,221.0255
Maximum	**9.8697**	**125.5448**	**45.0613**	**0.4418**	**21.8705**	**1.9659**	**23.8363**	**7.3665**	**1.9217**	**9.2882**						**49,221.0255**

	ROG	NOx	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	**10.66**	**10.04**	**-7.80**	**0.00**	**43.06**	**25.32**	**41.92**	**47.57**	**21.85**	**43.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Energy	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
Mobile	1.6428	2.0305	15.1394	0.0326	3.0191	0.0277	3.0468	0.8054	0.0259	0.8313						3,395.5918
Total	**3.4951**	**2.3895**	**20.3135**	**0.0348**	**3.0191**	**0.0799**	**3.0990**	**0.8054**	**0.0781**	**0.8835**						**3,791.3203**

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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Energy	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
Mobile	1.5899	1.9122	14.2386	0.0303	2.8047	0.0259	2.8305	0.7482	0.0242	0.7724						3,160.6857
Total	**3.4422**	**2.2712**	**19.4127**	**0.0325**	**2.8047**	**0.0781**	**2.8828**	**0.7482**	**0.0764**	**0.8246**						**3,556.4142**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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	**1.51**	**4.95**	**4.43**	**6.53**	**7.10**	**2.26**	**6.98**	**7.10**	**2.18**	**6.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.20**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	7/15/2022	11/25/2022	5	96	
2	Site Preparation	Site Preparation	2/1/2022	2/1/2022	5	1	
3	Grading	Grading	2/2/2022	2/15/2022	5	10	
4	Building Construction	Building Construction	2/15/2022	11/25/2022	5	204	
5	Paving	Paving	11/28/2022	11/29/2022	5	2	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.09

Residential Indoor: 133,891; Residential Outdoor: 44,630; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,904 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,438.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 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	8.8295					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						281.9062
Total	**9.0341**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**						**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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0464	0.0326	0.4268	1.0400e-003	0.1068	7.3000e-004	0.1075	0.0283	6.7000e-004	0.0290						106.7607
Total	**0.0464**	**0.0326**	**0.4268**	**1.0400e-003**	**0.1068**	**7.3000e-004**	**0.1075**	**0.0283**	**6.7000e-004**	**0.0290**						**106.7607**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

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	8.8295					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951						281.9062
Total	**8.8890**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**						**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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0464	0.0326	0.4268	1.0400e-003	0.1068	7.3000e-004	0.1075	0.0283	6.7000e-004	0.0290						106.7607
Total	**0.0464**	**0.0326**	**0.4268**	**1.0400e-003**	**0.1068**	**7.3000e-004**	**0.1075**	**0.0283**	**6.7000e-004**	**0.0290**						**106.7607**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 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					27.1141	0.0000	27.1141	10.9552	0.0000	10.9552						0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836						3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**27.1141**	**1.6126**	**28.7266**	**10.9552**	**1.4836**	**12.4387**						**3,715.8655**

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	2.5601	106.4340	21.5103	0.4023	11.1481	1.0187	12.1668	3.0547	0.9746	4.0294						45,357.3374
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0642	0.0452	0.5910	1.4400e-003	0.1479	1.0100e-003	0.1489	0.0392	9.3000e-004	0.0402						147.8225
Total	**2.6243**	**106.4791**	**22.1013**	**0.4037**	**11.2960**	**1.0197**	**12.3157**	**3.0940**	**0.9756**	**4.0695**						**45,505.1600**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

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					10.5745	0.0000	10.5745	4.2725	0.0000	4.2725						0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462						3,715.8655
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**10.5745**	**0.9462**	**11.5207**	**4.2725**	**0.9462**	**5.2187**						**3,715.8655**

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	2.5601	106.4340	21.5103	0.4023	11.1481	1.0187	12.1668	3.0547	0.9746	4.0294						45,357.3374
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0642	0.0452	0.5910	1.4400e-003	0.1479	1.0100e-003	0.1489	0.0392	9.3000e-004	0.0402						147.8225
Total	**2.6243**	**106.4791**	**22.1013**	**0.4037**	**11.2960**	**1.0197**	**12.3157**	**3.0940**	**0.9756**	**4.0695**						**45,505.1600**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 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					7.1172	0.0000	7.1172	3.4392	0.0000	3.4392						0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656						2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.1172**	**0.9409**	**8.0580**	**3.4392**	**0.8656**	**4.3048**						**2,895.2684**

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	0.5770	23.9894	4.8483	0.0907	2.5127	0.2296	2.7423	0.6885	0.2197	0.9082						10,223.1742
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0535	0.0376	0.4925	1.2000e-003	0.1232	8.4000e-004	0.1241	0.0327	7.8000e-004	0.0335						123.1855
Total	**0.6305**	**24.0270**	**5.3407**	**0.0919**	**2.6359**	**0.2304**	**2.8664**	**0.7212**	**0.2205**	**0.9416**						**10,346.3596**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

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					2.7757	0.0000	2.7757	1.3413	0.0000	1.3413						0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555						2,895.2684
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.7757**	**0.7555**	**3.5312**	**1.3413**	**0.7555**	**2.0968**						**2,895.2684**

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	0.5770	23.9894	4.8483	0.0907	2.5127	0.2296	2.7423	0.6885	0.2197	0.9082						10,223.1742
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0535	0.0376	0.4925	1.2000e-003	0.1232	8.4000e-004	0.1241	0.0327	7.8000e-004	0.0335						123.1855
Total	**0.6305**	**24.0270**	**5.3407**	**0.0919**	**2.6359**	**0.2304**	**2.8664**	**0.7212**	**0.2205**	**0.9416**						**10,346.3596**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 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						2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**						**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
Vendor	0.0322	0.8165	0.2549	3.0100e-003	0.0948	8.6700e-003	0.1034	0.0273	8.2900e-003	0.0356						334.2197
Worker	0.2283	0.1606	2.1012	5.1200e-003	0.5257	3.6000e-003	0.5294	0.1395	3.3200e-003	0.1428						525.5913
Total	**0.2605**	**0.9771**	**2.3561**	**8.1300e-003**	**0.6205**	**0.0123**	**0.6328**	**0.1667**	**0.0116**	**0.1783**						**859.8110**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036						2,569.6322
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**						**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
Vendor	0.0322	0.8165	0.2549	3.0100e-003	0.0948	8.6700e-003	0.1034	0.0273	8.2900e-003	0.0356						334.2197
Worker	0.2283	0.1606	2.1012	5.1200e-003	0.5257	3.6000e-003	0.5294	0.1395	3.3200e-003	0.1428						525.5913
Total	**0.2605**	**0.9771**	**2.3561**	**8.1300e-003**	**0.6205**	**0.0123**	**0.6328**	**0.1667**	**0.0116**	**0.1783**						**859.8110**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504						1,819.3091
Paving	1.4279					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**2.4044**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**						**1,819.3091**

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0713	0.0502	0.6566	1.6000e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0400e-003	0.0446						164.2473
Total	**0.0713**	**0.0502**	**0.6566**	**1.6000e-003**	**0.1643**	**1.1300e-003**	**0.1654**	**0.0436**	**1.0400e-003**	**0.0446**						**164.2473**

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4389	9.0888	13.5323	0.0189		0.5246	0.5246		0.5246	0.5246						1,819.3091
Paving	1.4279					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.8668**	**9.0888**	**13.5323**	**0.0189**		**0.5246**	**0.5246**		**0.5246**	**0.5246**						**1,819.3091**

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0713	0.0502	0.6566	1.6000e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0400e-003	0.0446						164.2473
Total	**0.0713**	**0.0502**	**0.6566**	**1.6000e-003**	**0.1643**	**1.1300e-003**	**0.1654**	**0.0436**	**1.0400e-003**	**0.0446**						**164.2473**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.5899	1.9122	14.2386	0.0303	2.8047	0.0259	2.8305	0.7482	0.0242	0.7724						3,160.6857
Unmitigated	1.6428	2.0305	15.1394	0.0326	3.0191	0.0277	3.0468	0.8054	0.0259	0.8313						3,395.5918

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	439.20	488.40	376.80	1,259,854	1,170,379
Condo/Townhouse	7.32	8.14	6.28	20,998	19,506
Parking Lot	0.00	0.00	0.00		
Total	446.52	496.54	383.08	1,280,851	1,189,885

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	44.00	18.80	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264
Condo/Townhouse	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264
Parking Lot	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264

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	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
NaturalGas Unmitigated	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3208.11	0.0346	0.2957	0.1258	1.8900e-003		0.0239	0.0239		0.0239	0.0239						379.6671
Condo/Townhouse	57.0668	6.2000e-004	5.2600e-003	2.2400e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004						6.7536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0352**	**0.3009**	**0.1281**	**1.9200e-003**		**0.0243**	**0.0243**		**0.0243**	**0.0243**						**386.4208**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.20811	0.0346	0.2957	0.1258	1.8900e-003		0.0239	0.0239		0.0239	0.0239						379.6671
Condo/Townhouse	0.0570668	6.2000e-004	5.2600e-003	2.2400e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004						6.7536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0352**	**0.3009**	**0.1281**	**1.9200e-003**		**0.0243**	**0.0243**		**0.0243**	**0.0243**						**386.4208**

6.0 Area Detail

6.1 Mitigation Measures Area

Pajaro Susan St Farm Housing - Monterey County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Unmitigated	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078

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	0.2322					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.4321					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.1528	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Total	**1.8171**	**0.0581**	**5.0461**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**						**9.3078**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2322					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.4321					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.1528	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Total	**1.8171**	**0.0581**	**5.0461**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**						**9.3078**

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

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Pajaro Susan St Farm Housing

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	121.00	Space	1.09	48,400.00	0
Apartments Low Rise	60.00	Dwelling Unit	2.26	65,144.00	172
Condo/Townhouse	1.00	Dwelling Unit	0.06	975.00	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	186.66	**CH4 Intensity (lb/MWhr)**	0.03	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment factors.

Land Use - Unit count, Acerage, and square footage is based on project discription.

Construction Phase - Based on condtuction duration provided by project applicant. Conservitly assumes all contruction occurs on same year.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Bsed on model defaults.

Trips and VMT - Based on model defaults.

On-road Fugitive Dust - Based on model defaults.

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - 5,100 Cubic yards exported and 11,500 cubic yards imported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Based on information provided and model defaults.

Construction Off-road Equipment Mitigation - Mitigation will use tier 3 engines, will water exposed surfaces 3 times per day, water roads to reduce PM, and speed limit of 15mph.

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Based on model defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	96.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	230.00	204.00
tblConstructionPhase	NumDays	18.00	2.00
tblGrading	AcresOfGrading	10.00	8.00
tblGrading	AcresOfGrading	1.50	7.50
tblGrading	MaterialExported	0.00	5,100.00
tblGrading	MaterialImported	0.00	11,500.00
tblLandUse	LandUseSquareFeet	60,000.00	65,144.00
tblLandUse	LandUseSquareFeet	1,000.00	975.00
tblLandUse	LotAcreage	3.75	2.26
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.03
tblProjectCharacteristics	CO2IntensityFactor	203.98	186.66

2.0 Emissions Summary

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2022	11.0621	145.6143	42.2074	0.4419	38.4101	2.6340	41.0441	14.0491	2.4608	16.5099						49,240.7314
Maximum	**11.0621**	**145.6143**	**42.2074**	**0.4419**	**38.4101**	**2.6340**	**41.0441**	**14.0491**	**2.4608**	**16.5099**						**49,240.7314**

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					
2022	9.8846	131.5964	45.4697	0.4419	21.8705	1.9676	23.8381	7.3665	1.9234	9.2899						49,240.7314
Maximum	**9.8846**	**131.5964**	**45.4697**	**0.4419**	**21.8705**	**1.9676**	**23.8381**	**7.3665**	**1.9234**	**9.2899**						**49,240.7314**

	ROG	NOx	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	**10.64**	**9.63**	**-7.73**	**0.00**	**43.06**	**25.30**	**41.92**	**47.57**	**21.84**	**43.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Energy	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
Mobile	1.5682	2.3478	16.0621	0.0311	3.0191	0.0277	3.0468	0.8054	0.0259	0.8313						3,251.6691
Total	**3.4205**	**2.7069**	**21.2362**	**0.0333**	**3.0191**	**0.0799**	**3.0990**	**0.8054**	**0.0781**	**0.8835**						**3,647.3977**

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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Energy	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
Mobile	1.5128	2.2116	15.1817	0.0290	2.8047	0.0259	2.8305	0.7482	0.0242	0.7724						3,027.3041
Total	**3.3651**	**2.5707**	**20.3558**	**0.0312**	**2.8047**	**0.0781**	**2.8828**	**0.7482**	**0.0764**	**0.8246**						**3,423.0326**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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	**1.62**	**5.03**	**4.15**	**6.48**	**7.10**	**2.26**	**6.98**	**7.10**	**2.18**	**6.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.15**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	7/15/2022	11/25/2022	5	96	
2	Site Preparation	Site Preparation	2/1/2022	2/1/2022	5	1	
3	Grading	Grading	2/2/2022	2/15/2022	5	10	
4	Building Construction	Building Construction	2/15/2022	11/25/2022	5	204	
5	Paving	Paving	11/28/2022	11/29/2022	5	2	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.09

Residential Indoor: 133,891; Residential Outdoor: 44,630; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,904 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,438.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 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	8.8295					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						281.9062
Total	**9.0341**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**						**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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0490	0.0409	0.4161	9.8000e-004	0.1068	7.3000e-004	0.1075	0.0283	6.7000e-004	0.0290						100.8329
Total	**0.0490**	**0.0409**	**0.4161**	**9.8000e-004**	**0.1068**	**7.3000e-004**	**0.1075**	**0.0283**	**6.7000e-004**	**0.0290**						**100.8329**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

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	8.8295					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951						281.9062
Total	**8.8890**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**						**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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0490	0.0409	0.4161	9.8000e-004	0.1068	7.3000e-004	0.1075	0.0283	6.7000e-004	0.0290						100.8329
Total	**0.0490**	**0.0409**	**0.4161**	**9.8000e-004**	**0.1068**	**7.3000e-004**	**0.1075**	**0.0283**	**6.7000e-004**	**0.0290**						**100.8329**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 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					27.1141	0.0000	27.1141	10.9552	0.0000	10.9552						0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836						3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**27.1141**	**1.6126**	**28.7266**	**10.9552**	**1.4836**	**12.4387**						**3,715.8655**

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	2.4718	112.4741	21.9334	0.4025	11.1481	1.0204	12.1685	3.0547	0.9763	4.0310						45,385.2511
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0678	0.0567	0.5762	1.3600e-003	0.1479	1.0100e-003	0.1489	0.0392	9.3000e-004	0.0402						139.6148
Total	**2.5395**	**112.5308**	**22.5096**	**0.4039**	**11.2960**	**1.0214**	**12.3174**	**3.0940**	**0.9772**	**4.0712**						**45,524.8659**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

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					10.5745	0.0000	10.5745	4.2725	0.0000	4.2725						0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462						3,715.8655
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**10.5745**	**0.9462**	**11.5207**	**4.2725**	**0.9462**	**5.2187**						**3,715.8655**

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	2.4718	112.4741	21.9334	0.4025	11.1481	1.0204	12.1685	3.0547	0.9763	4.0310						45,385.2511
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0678	0.0567	0.5762	1.3600e-003	0.1479	1.0100e-003	0.1489	0.0392	9.3000e-004	0.0402						139.6148
Total	**2.5395**	**112.5308**	**22.5096**	**0.4039**	**11.2960**	**1.0214**	**12.3174**	**3.0940**	**0.9772**	**4.0712**						**45,524.8659**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 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					7.1172	0.0000	7.1172	3.4392	0.0000	3.4392						0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656						2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.1172**	**0.9409**	**8.0580**	**3.4392**	**0.8656**	**4.3048**						**2,895.2684**

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	0.5571	25.3508	4.9436	0.0907	2.5127	0.2300	2.7427	0.6885	0.2200	0.9086						10,229.4657
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0565	0.0472	0.4802	1.1300e-003	0.1232	8.4000e-004	0.1241	0.0327	7.8000e-004	0.0335						116.3456
Total	**0.6136**	**25.3980**	**5.4238**	**0.0919**	**2.6359**	**0.2308**	**2.8668**	**0.7212**	**0.2208**	**0.9420**						**10,345.8113**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

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					2.7757	0.0000	2.7757	1.3413	0.0000	1.3413						0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555						2,895.2684
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.7757**	**0.7555**	**3.5312**	**1.3413**	**0.7555**	**2.0968**						**2,895.2684**

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	0.5571	25.3508	4.9436	0.0907	2.5127	0.2300	2.7427	0.6885	0.2200	0.9086						10,229.4657
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0565	0.0472	0.4802	1.1300e-003	0.1232	8.4000e-004	0.1241	0.0327	7.8000e-004	0.0335						116.3456
Total	**0.6136**	**25.3980**	**5.4238**	**0.0919**	**2.6359**	**0.2308**	**2.8668**	**0.7212**	**0.2208**	**0.9420**						**10,345.8113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 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						2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**						**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
Vendor	0.0318	0.8638	0.2622	3.0100e-003	0.0948	8.7000e-003	0.1035	0.0273	8.3200e-003	0.0356						334.5070
Worker	0.2410	0.2015	2.0487	4.8200e-003	0.5257	3.6000e-003	0.5294	0.1395	3.3200e-003	0.1428						496.4081
Total	**0.2728**	**1.0652**	**2.3109**	**7.8300e-003**	**0.6205**	**0.0123**	**0.6328**	**0.1667**	**0.0116**	**0.1784**						**830.9151**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036						2,569.6322
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**						**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
Vendor	0.0318	0.8638	0.2622	3.0100e-003	0.0948	8.7000e-003	0.1035	0.0273	8.3200e-003	0.0356						334.5070
Worker	0.2410	0.2015	2.0487	4.8200e-003	0.5257	3.6000e-003	0.5294	0.1395	3.3200e-003	0.1428						496.4081
Total	**0.2728**	**1.0652**	**2.3109**	**7.8300e-003**	**0.6205**	**0.0123**	**0.6328**	**0.1667**	**0.0116**	**0.1784**						**830.9151**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504						1,819.3091
Paving	1.4279					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**2.4044**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**						**1,819.3091**

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0753	0.0630	0.6402	1.5100e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0400e-003	0.0446						155.1275
Total	**0.0753**	**0.0630**	**0.6402**	**1.5100e-003**	**0.1643**	**1.1300e-003**	**0.1654**	**0.0436**	**1.0400e-003**	**0.0446**						**155.1275**

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4389	9.0888	13.5323	0.0189		0.5246	0.5246		0.5246	0.5246						1,819.3091
Paving	1.4279					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.8668**	**9.0888**	**13.5323**	**0.0189**		**0.5246**	**0.5246**		**0.5246**	**0.5246**						**1,819.3091**

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0753	0.0630	0.6402	1.5100e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0400e-003	0.0446						155.1275
Total	**0.0753**	**0.0630**	**0.6402**	**1.5100e-003**	**0.1643**	**1.1300e-003**	**0.1654**	**0.0436**	**1.0400e-003**	**0.0446**						**155.1275**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.5128	2.2116	15.1817	0.0290	2.8047	0.0259	2.8305	0.7482	0.0242	0.7724						3,027.3041
Unmitigated	1.5682	2.3478	16.0621	0.0311	3.0191	0.0277	3.0468	0.8054	0.0259	0.8313						3,251.6691

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	439.20	488.40	376.80	1,259,854	1,170,379
Condo/Townhouse	7.32	8.14	6.28	20,998	19,506
Parking Lot	0.00	0.00	0.00		
Total	446.52	496.54	383.08	1,280,851	1,189,885

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	44.00	18.80	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264
Condo/Townhouse	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264
Parking Lot	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264

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	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208
NaturalGas Unmitigated	0.0352	0.3009	0.1281	1.9200e-003		0.0243	0.0243		0.0243	0.0243						386.4208

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3208.11	0.0346	0.2957	0.1258	1.8900e-003		0.0239	0.0239		0.0239	0.0239						379.6671
Condo/Townhouse	57.0668	6.2000e-004	5.2600e-003	2.2400e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004						6.7536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0352**	**0.3009**	**0.1281**	**1.9200e-003**		**0.0243**	**0.0243**		**0.0243**	**0.0243**						**386.4208**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.20811	0.0346	0.2957	0.1258	1.8900e-003		0.0239	0.0239		0.0239	0.0239						379.6671
Condo/Townhouse	0.0570668	6.2000e-004	5.2600e-003	2.2400e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004						6.7536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0352**	**0.3009**	**0.1281**	**1.9200e-003**		**0.0243**	**0.0243**		**0.0243**	**0.0243**						**386.4208**

6.0 Area Detail

6.1 Mitigation Measures Area

Pajaro Susan St Farm Housing - Monterey County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Unmitigated	1.8171	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078

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	0.2322					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.4321					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.1528	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Total	**1.8171**	**0.0581**	**5.0461**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**						**9.3078**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2322					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.4321					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.1528	0.0581	5.0461	2.7000e-004		0.0279	0.0279		0.0279	0.0279						9.3078
Total	**1.8171**	**0.0581**	**5.0461**	**2.7000e-004**		**0.0279**	**0.0279**		**0.0279**	**0.0279**						**9.3078**

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

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Pajaro Susan St Farm Housing

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	121.00	Space	1.09	48,400.00	0
Apartments Low Rise	60.00	Dwelling Unit	2.26	65,144.00	172
Condo/Townhouse	1.00	Dwelling Unit	0.06	975.00	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	186.66	**CH4 Intensity (lb/MWhr)**	0.03	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment factors.

Land Use - Unit count, Acerage, and square footage is based on project discription.

Construction Phase - Based on condtuction duration provided by project applicant. Conservitly assumes all contruction occurs on same year.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Bsed on model defaults.

Trips and VMT - Based on model defaults.

On-road Fugitive Dust - Based on model defaults.

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - 5,100 Cubic yards exported and 11,500 cubic yards imported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Based on information provided and model defaults.

Construction Off-road Equipment Mitigation - Mitigation will use tier 3 engines, will water exposed surfaces 3 times per day, water roads to reduce PM, and speed limit of 15mph.

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Based on model defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	96.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	230.00	204.00
tblConstructionPhase	NumDays	18.00	2.00
tblGrading	AcresOfGrading	10.00	8.00
tblGrading	AcresOfGrading	1.50	7.50
tblGrading	MaterialExported	0.00	5,100.00
tblGrading	MaterialImported	0.00	11,500.00
tblLandUse	LandUseSquareFeet	60,000.00	65,144.00
tblLandUse	LandUseSquareFeet	1,000.00	975.00
tblLandUse	LotAcreage	3.75	2.26
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.03
tblProjectCharacteristics	CO2IntensityFactor	203.98	186.66

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2022	0.6542	2.0781	2.1405	4.5900e-003	0.1338	0.0954	0.2292	0.0456	0.0899	0.1355						415.6913
Maximum	**0.6542**	**2.0781**	**2.1405**	**4.5900e-003**	**0.1338**	**0.0954**	**0.2292**	**0.0456**	**0.0899**	**0.1355**						**415.6913**

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					
2022	0.5341	1.8963	2.3170	4.5900e-003	0.1039	0.1045	0.2083	0.0317	0.1043	0.1361						415.6910
Maximum	**0.5341**	**1.8963**	**2.3170**	**4.5900e-003**	**0.1039**	**0.1045**	**0.2083**	**0.0317**	**0.1043**	**0.1361**						**415.6910**

	ROG	NOx	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	**18.35**	**8.75**	**-8.25**	**0.00**	**22.40**	**-9.50**	**9.13**	**30.35**	**-16.04**	**-0.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2022	4-30-2022	0.7969	0.6900
2	5-1-2022	7-31-2022	0.6737	0.5929
3	8-1-2022	9-30-2022	0.6335	0.5765
		Highest	0.7969	0.6900

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3228	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555
Energy	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						86.5392
Mobile	0.2535	0.3611	2.4607	5.0800e-003	0.4761	4.5100e-003	0.4806	0.1273	4.2100e-003	0.1316						481.4479
Waste						0.0000	0.0000		0.0000	0.0000						14.1114
Water						0.0000	0.0000		0.0000	0.0000						7.9998
Total	**0.5828**	**0.4233**	**3.1148**	**5.4600e-003**	**0.4761**	**0.0124**	**0.4885**	**0.1273**	**0.0121**	**0.1395**						**591.1538**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3228	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555
Energy	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						86.5392
Mobile	0.2448	0.3401	2.3219	4.7300e-003	0.4422	4.2100e-003	0.4465	0.1183	3.9300e-003	0.1222						448.2039
Waste						0.0000	0.0000		0.0000	0.0000						6.7735
Water						0.0000	0.0000		0.0000	0.0000						6.3804
Total	**0.5740**	**0.4023**	**2.9760**	**5.1100e-003**	**0.4422**	**0.0121**	**0.4544**	**0.1183**	**0.0119**	**0.1302**						**548.9525**

	ROG	NOx	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	**1.50**	**4.97**	**4.46**	**6.41**	**7.10**	**2.41**	**6.98**	**7.10**	**2.31**	**6.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.14**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	7/15/2022	11/25/2022	5	96	
2	Site Preparation	Site Preparation	2/1/2022	2/1/2022	5	1	
3	Grading	Grading	2/2/2022	2/15/2022	5	10	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	2/15/2022	11/25/2022	5	204	
5	Paving	Paving	11/28/2022	11/29/2022	5	2	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.09

Residential Indoor: 133,891; Residential Outdoor: 44,630; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,904 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,438.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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					
Archit. Coating	0.4238					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	9.8200e-003	0.0676	0.0871	1.4000e-004		3.9200e-003	3.9200e-003		3.9200e-003	3.9200e-003						12.2756
Total	**0.4336**	**0.0676**	**0.0871**	**1.4000e-004**		**3.9200e-003**	**3.9200e-003**		**3.9200e-003**	**3.9200e-003**						**12.2756**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1800e-003	1.7900e-003	0.0193	5.0000e-005	4.9600e-003	4.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003						4.4092
Total	**2.1800e-003**	**1.7900e-003**	**0.0193**	**5.0000e-005**	**4.9600e-003**	**4.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**						**4.4092**

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	0.4238					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	2.8500e-003	0.0651	0.0880	1.4000e-004		4.5600e-003	4.5600e-003		4.5600e-003	4.5600e-003						12.2756
Total	**0.4267**	**0.0651**	**0.0880**	**1.4000e-004**		**4.5600e-003**	**4.5600e-003**		**4.5600e-003**	**4.5600e-003**						**12.2756**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1800e-003	1.7900e-003	0.0193	5.0000e-005	4.9600e-003	4.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003						4.4092
Total	**2.1800e-003**	**1.7900e-003**	**0.0193**	**5.0000e-005**	**4.9600e-003**	**4.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**						**4.4092**

3.3 Site Preparation - 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					0.0136	0.0000	0.0136	5.4800e-003	0.0000	5.4800e-003						0.0000
Off-Road	1.5900e-003	0.0165	9.8500e-003	2.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004						1.6855
Total	**1.5900e-003**	**0.0165**	**9.8500e-003**	**2.0000e-005**	**0.0136**	**8.1000e-004**	**0.0144**	**5.4800e-003**	**7.4000e-004**	**6.2200e-003**						**1.6855**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2600e-003	0.0553	0.0108	2.0000e-004	5.4200e-003	5.1000e-004	5.9200e-003	1.4900e-003	4.9000e-004	1.9800e-003						20.5791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0000e-005	3.0000e-005	2.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0636
Total	**1.2900e-003**	**0.0554**	**0.0111**	**2.0000e-004**	**5.4900e-003**	**5.1000e-004**	**5.9900e-003**	**1.5100e-003**	**4.9000e-004**	**2.0000e-003**						**20.6427**

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					5.2900e-003	0.0000	5.2900e-003	2.1400e-003	0.0000	2.1400e-003						0.0000
Off-Road	4.7000e-004	9.5300e-003	0.0115	2.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004						1.6855
Total	**4.7000e-004**	**9.5300e-003**	**0.0115**	**2.0000e-005**	**5.2900e-003**	**4.7000e-004**	**5.7600e-003**	**2.1400e-003**	**4.7000e-004**	**2.6100e-003**						**1.6855**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2600e-003	0.0553	0.0108	2.0000e-004	5.4200e-003	5.1000e-004	5.9200e-003	1.4900e-003	4.9000e-004	1.9800e-003						20.5791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0000e-005	3.0000e-005	2.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0636
Total	**1.2900e-003**	**0.0554**	**0.0111**	**2.0000e-004**	**5.4900e-003**	**5.1000e-004**	**5.9900e-003**	**1.5100e-003**	**4.9000e-004**	**2.0000e-003**						**20.6427**

3.4 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					0.0356	0.0000	0.0356	0.0172	0.0000	0.0172						0.0000
Off-Road	9.7400e-003	0.1043	0.0764	1.5000e-004		4.7000e-003	4.7000e-003		4.3300e-003	4.3300e-003						13.1327
Total	**9.7400e-003**	**0.1043**	**0.0764**	**1.5000e-004**	**0.0356**	**4.7000e-003**	**0.0403**	**0.0172**	**4.3300e-003**	**0.0215**						**13.1327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8400e-003	0.1247	0.0244	4.5000e-004	0.0122	1.1500e-003	0.0134	3.3500e-003	1.1000e-003	4.4500e-003						46.3835
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.6000e-004	2.1000e-004	2.3200e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004						0.5300
Total	**3.1000e-003**	**0.1249**	**0.0268**	**4.6000e-004**	**0.0128**	**1.1500e-003**	**0.0140**	**3.5100e-003**	**1.1000e-003**	**4.6100e-003**						**46.9135**

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					0.0139	0.0000	0.0139	6.7100e-003	0.0000	6.7100e-003						0.0000
Off-Road	3.6300e-003	0.0742	0.0950	1.5000e-004		3.7800e-003	3.7800e-003		3.7800e-003	3.7800e-003						13.1327
Total	**3.6300e-003**	**0.0742**	**0.0950**	**1.5000e-004**	**0.0139**	**3.7800e-003**	**0.0177**	**6.7100e-003**	**3.7800e-003**	**0.0105**						**13.1327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8400e-003	0.1247	0.0244	4.5000e-004	0.0122	1.1500e-003	0.0134	3.3500e-003	1.1000e-003	4.4500e-003						46.3835
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.6000e-004	2.1000e-004	2.3200e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004						0.5300
Total	**3.1000e-003**	**0.1249**	**0.0268**	**4.6000e-004**	**0.0128**	**1.1500e-003**	**0.0140**	**3.5100e-003**	**1.1000e-003**	**4.6100e-003**						**46.9135**

3.5 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	0.1740	1.5928	1.6691	2.7500e-003		0.0825	0.0825		0.0776	0.0776						237.7754
Total	**0.1740**	**1.5928**	**1.6691**	**2.7500e-003**		**0.0825**	**0.0825**		**0.0776**	**0.0776**						**237.7754**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	3.2600e-003	0.0866	0.0263	3.1000e-004	9.4100e-003	8.9000e-004	0.0103	2.7200e-003	8.5000e-004	3.5700e-003						30.9378
Worker	0.0228	0.0187	0.2019	4.9000e-004	0.0519	3.7000e-004	0.0522	0.0138	3.4000e-004	0.0141						46.1273
Total	**0.0261**	**0.1052**	**0.2282**	**8.0000e-004**	**0.0613**	**1.2600e-003**	**0.0625**	**0.0165**	**1.1900e-003**	**0.0177**						**77.0650**

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	0.0687	1.4511	1.8231	2.7500e-003		0.0922	0.0922		0.0922	0.0922						237.7751
Total	**0.0687**	**1.4511**	**1.8231**	**2.7500e-003**		**0.0922**	**0.0922**		**0.0922**	**0.0922**						**237.7751**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	3.2600e-003	0.0866	0.0263	3.1000e-004	9.4100e-003	8.9000e-004	0.0103	2.7200e-003	8.5000e-004	3.5700e-003						30.9378
Worker	0.0228	0.0187	0.2019	4.9000e-004	0.0519	3.7000e-004	0.0522	0.0138	3.4000e-004	0.0141						46.1273
Total	**0.0261**	**0.1052**	**0.2282**	**8.0000e-004**	**0.0613**	**1.2600e-003**	**0.0625**	**0.0165**	**1.1900e-003**	**0.0177**						**77.0650**

3.6 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					
Off-Road	9.8000e-004	9.5200e-003	0.0122	2.0000e-005		4.9000e-004	4.9000e-004		4.5000e-004	4.5000e-004						1.6505
Paving	1.4300e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**2.4100e-003**	**9.5200e-003**	**0.0122**	**2.0000e-005**		**4.9000e-004**	**4.9000e-004**		**4.5000e-004**	**4.5000e-004**						**1.6505**

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3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	6.0000e-005	6.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						0.1413
Total	**7.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						**0.1413**

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	4.4000e-004	9.0900e-003	0.0135	2.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004						1.6505
Paving	1.4300e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.8700e-003**	**9.0900e-003**	**0.0135**	**2.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**						**1.6505**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	6.0000e-005	6.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						0.1413
Total	**7.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						**0.1413**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	0.2448	0.3401	2.3219	4.7300e-003	0.4422	4.2100e-003	0.4465	0.1183	3.9300e-003	0.1222						448.2039
Unmitigated	0.2535	0.3611	2.4607	5.0800e-003	0.4761	4.5100e-003	0.4806	0.1273	4.2100e-003	0.1316						481.4479

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	439.20	488.40	376.80	1,259,854	1,170,379
Condo/Townhouse	7.32	8.14	6.28	20,998	19,506
Parking Lot	0.00	0.00	0.00		
Total	446.52	496.54	383.08	1,280,851	1,189,885

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	44.00	18.80	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
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	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264
Condo/Townhouse	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	0.510318	0.050449	0.193738	0.161754	0.029476	0.007237	0.010177	0.006627	0.001593	0.000511	0.023353	0.001504	0.003264

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						22.5629
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						22.5629
NaturalGas Mitigated	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						63.9763
NaturalGas Unmitigated	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						63.9763

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.17096e+006	6.3100e-003	0.0540	0.0230	3.4000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003						62.8582
Condo/Townhouse	20829.4	1.1000e-004	9.6000e-004	4.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005						1.1181
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**6.4200e-003**	**0.0549**	**0.0234**	**3.5000e-004**		**4.4400e-003**	**4.4400e-003**		**4.4400e-003**	**4.4400e-003**						**63.9763**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.17096e+006	6.3100e-003	0.0540	0.0230	3.4000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003						62.8582
Condo/Townhouse	20829.4	1.1000e-004	9.6000e-004	4.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005						1.1181
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**6.4200e-003**	**0.0549**	**0.0234**	**3.5000e-004**		**4.4400e-003**	**4.4400e-003**		**4.4400e-003**	**4.4400e-003**						**63.9763**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	241966				20.6998
Condo/Townhouse	4839.06				0.4140
Parking Lot	16940				1.4492
Total					**22.5629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	241966				20.6998
Condo/Townhouse	4839.06				0.4140
Parking Lot	16940				1.4492
Total					**22.5629**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	0.3228	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555
Unmitigated	0.3228	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0191	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555
Total	**0.3228**	**7.2700e-003**	**0.6308**	**3.0000e-005**		**3.4900e-003**	**3.4900e-003**		**3.4900e-003**	**3.4900e-003**						**1.0555**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0191	7.2700e-003	0.6308	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0555
Total	**0.3228**	**7.2700e-003**	**0.6308**	**3.0000e-005**		**3.4900e-003**	**3.4900e-003**		**3.4900e-003**	**3.4900e-003**						**1.0555**

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

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				6.3804
Unmitigated				7.9998

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.90924 / 2.46452				7.8686
Condo/Townhouse	0.065154 / 0.0410754				0.1311
Parking Lot	0 / 0				0.0000
Total					**7.9998**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.12739 / 1.90784				6.2758
Condo/Townhouse	0.0521232 / 0.0317973				0.1046
Parking Lot	0 / 0				0.0000
Total					**6.3804**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				6.7735
Unmitigated				14.1114

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	27.6				13.8801
Condo/Townhouse	0.46				0.2313
Parking Lot	0				0.0000
Total					**14.1114**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	13.248				6.6624
Condo/Townhouse	0.2208				0.1110
Parking Lot	0				0.0000
Total					**6.7735**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Pajaro Susan St Farm Housing-2030

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	121.00	Space	1.09	48,400.00	0
Apartments Low Rise	60.00	Dwelling Unit	2.26	65,144.00	172
Condo/Townhouse	1.00	Dwelling Unit	0.06	975.00	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	55
Climate Zone	5			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	127.9	**CH4 Intensity (lb/MWhr)**	0.021	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes RPS adjustment factors. Operational only, year 2030, Construction does not apply.

Land Use - Unit count, Acerage, and square footage is based on project discription.

Construction Phase - Based on condtuction duration provided by project applicant. Conservitly assumes all contruction occurs on same year.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Based on model defaults.

Off-road Equipment - Bsed on model defaults.

Trips and VMT - Based on model defaults.

On-road Fugitive Dust - Based on model defaults.

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - 5,100 Cubic yards exported and 11,500 cubic yards imported.

Architectural Coating - Based on model defaults.

Vehicle Trips - Based on information provided and model defaults.

Construction Off-road Equipment Mitigation - Mitigation will use tier 3 engines, will water exposed surfaces 3 times per day, water roads to reduce PM, and speed limit of 15mph.

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - Based on model defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	18.00	96.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	230.00	204.00
tblConstructionPhase	NumDays	18.00	2.00
tblGrading	AcresOfGrading	10.00	8.00
tblGrading	AcresOfGrading	1.50	7.50
tblGrading	MaterialExported	0.00	5,100.00
tblGrading	MaterialImported	0.00	11,500.00
tblLandUse	LandUseSquareFeet	60,000.00	65,144.00
tblLandUse	LandUseSquareFeet	1,000.00	975.00
tblLandUse	LotAcreage	3.75	2.26
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.021
tblProjectCharacteristics	CO2IntensityFactor	203.98	127.9
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.002

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2022	0.6542	2.0781	2.1405	4.5900e-003	0.1338	0.0954	0.2292	0.0456	0.0899	0.1355						415.6913
Maximum	**0.6542**	**2.0781**	**2.1405**	**4.5900e-003**	**0.1338**	**0.0954**	**0.2292**	**0.0456**	**0.0899**	**0.1355**						**415.6913**

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					
2022	0.5341	1.8963	2.3170	4.5900e-003	0.1039	0.1045	0.2083	0.0317	0.1043	0.1361						415.6910
Maximum	**0.5341**	**1.8963**	**2.3170**	**4.5900e-003**	**0.1039**	**0.1045**	**0.2083**	**0.0317**	**0.1043**	**0.1361**						**415.6910**

	ROG	NOx	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	**18.35**	**8.75**	**-8.25**	**0.00**	**22.40**	**-9.50**	**9.13**	**30.35**	**-16.04**	**-0.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2022	4-30-2022	0.7969	0.6900
2	5-1-2022	7-31-2022	0.6737	0.5929
3	8-1-2022	9-30-2022	0.6335	0.5765
		Highest	0.7969	0.6900

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3227	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553
Energy	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						79.4114
Mobile	0.1857	0.2242	1.8014	4.0900e-003	0.4753	3.0800e-003	0.4784	0.1270	2.8800e-003	0.1299						404.3066
Waste						0.0000	0.0000		0.0000	0.0000						14.1114
Water						0.0000	0.0000		0.0000	0.0000						7.1816
Total	**0.5148**	**0.2864**	**2.4537**	**4.4700e-003**	**0.4753**	**0.0110**	**0.4863**	**0.1270**	**0.0108**	**0.1378**						**506.0663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3227	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553
Energy	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						79.4114
Mobile	0.1788	0.2116	1.7021	3.8000e-003	0.4415	2.8800e-003	0.4444	0.1180	2.6900e-003	0.1207						376.3864
Waste						0.0000	0.0000		0.0000	0.0000						6.7735
Water						0.0000	0.0000		0.0000	0.0000						5.7320
Total	**0.5079**	**0.2738**	**2.3544**	**4.1800e-003**	**0.4415**	**0.0108**	**0.4524**	**0.1180**	**0.0106**	**0.1286**						**469.3585**

	ROG	NOx	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	**1.35**	**4.40**	**4.05**	**6.49**	**7.10**	**1.82**	**6.98**	**7.10**	**1.76**	**6.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.25**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	7/15/2022	11/25/2022	5	96	
2	Site Preparation	Site Preparation	2/1/2022	2/1/2022	5	1	
3	Grading	Grading	2/2/2022	2/15/2022	5	10	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	2/15/2022	11/25/2022	5	204	
5	Paving	Paving	11/28/2022	11/29/2022	5	2	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.09

Residential Indoor: 133,891; Residential Outdoor: 44,630; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,904 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,438.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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					
Archit. Coating	0.4238					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	9.8200e-003	0.0676	0.0871	1.4000e-004		3.9200e-003	3.9200e-003		3.9200e-003	3.9200e-003						12.2756
Total	**0.4336**	**0.0676**	**0.0871**	**1.4000e-004**		**3.9200e-003**	**3.9200e-003**		**3.9200e-003**	**3.9200e-003**						**12.2756**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1800e-003	1.7900e-003	0.0193	5.0000e-005	4.9600e-003	4.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003						4.4092
Total	**2.1800e-003**	**1.7900e-003**	**0.0193**	**5.0000e-005**	**4.9600e-003**	**4.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**						**4.4092**

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	0.4238					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	2.8500e-003	0.0651	0.0880	1.4000e-004		4.5600e-003	4.5600e-003		4.5600e-003	4.5600e-003						12.2756
Total	**0.4267**	**0.0651**	**0.0880**	**1.4000e-004**		**4.5600e-003**	**4.5600e-003**		**4.5600e-003**	**4.5600e-003**						**12.2756**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1800e-003	1.7900e-003	0.0193	5.0000e-005	4.9600e-003	4.0000e-005	4.9900e-003	1.3200e-003	3.0000e-005	1.3500e-003						4.4092
Total	**2.1800e-003**	**1.7900e-003**	**0.0193**	**5.0000e-005**	**4.9600e-003**	**4.0000e-005**	**4.9900e-003**	**1.3200e-003**	**3.0000e-005**	**1.3500e-003**						**4.4092**

3.3 Site Preparation - 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					0.0136	0.0000	0.0136	5.4800e-003	0.0000	5.4800e-003						0.0000
Off-Road	1.5900e-003	0.0165	9.8500e-003	2.0000e-005		8.1000e-004	8.1000e-004		7.4000e-004	7.4000e-004						1.6855
Total	**1.5900e-003**	**0.0165**	**9.8500e-003**	**2.0000e-005**	**0.0136**	**8.1000e-004**	**0.0144**	**5.4800e-003**	**7.4000e-004**	**6.2200e-003**						**1.6855**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2600e-003	0.0553	0.0108	2.0000e-004	5.4200e-003	5.1000e-004	5.9200e-003	1.4900e-003	4.9000e-004	1.9800e-003						20.5791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0000e-005	3.0000e-005	2.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0636
Total	**1.2900e-003**	**0.0554**	**0.0111**	**2.0000e-004**	**5.4900e-003**	**5.1000e-004**	**5.9900e-003**	**1.5100e-003**	**4.9000e-004**	**2.0000e-003**						**20.6427**

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					5.2900e-003	0.0000	5.2900e-003	2.1400e-003	0.0000	2.1400e-003						0.0000
Off-Road	4.7000e-004	9.5300e-003	0.0115	2.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004						1.6855
Total	**4.7000e-004**	**9.5300e-003**	**0.0115**	**2.0000e-005**	**5.2900e-003**	**4.7000e-004**	**5.7600e-003**	**2.1400e-003**	**4.7000e-004**	**2.6100e-003**						**1.6855**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2600e-003	0.0553	0.0108	2.0000e-004	5.4200e-003	5.1000e-004	5.9200e-003	1.4900e-003	4.9000e-004	1.9800e-003						20.5791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0000e-005	3.0000e-005	2.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.0636
Total	**1.2900e-003**	**0.0554**	**0.0111**	**2.0000e-004**	**5.4900e-003**	**5.1000e-004**	**5.9900e-003**	**1.5100e-003**	**4.9000e-004**	**2.0000e-003**						**20.6427**

3.4 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					0.0356	0.0000	0.0356	0.0172	0.0000	0.0172						0.0000
Off-Road	9.7400e-003	0.1043	0.0764	1.5000e-004		4.7000e-003	4.7000e-003		4.3300e-003	4.3300e-003						13.1327
Total	**9.7400e-003**	**0.1043**	**0.0764**	**1.5000e-004**	**0.0356**	**4.7000e-003**	**0.0403**	**0.0172**	**4.3300e-003**	**0.0215**						**13.1327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8400e-003	0.1247	0.0244	4.5000e-004	0.0122	1.1500e-003	0.0134	3.3500e-003	1.1000e-003	4.4500e-003						46.3835
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.6000e-004	2.1000e-004	2.3200e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004						0.5300
Total	**3.1000e-003**	**0.1249**	**0.0268**	**4.6000e-004**	**0.0128**	**1.1500e-003**	**0.0140**	**3.5100e-003**	**1.1000e-003**	**4.6100e-003**						**46.9135**

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					0.0139	0.0000	0.0139	6.7100e-003	0.0000	6.7100e-003						0.0000
Off-Road	3.6300e-003	0.0742	0.0950	1.5000e-004		3.7800e-003	3.7800e-003		3.7800e-003	3.7800e-003						13.1327
Total	**3.6300e-003**	**0.0742**	**0.0950**	**1.5000e-004**	**0.0139**	**3.7800e-003**	**0.0177**	**6.7100e-003**	**3.7800e-003**	**0.0105**						**13.1327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8400e-003	0.1247	0.0244	4.5000e-004	0.0122	1.1500e-003	0.0134	3.3500e-003	1.1000e-003	4.4500e-003						46.3835
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.6000e-004	2.1000e-004	2.3200e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004						0.5300
Total	**3.1000e-003**	**0.1249**	**0.0268**	**4.6000e-004**	**0.0128**	**1.1500e-003**	**0.0140**	**3.5100e-003**	**1.1000e-003**	**4.6100e-003**						**46.9135**

3.5 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	0.1740	1.5928	1.6691	2.7500e-003		0.0825	0.0825		0.0776	0.0776						237.7754
Total	**0.1740**	**1.5928**	**1.6691**	**2.7500e-003**		**0.0825**	**0.0825**		**0.0776**	**0.0776**						**237.7754**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	3.2600e-003	0.0866	0.0263	3.1000e-004	9.4100e-003	8.9000e-004	0.0103	2.7200e-003	8.5000e-004	3.5700e-003						30.9378
Worker	0.0228	0.0187	0.2019	4.9000e-004	0.0519	3.7000e-004	0.0522	0.0138	3.4000e-004	0.0141						46.1273
Total	**0.0261**	**0.1052**	**0.2282**	**8.0000e-004**	**0.0613**	**1.2600e-003**	**0.0625**	**0.0165**	**1.1900e-003**	**0.0177**						**77.0650**

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	0.0687	1.4511	1.8231	2.7500e-003		0.0922	0.0922		0.0922	0.0922						237.7751
Total	**0.0687**	**1.4511**	**1.8231**	**2.7500e-003**		**0.0922**	**0.0922**		**0.0922**	**0.0922**						**237.7751**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	3.2600e-003	0.0866	0.0263	3.1000e-004	9.4100e-003	8.9000e-004	0.0103	2.7200e-003	8.5000e-004	3.5700e-003						30.9378
Worker	0.0228	0.0187	0.2019	4.9000e-004	0.0519	3.7000e-004	0.0522	0.0138	3.4000e-004	0.0141						46.1273
Total	**0.0261**	**0.1052**	**0.2282**	**8.0000e-004**	**0.0613**	**1.2600e-003**	**0.0625**	**0.0165**	**1.1900e-003**	**0.0177**						**77.0650**

3.6 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					
Off-Road	9.8000e-004	9.5200e-003	0.0122	2.0000e-005		4.9000e-004	4.9000e-004		4.5000e-004	4.5000e-004						1.6505
Paving	1.4300e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**2.4100e-003**	**9.5200e-003**	**0.0122**	**2.0000e-005**		**4.9000e-004**	**4.9000e-004**		**4.5000e-004**	**4.5000e-004**						**1.6505**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	6.0000e-005	6.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						0.1413
Total	**7.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						**0.1413**

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	4.4000e-004	9.0900e-003	0.0135	2.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004						1.6505
Paving	1.4300e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.8700e-003**	**9.0900e-003**	**0.0135**	**2.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**						**1.6505**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	6.0000e-005	6.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						0.1413
Total	**7.0000e-005**	**6.0000e-005**	**6.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						**0.1413**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	0.1788	0.2116	1.7021	3.8000e-003	0.4415	2.8800e-003	0.4444	0.1180	2.6900e-003	0.1207						376.3864
Unmitigated	0.1857	0.2242	1.8014	4.0900e-003	0.4753	3.0800e-003	0.4784	0.1270	2.8800e-003	0.1299						404.3066

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	439.20	488.40	376.80	1,259,854	1,170,379
Condo/Townhouse	7.32	8.14	6.28	20,998	19,506
Parking Lot	0.00	0.00	0.00		
Total	446.52	496.54	383.08	1,280,851	1,189,885

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	44.00	18.80	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
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	0.542665	0.053981	0.190980	0.137998	0.023024	0.006026	0.010740	0.006461	0.001437	0.000466	0.022504	0.001258	0.002460
Condo/Townhouse	0.542665	0.053981	0.190980	0.137998	0.023024	0.006026	0.010740	0.006461	0.001437	0.000466	0.022504	0.001258	0.002460

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	0.542665	0.053981	0.190980	0.137998	0.023024	0.006026	0.010740	0.006461	0.001437	0.000466	0.022504	0.001258	0.002460

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						15.4351
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						15.4351
NaturalGas Mitigated	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						63.9763
NaturalGas Unmitigated	6.4300e-003	0.0549	0.0234	3.5000e-004		4.4400e-003	4.4400e-003		4.4400e-003	4.4400e-003						63.9763

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.17096e+006	6.3100e-003	0.0540	0.0230	3.4000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003						62.8582
Condo/Townhouse	20829.4	1.1000e-004	9.6000e-004	4.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005						1.1181
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**6.4200e-003**	**0.0549**	**0.0234**	**3.5000e-004**		**4.4400e-003**	**4.4400e-003**		**4.4400e-003**	**4.4400e-003**						**63.9763**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.17096e+006	6.3100e-003	0.0540	0.0230	3.4000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003						62.8582
Condo/Townhouse	20829.4	1.1000e-004	9.6000e-004	4.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005						1.1181
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**6.4200e-003**	**0.0549**	**0.0234**	**3.5000e-004**		**4.4400e-003**	**4.4400e-003**		**4.4400e-003**	**4.4400e-003**						**63.9763**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	241966				14.1605
Condo/Townhouse	4839.06				0.2832
Parking Lot	16940				0.9914
Total					**15.4351**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	241966				14.1605
Condo/Townhouse	4839.06				0.2832
Parking Lot	16940				0.9914
Total					**15.4351**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	0.3227	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553
Unmitigated	0.3227	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0189	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553
Total	**0.3227**	**7.2500e-003**	**0.6290**	**3.0000e-005**		**3.4900e-003**	**3.4900e-003**		**3.4900e-003**	**3.4900e-003**						**1.0553**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000						0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0189	7.2500e-003	0.6290	3.0000e-005		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003						1.0553
Total	**0.3227**	**7.2500e-003**	**0.6290**	**3.0000e-005**		**3.4900e-003**	**3.4900e-003**		**3.4900e-003**	**3.4900e-003**						**1.0553**

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

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				5.7320
Unmitigated				7.1816

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.90924 / 2.46452				7.0639
Condo/Townhouse	0.065154 / 0.0410754				0.1177
Parking Lot	0 / 0				0.0000
Total					**7.1816**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.12739 / 1.90784				5.6380
Condo/Townhouse	0.0521232 / 0.0317973				0.0940
Parking Lot	0 / 0				0.0000
Total					**5.7320**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				6.7735
Unmitigated				14.1114

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	27.6				13.8801
Condo/Townhouse	0.46				0.2313
Parking Lot	0				0.0000
Total					**14.1114**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	13.248				6.6624
Condo/Townhouse	0.2208				0.1110
Parking Lot	0				0.0000
Total					**6.7735**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

11.0 Vegetation