Redlands Boulevard and Hemlock Avenue Gas Station Project

Air Quality and Greenhouse Gas Study

prepared for

A & S Engineering, Inc.
28405 Sand Canyon Road, Suite B
Canyon Country, California 91387
Contact: Ahmad Ghaderi

prepared by

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

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RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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1 Project Description

1.1 Introduction

This study analyzes the potential air quality, health risk, and greenhouse gas (GHG) impacts of the proposed Redlands Boulevard and Hemlock Avenue Gas Station Project (project) located in the city of Moreno Valley, California. Rincon Consultants, Inc. (Rincon) prepared this study for A & S Engineering, Inc. (applicant) for use in support of environmental documentation pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the project's air quality and GHG impacts related to both temporary construction activity and long-term operation of the project. The conclusions of this study are summarized in Table 1.

Table 1 Summary of Impacts

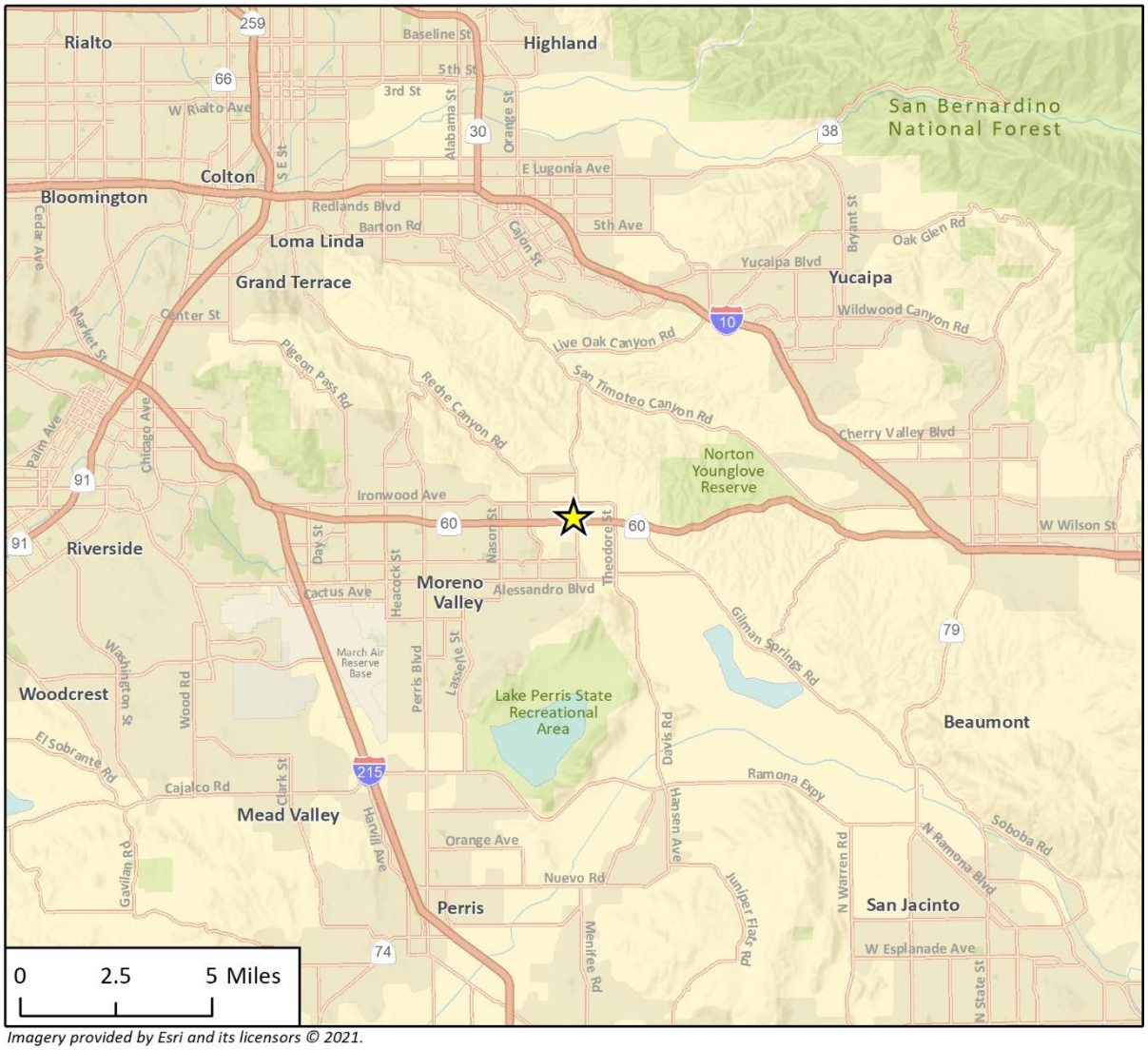
Impact Statement	Proposed Project's Level of Significance	Applicable Recommendations
Air Quality		
Would the project conflict with or obstruct implementation of the applicable air quality plan?	No Impact	None
Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than significant impact	None
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None
Greenhouse Gas Emissions		
Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No Impact	None

1.2 Project Summary

Project Location

The 6.9-acre project site is located in the city of Moreno Valley in Riverside County, California. The project site lies south of the intersection of Redlands Boulevard and Hemlock Avenue (Accessor Parcel Number 488-310-012). The project site is currently vacant. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. Redlands Boulevard borders the project to the east. In addition, the Redlands and Hemlock Booster Station is adjacent to the project's eastern boundary. State Route 60 is approximately 560 feet south of the project site. Figure 1 shows the project site's regional location and Figure 2 shows an aerial view of the project site and surrounding area.

Figure 1 Regional Location



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Project Location

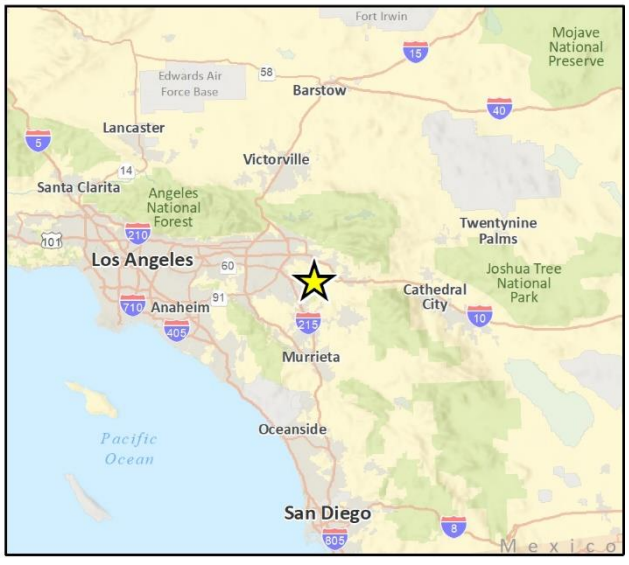
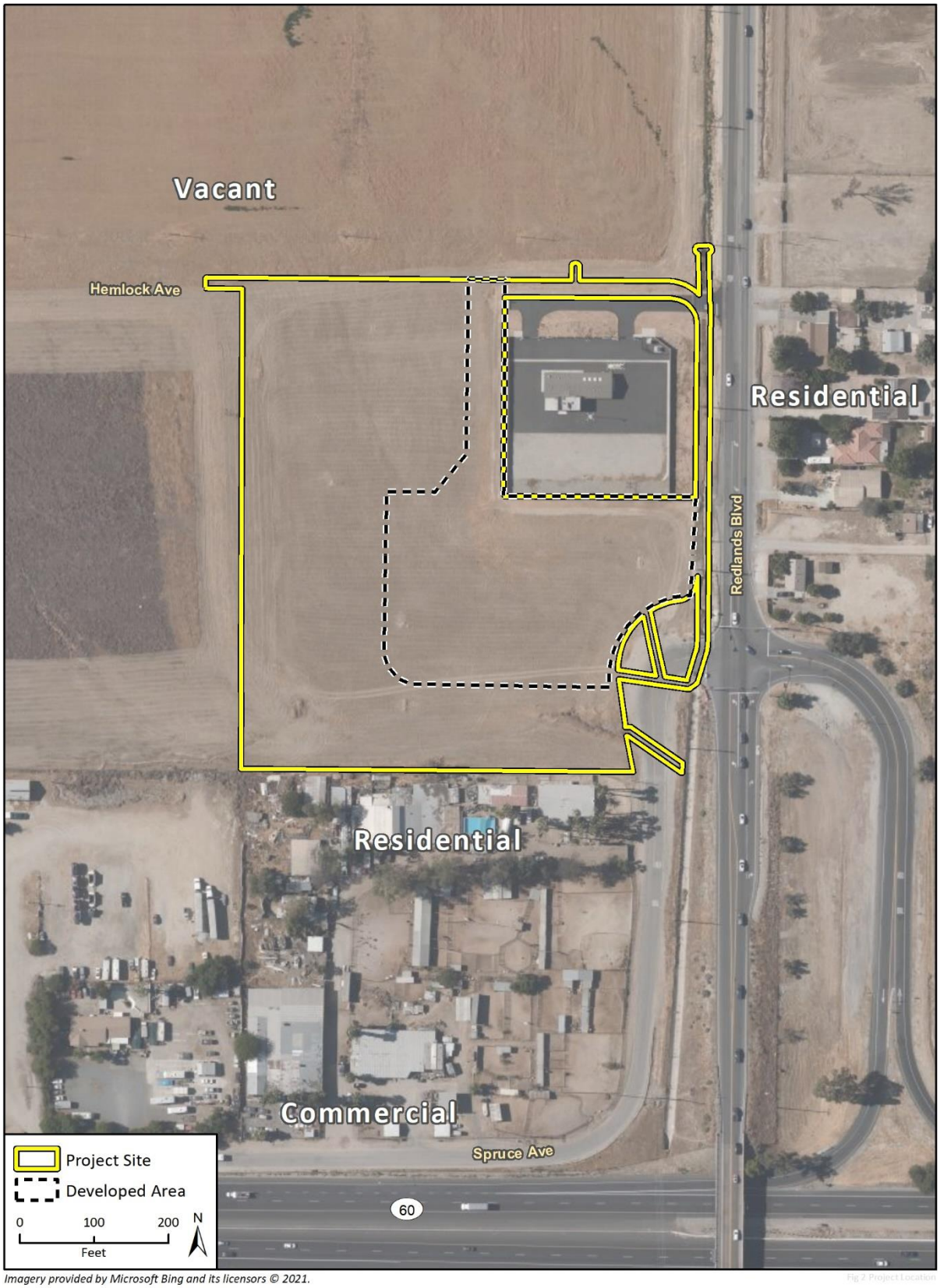


Figure 2 Project Site



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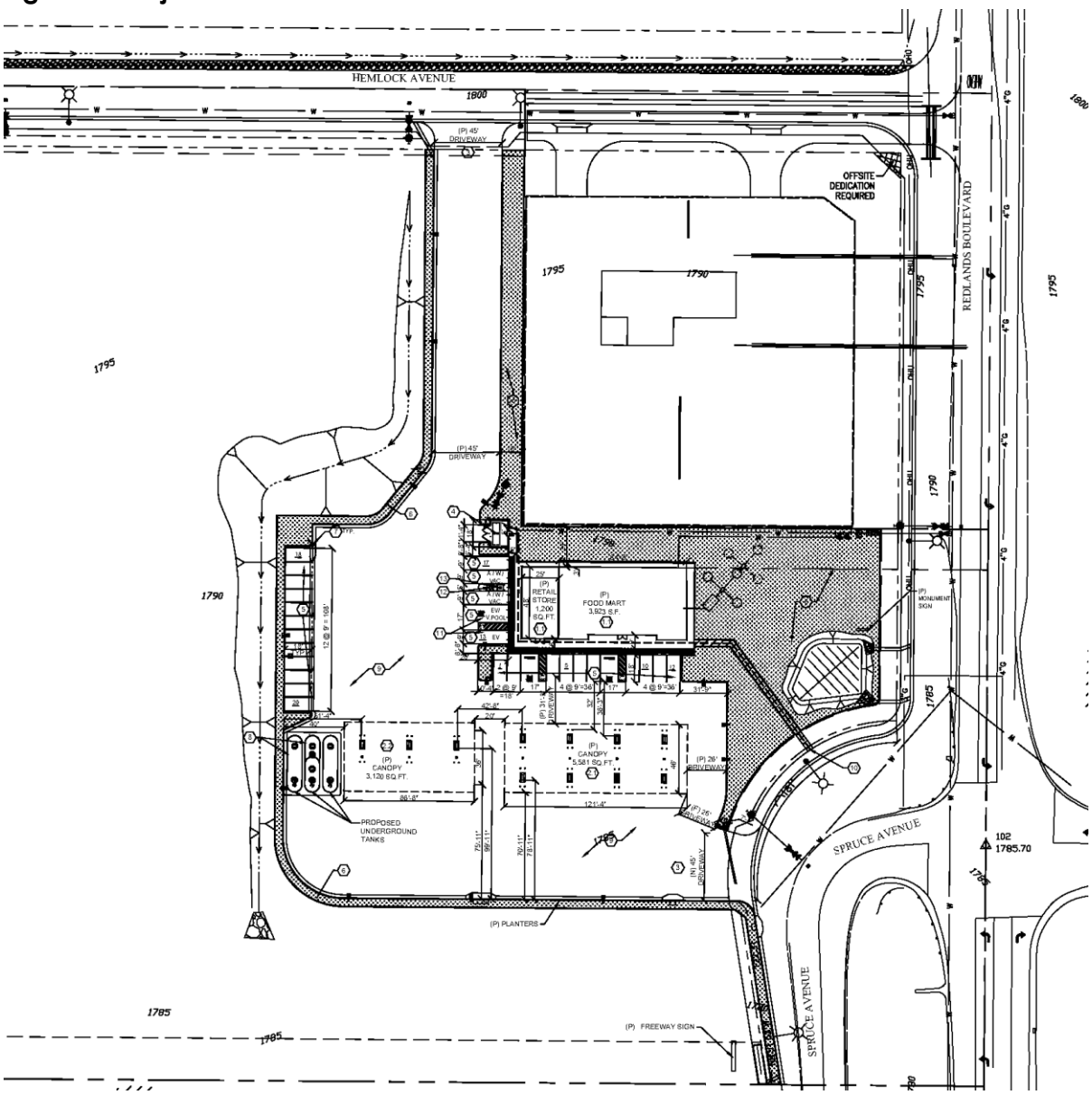
Project Description

The project would include the development of a gas station with 11 fueling stations (16 total dispensers), a 3,923 square foot food mart with 1,200 square feet of office and storage in the mezzanine level, and a 1,200 square foot retail store adjacent to the food mart. Of the 16 dispensers, 14 of the dispensers would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining 2 dispensers would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x 6 foot trash enclosure would also be constructed adjacent to the western boundary of the food mart/retail store. The project would provide a total of 29 parking spaces in a surface lot with two stalls for electric vehicle parking. Additional improvements include curb and sidewalk enhancements and landscaping. Access to the project site would be provided from two driveways with one off Redlands Boulevard and the other driveway off of Hemlock Avenue. Of the 6.9-acre site, only approximately 2.4 acres would be developed; the remaining 4.5 acres would remain undeveloped. An additional 0.63 acres would be improved for off-site modifications (e.g., storm drain improvements) for a total disturbed area of 7.53 acres. Figure 3 shows the project plan layout.

Construction

Construction of the project is proposed to start in January 2022 and estimated to be completed in December 2022 for a total construction period of 12 months. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (e.g. painting). During grading, approximately 300 cubic yards of soil would be exported. All construction would occur within the current conceptual limits of the project. Detailed construction phasing and equipment assumptions are summarized in Section *3.1, Methodology*.

Figure 3 Project Site Plans



2 Background

2.1 Local Climate and Meteorology

The project site is within the South Coast Air Basin (SCAB), which is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The regional climate in the SCAB is semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the SCAB is primarily influenced by meteorology and a wide range of emission sources, such as dense population centers, substantial vehicular traffic, and industry. The South Coast Air Quality and Management District (SCAQMD) monitors and regulates local air quality in Riverside County.

Air pollutant emissions in the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

The predominant wind direction in the vicinity of project site is from the northwest and the average wind speed is approximately five miles per hour. The maximum average daily temperature in the project area is approximately 81 degrees Fahrenheit (ºF), and the minimum average daily temperature is approximately 42ºF. Total precipitation in the project area averages approximately 11 inches annually (Iowa Environmental Mesonet 2021, Weather Currents 2021).

2.2 Air Pollutants of Primary Concern

Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere. Primary criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), fine particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Ozone (O_3) is considered a secondary criteria pollutant because it is created by atmospheric chemical and photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X). The project would generate CO, PM_{10}, $PM_{2.5}$, SO_2, and Pb as well as ozone precursors ROG and NO_X (including NO_2) during construction and operation. These pollutants can have adverse impacts on human health at certain levels of exposure. The following subsections describe the characteristics, sources, and health and atmospheric effects of air pollutants.

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between NO_X and ROG. ROG are composed of non-methane hydrocarbons (with some specific exclusions), and NO_X is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and nitrogen dioxide. NOX are formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. As a highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional rather than local scale, ozone is considered a regional pollutant. In addition, because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans, including changes in breathing patterns, reduction of breathing capacity, increased susceptibility to infections, inflammation of lung tissue, and some immunological changes (SCAQMD 2005a). Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

Carbon monoxide is a localized pollutant that is found in high concentrations only near its source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is the incomplete combustion of petroleum fuels by automobile traffic. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. Other sources of carbon monoxide include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces during the winter. The health effects of carbon monoxide are related to its affinity for hemoglobin in the blood. Carbon monoxide causes a number of health problems, including aggravation of some heart diseases (e.g., angina), reduced tolerance for exercise, impaired mental function, and impaired fetal development. At high levels of exposure, carbon monoxide reduces the amount of oxygen in the blood, leading to mortality (SCAQMD 2005a). Carbon monoxide tends to dissipate rapidly into the atmosphere; consequently, violations of the NAAQS and/or CAAQS for carbon monoxide are generally associated with localized carbon monoxide "hotspots" that can occur at major roadway intersections during heavy peak-hour traffic conditions.

Nitrogen Dioxide

Nitrogen dioxide is a by-product of fuel combustion; the primary sources are motor vehicles and industrial boilers and furnaces. The principal form of NOX produced by combustion is nitric oxide, but nitric oxide reacts rapidly to form nitrogen dioxide, creating the mixture of nitric oxide and nitrogen dioxide commonly called NOX. Nitrogen dioxide is an acute irritant that can aggravate respiratory illnesses and symptoms, particularly in sensitive groups A relationship between nitrogen dioxide and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility (SCAQMD 2005a).

Sulfur Dioxide

Sulfur dioxide is included in a group of highly reactive gases known as "oxides of sulfur." The largest sources of sulfur dioxide emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of sulfur dioxide emissions include industrial

processes such as extracting metal from ore and the burning of fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Sulfur dioxide is linked to a number of adverse effects on the respiratory system, including aggravation of respiratory diseases, such as asthma and emphysema, and reduced lung function (SCAQMD 2005a).

Particulate Matter

Suspended atmospheric PM_{10} and $PM_{2.5}$ is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. Both PM_{10} and $PM_{2.5}$ are directly emitted into the atmosphere as by-products of fuel combustion and wind erosion of soil and unpaved roads. Particulate matter is also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with PM_{10} and $PM_{2.5}$ can be very different. PM_{10} is generally associated with dust mobilized by wind and vehicles while $PM_{2.5}$ is generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems (CARB 2021). More than half of $PM_{2.5}$ that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance. Suspended particulates can also reduce lung function, aggravate respiratory and cardiovascular diseases, increase mortality rates, and reduce lung function growth in children (SCAQMD 2005a).

Lead

Lead is a metal found naturally in the environment, as well as in manufacturing products. The major sources of lead emissions historically have been mobile and industrial sources. However, as a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, atmospheric lead concentrations have declined substantially over the past several decades. The most dramatic reductions in lead emissions occurred prior to 1990 due to the removal of lead from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least in part as a result of national emissions standards for hazardous air pollutants (U.S. EPA 2013). As a result of phasing out leaded gasoline, metal processing currently is the primary source of lead emissions. The highest level of lead in the air is generally found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. The health impacts of lead include behavioral and hearing disabilities in children and nervous system impairment (SCAQMD 2005a).

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about $1/70^{th}$ the diameter of a human hair) and thus is a subset of $PM_{2.5}$. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2021a).

TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

TACs include both organic and inorganic chemical substances. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter; however, TACs may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs commonly associated with gasoline dispensing stations include the organic compounds of benzene, toluene, and xylene. In particular, benzene is a known human carcinogen and can result in short-term acute and long-term chronic health impacts (United States Environmental Protection Agency [U.S. EPA] n.d.). Between 1990 and 2005, benzene in California's air was reduced by over 75 percent due to implementation of control technologies, such as vapor recovery systems, and reductions of benzene levels in gasoline (California Air Resources Board [CARB] 2005). Today, gasoline dispensing facilities account for a relatively small fraction of total benzene emissions. However, near source exposure resulting from gasoline dispensing facilities, particularly very high throughput retail or wholesale facilities, can result in elevated health risks to nearby sensitive receptors.

2.3 Air Quality Regulation

The federal and state governments have authority under the federal and state Clean Air Acts to regulate emissions of airborne pollutants and have established ambient air quality standards (AAQS) for the protection of public health. An air quality standard is defined as "the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harming public health" (CARB 2019a). The U.S. EPA is the federal agency designated to administer air quality regulation, while CARB is the state equivalent in California. Federal and state AAQS have been established for six criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, $PM_{10,}$ $PM_{2.5}$, and lead. AAQS are designed to protect those segments of the public most susceptible to respiratory distress, such as children under the age of 14, the elderly (over the age of 65), persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases (U.S. EPA 2016). In addition, the State of California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards (CARB 2019b and 2019c). The federal and state Clean Air Acts are described in more detail below.

Federal Air Quality Regulations

The Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS). NAAQS have been designated for the following criteria pollutants of primary concern: O_3, CO, NO_2, SO_2, $PM_{10,}$ $PM_{2.5}$, and Pb.

The primary NAAQS "in the judgment of the Administrator[1], based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health," and the secondary standards are to "protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The U.S. EPA classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with the NAAQS. States are required to adopt enforceable plans, known as a State Implementation Plan (SIP), to achieve and maintain air quality meeting the NAAQS. State plans also must control emissions that drift across state lines and harm air quality in downwind states. Table 2 lists the current federal standards for regulated pollutants.

Table 2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
PM_{25}	Annual	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Source: CARB 2016; U.S. EPA 2016

To derive the NAAQS, the U.S. EPA reviews data from integrated science assessments and risk/exposure assessments to determine the ambient pollutant concentrations at which human health impacts occur, then reduces these concentrations to establish a margin of safety (U.S. EPA 2018). As a result, human health impacts caused by the air pollutants discussed above may affect people when ambient air pollutant concentrations are at or above the concentrations established by the NAAQS. The closer a region is to attainting a particular NAAQS, the lower the human health impact is from that pollutant (SJVACPD 2015). Accordingly, ambient air pollutant concentrations below the NAAQS are considered to be protective of human health (CARB 2019a and 2019b). The NAAQS and the underlying science that forms the basis of the NAAQS are reviewed every five years

[1] The term "Administrator" means the Administrator of the U.S. EPA.

to determine whether updates are necessary to continue protecting public health with an adequate margin of safety (U.S. EPA 2015).

NAAQS and CAAQS Attainment Status

California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. If an air basin is not in either federal or state attainment for a particular pollutant, the basin is classified as a nonattainment area for that pollutant. Under the federal and state Clean Air Acts, once a nonattainment area has achieved the air quality standards for a particular pollutant, it may be redesignated to an attainment area for that pollutant. To be redesignated, the area must meet air quality standards and have a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. Areas that have been redesignated to attainment are called maintenance areas. The project is within the SCAB.

The SCAB is designated extreme nonattainment for the federal 8-hour ozone standard (2015), moderate nonattainment for the federal annual $PM_{2.5}$ standard, and serious nonattainment for the federal 24-hour $PM_{2.5}$ standard. The air basin is also designated nonattainment for the state ozone, $PM_{2.5}$, and PM_{10} standards (CARB 2020a).

State Air Quality Regulations

California Clean Air Act

The California Clean Air Act (CCAA) was enacted in 1988 (California Health & Safety Code (H&SC) §39000 et seq.). Under the CCAA, the State has developed the California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the NAAQS. Table 2 lists the current state standards for regulated pollutants. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the federal CAA, the CCAA classifies specific geographic areas as either “attainment” or “nonattainment” areas for each pollutant, based on the comparison of measured data within the CAAQS.

Toxic Air Contaminants

In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: H&SC Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air

quality standards from a children's health perspective, evaluate the statewide air quality monitoring network, and develop any additional air toxic control measures needed to protect children's health.

The SCAQMD regulates TAC emissions in the SCAB. SCAQMD's Rule 1401, *New Source Review of Toxic Air Contaminants*, establishes limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard indices from new permit units, relocations, or modifications to existing permit units emitting various TACs. Benzene, including benzene from gasoline, is included on SCAQMD's list of TACs subject to cancer risk and non-cancer hazard index limits.

State Implementation Plan

The SIP is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

As the regional air quality management district, the ICAPCD is responsible for preparing and implementing the portion of the SIP applicable to the portion of the SSAB within its jurisdiction. The air pollution control district for each county adopts rules, regulations, and programs to attain federal and state air quality standards and appropriates money (including permit fees) to achieve these objectives.

Local Air Quality Regulations

As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SSAB is classified as being in "attainment" or "nonattainment." In areas designated as non-attainment for one or more air pollutants, a cumulative air quality impact exists for those air pollutants, and the human health impacts described in Section *2.2* Air Pollutants of Primary Concern*,* are already occurring in that area as part of the environmental baseline condition.

Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SCAQMD adopted the Final 2016 Air Quality Management in March 2017 to reach attainment for federal and state standards. It incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 ppm that was finalized in 2015. The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Governments' (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP.

The plan builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The plan also demonstrates strategies for attainment of the new federal 8-hour ozone standard and vehicle miles traveled (VMT) emissions offsets, pursuant to recent U.S. EPA requirements (SCAQMD 2017a).

Project-level significance thresholds established by local air districts set the level at which a project would cause or have a cumulatively considerable contribution to an exceedance of a federal or state ambient air quality standard. Therefore, if a project's air pollutant emissions exceed the significance thresholds, the project could cause or contribute to the human health impacts.

To minimize potential impacts from project emissions, the SCAQMD implements rules and regulations for emissions that may be generated by various uses and activities. The rules and regulations detail pollution-reduction measures that must be implemented during construction and operation of projects. Rules and regulations relevant to the project include the following:

- **Rule 403 (Fugitive Dust).** This rule pertains to any activity or man-made condition capable of generating fugitive dust. The rule has best available control measures that are applicable to all construction activity sources. The new construction would be required to comply with all provisions of Rule 403, including the following measures:
  - All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD Rule 403.
  - The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.
  - All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 mph), so as to prevent excessive amounts of dust.
  - All dirt/soil shall be secured by trimming, watering, or other appropriate means to prevent spillage and dust.
  - All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
  - General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
  - Trucks having no current hauling activity shall not idle but be turned off.
  - Exposed surfaces shall be maintained at a minimum soil moisture of 12 percent and vehicle speeds shall be limited to 15 miles per hour on unpaved roads.
- **Rule 461 (Gasoline Transfer and Dispensing).** This rule applies to the transfer of gasoline from any tank truck, trailer, or railroad tank car into any stationary storage tank or mobile fueler, and from any stationary storage tank or mobile fueler into any mobile fueler or motor vehicle fuel tank. This rule has specific requirements for how facility equipment and operation.

- **Rule 1113 (Architectural Coatings).** This rule limits the content of VOCs in architectural coatings that are supplied, sold, offered for sale, and manufactured within the Air District. Effective January 1, 2019, all building envelope coatings were limited to a VOC content of 50 grams per liter (SCAQMD 2016).

In addition, the following California Code of Regulations would be applicable to the project:

- **Engine Idling.** In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.
- **Emission Standards.** In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

City of Moreno Valley

The City of Moreno Valley 2040 General Plan was adopted on June 15, 2021. It lists several air quality policies as part of its Environmental Justice Element that supplement those of the SCAQMD. The following policies are applicable to the proposed project (City of Moreno Valley 2021a):

- **EJ.1-1**: Coordinate air quality planning efforts with other local, regional, and State agencies
- **EJ.1-4**: Collaborate with SCAQMD and other reginal partners in the development and implementation of Community Emissions Reduction Plans, consistent with State mandates.
- **EJ.1-6**: Ensure that construction and grading activities minimize short-erm impacts to air quality by employing appropriate mitigation measures and best practices.
- **EJ.1-8**: Support the incorporation of new technologies and design and construction techniques in new development that minimize pollution and its impacts.
- **EJ.1-9**: Designate truck routes that avoid sensitive land uses, where feasible.

2.4 Current Air Quality

The SCAQMD operates a network of air quality monitoring stations throughout the SCAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The monitoring station located closest to the project site is the Perris station (located at 237 1/2 North D Street in Perris), approximately 16 miles southwest of the project site. This station was used for the 8-hour ozone, hourly ozone, and PM_{10} measurements. For the nitrogen dioxide and $PM_{2.5}$ measurements, the Riverside-Rubidoux station (located at 5888 Mission Boulevard in Riverside) was used. This station is approximately 17 miles northeast of the project site. Table 3 indicates the number of days that each of the standards has been exceeded at Perris station. As shown therein, the federal and state eight-hour ozone standards, the state worst ozone hour standard, the state PM_{10} standard, and the state $PM_{2.5}$ standard were all exceeded in 2017, 2018, and 2019. No other state or federal standards were exceeded at these monitoring stations.

Table 3 Ambient Air Quality at the Nearest Monitoring Stations

Pollutant	2018	2019	2020
8 Hour Ozone (ppm), 8-Hour Average[1]	0.103	0.095	0.106
Number of Days of state exceedances (>0.070 ppm)	68	66	77
Number of days of federal exceedances (>0.070 ppm)	67	64	74
Ozone (ppm), Worst Hour[1]	0.117	0.118	0.125
Number of days of state exceedances (>0.09 ppm)	31	28	34
Nitrogen Dioxide (ppm) - Worst Hour[2]	0.068	0.058	0.062
Number of days of state exceedances (>0.18 ppm)	0	0	0
Number of days of federal exceedances (>0.10 ppm)	0	0	0
Particulate Matter 10 microns, μg/m^3, Worst 24 Hours[1]	64.4	97.0	92.3
Number of days of state exceedances (>50 μg/m^3)	2	4	*
Number of days above federal standard (>150 μg/m^3)	0	0	*
Particulate Matter <2.5 microns, μg/m^3, Worst 24 Hours[2]	50.3	66.3	55.7
Number of days above federal standard (>35 μg/m^3)	7	3	5

[1] Measurements were taken from the Perris Station

[2] Measurements taken from the Riverside-Rubidoux Station.

*Insufficient data available to determine the value.

Source: CARB 2021b

Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses considered more sensitive to air pollution than others due to the types of population groups or activities involved are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, religious facilities, and daycare centers. SCAQMD Risk Assessment Procedures define receptors as any location outside the boundaries of a facility at which a person could experience repeated, continuous exposure. The procedures further note that sensitive receptors include any residence (e.g., private homes, condominiums, apartments, and living quarters), schools (including preschools and daycare centers), health facilities (e.g., hospitals, retirement and nursing homes, long-term care hospitals, hospices), as well as prisons, dormitories, or similar live-in housing where children, chronically ill individuals, or other sensitive persons could be exposed to TACs (SCAQMD 2017b).

The sensitive receptors nearest to the project site are single-family residences adjacent to the project's parcel southern boundary. However, these residences are approximately 125 feet south of the main project site where the fuel stations and convince market would be sited. Additional single-family residences are located approximately 125 feet east of the project site across Redlands Boulevard. SCAQMD Risk Assessment Procedures also recommend assessment of potential health risks at nearby occupational receptors. Therefore, the Health Risk Assessment (HRA) performed for the project, further discussed under Threshold 3, also considers impacts to off-site workers at adjacent commercial land uses immediately south of the project site along Spruce Avenue.

3 Air Quality Impact Analysis

3.1 Methodology

The project's construction and operational emissions were estimated using the California Emissions Estimator Model (CalEEMod), version 2021.4.0. CalEEMod uses project-specific information, including the project's land uses, square footages for different uses, and location, to estimate a project's construction and operational emissions. The modeling also incorporated the CARB adjustment factors to account for the Safer Affordable Fuel-Efficient (SAFE) vehicles rules and actions adopted by the US EPA and the National Highway Safety Administration in 2019 and 2020. The off-model adjustment factors apply to NO_x, CO, particulate matter, and total organic gases (TOG). The TOG off-model adjustment factors apply to ROG, while the PM adjustment factors apply to both PM_{10} and $PM_{2.5}$ (CARB 2019d). These off-model adjustments apply to gasoline-fueled light duty and medium vehicles for construction and operational emissions (CAPCOA 2021). The construction and operational models include the CARB's off-model adjustment factors for the Emission FACtor 2017 (EMFAC2017) model.

Construction

Construction emissions modeled include emissions generated by construction equipment used on the site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips. Per the project applicant, construction would start in January 2022. The construction schedule and equipment list were generated by CalEEMod using default values. Construction would be approximately 12 months under this schedule. All equipment was assumed to be diesel fueled. This analysis assumes that the project would comply with all applicable regulatory standards. In particular, the project would comply with SCAQMD Rule 403 for dust control measures and Rule 1113 for architectural coating VOC limits, which are discussed under Section 2.3, *Air Quality Regulation*.

Operation

The first year of operation was assumed to be 2023. Operational emissions modeled include mobile source emissions (i.e., vehicle emissions), energy emissions, and area source emissions. Mobile source emissions are generated by vehicle trips to and from the project site. The daily trip generation rate was sourced from the *ARCO AM/PM Service Station Traffic Impact Analysis* (Ganddini Group, Inc. 2019). Emissions attributed to energy use include emissions from lighting the parking lot. Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coatings.

Health Risk Assessment

To evaluate the potential impacts of TACs emitted during operation of the proposed gas station component of the project, Rincon completed an HRA using CARB's Hotspots Analysis and Reporting Program (HARP 2) model (version 19121). Potential health risks to nearby sensitive receptors from the emission of TACs during operations at the proposed gasoline fueling facility were analyzed in accordance with the SCAQMD's *Risk Assessment Procedures for Rules 1401, 1401.1 and 212* (SCAQMD 2017b, 2020), *AB 2588 and Rule 1402 Supplemental Guidelines* (SCAQMD 2018),

California Air Pollution Control Officers Association's (CAPCOA) *Gasoline Service Station Industrywide Risk Assessment Guidelines* (CAPCOA 1997), and the OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015).

According to the SCAQMD's Risk Assessment Procedures, benzene, naphthalene, and ethylbenzene are the only TACs with cancer toxicity values from gasoline dispensing facilities, with benzene accounting for nearly 85 percent of cancer risk from gasoline. Furthermore, under the maximum permitted cancer risk of 10 in one million, maximum acute and chronic hazard indices are much lower than SCAQMD's acute and chronic threshold of 1.0. The SCAQMD Risk Assessment Procedures conclude that chronic and acute non-cancer health effects do not need to be calculated for gasoline dispensing facilities (SCAQMD 2017). Therefore, the risk analysis contained in this report only evaluates cancer risk associated with exposure to benzene, ethylbenzene, and naphthalene emissions. Additionally, while the gas station may include diesel fueling, benzene concentrations in diesel fuel are on the order of 0.02 percent by volume (International Agency on Research for Cancer 1989). As a result, benzene emissions from diesel fuel vapors are not substantial, and this source is not considered in this analysis.

Emissions & Air Dispersion Modeling

HARP 2 incorporates the latest compiled version of the U.S. EPA's AERMOD atmospheric dispersion modeling system. SCAQMD's 2017 Risk Assessment Procedures include methodology for modeling benzene, ethylbenzene, and naphthalene emission sources commonly associated with gasoline dispensing stations (Appendix X of SCAQMD 2017b). In accordance with this methodology, TAC emissions were modeled in AERMOD based on five primary emissions sources associated with gasoline dispensing stations:

- **Loading.** Loading emissions are point source emissions that occur when fuel tanker trucks unload gasoline to the storage tanks, displacing storage tank vapors and causing emissions through the vent pipe.
- **Breathing.** Breathing emissions are driven by temperature and pressure changes in the storage tank and, like loading emissions, are considered a point source for modeling purposes.
- **Refueling.** Refueling emissions are those that occur between the vehicle/nozzle interface. In AERMOD, refueling is modeled as a volume source.
- **Spillage.** Spillage emissions result from evaporating gasoline that spills during vehicle fueling. In AERMOD, spillage is modeled as a volume source.
- **Hose Permeation.** These emissions occur when gasoline, in liquid or vapor form, diffuses through the hose's outer surface to the atmosphere. Hose permeation is modeled as a volume source.

The location of vent pipes is currently unknown, loading and breathing emissions sources were sited at the location of proposed underground gasoline tanks in the southern portion of the project site. Refueling, spillage, and hose permeation sources were sited at the center of the pump canopy, as such emissions would occur throughout the refueling area.

SCAQMD procedures recommend gas station point source and volume source AERMOD parameters, provided in Table 4. According to the project site plan, the gasoline pump canopy dimensions would be approximately 37 meters by 12 meters. Therefore, side dimensions for the gasoline volume sources were adjusted to 25 meters, based on the average side dimension of the refueling area. The

gasoline storage tank vents were assumed to have a rain cap and an initial gasoline vapor vertical exit velocity of 0.01 meters per second. Flagpole height was not applied, consistent with SCAQMD Modeling Guidance for AERMOD, which states that flagpole receptors are only necessary for analyses that have instances where sensitive receptors are located on patios/decks at nearby high-rise apartment buildings (SCAQMD 2020). The nearby sensitive receptors are in single-family residences that are ground-level.

Table 4 Source Modeling Parameters

		Point Source Parameters			Volume Source Parameters	
Emissions Source	Release Height (m)	Diameter (m)	Temperature (Gas) (K)	Exit Velocity (m/s)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)
Gasoline Service Station						
Loading	3.7	0.05	289	0.01[1]	–	–
Breathing	3.7	0.05	289	0.01[1]	–	–
Refueling	1	–	–	–	5.81[2]	2.33[3]
Spillage	0 (ground level)	–	–	–	5.81[2]	2.33[3]
Hose Permeation	1	–	–	–	5.81[2]	2.33[3]

[1] Assumes vents are equipped with a rain cap. Based on CAPCOA guidance for a Scenario 6B, which is a facility with an underground storage tank and Phase I and II vapor recovery system with vent values.

[2] Assumes an average pump canopy dimension of 25 meters, divided by 4.3 per HARP 2 standard.

[3] This value is based on an approximate canopy height of 5 meters recommended by SCAQMD (2017b), divided by 2.15.

Source: SCAQMD 2017b

SCAQMD procedures assume continuous gas station operation year-round, with 80 percent of daily emissions occurring between 6 a.m. and 8 p.m. and 20 percent of the daily emissions occurring between 8 p.m. and 6 a.m. (SCAQMD 2017b). The variable emission rates function in HARP 2 was used to model this temporal emissions distribution.

SCAQMD procedures provide benzene, ethylbenzene, and naphthalene emissions factors per 1,000 gallons of throughput. SCAQMD Rule 461 requires all gasoline dispensing stations to be equipped with Phase I and Phase II Enhanced Vapor Recovery (EVR) technology, which reduce emissions during tanker truck off-loading (loading emissions) and vehicle refueling, respectively. Generally, SCAQMD's emission factors are based on CARB's *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities* (CARB 2013), which assume use of Phase I EVR systems for loading emissions and Phase II EVR systems for spillage emissions. According to information provided by the applicant, modeling conservatively assumes a throughput of six million gallons annually, or 500,000 gallons per month. Table 5 summarizes SCAQMD provided benzene, ethylbenzene, and naphthalene emission factors and the corresponding maximum annual and hourly emissions rates, assuming a six million-gallon annual throughput.

Table 5 Benzene Emissions by Source

Emissions Source	SCAQMD Emissions Factor (lbs/1,000 gallons)	Annual Emissions (lbs/year)[1]	Average Hourly Emissions (lbs/hour)
Benzene			
Loading	6.83×10^{-4}	4.10×10^{0}	4.68×10^{-4}
Breathing	1.09×10^{-4}	6.54×10^{-1}	7.47×10^{-5}
Refueling	1.46×10^{-3}	8.76×10^{0}	1.0×10^{-3}
Spillage	1.07×10^{-3}	1.02×10^{1}	1.16×10^{-3}
Hose Permeation	4.10×10^{-5}	2.46×10^{-1}	2.81×10^{-5}
Ethylbenzene			
Loading	1.61×10^{-4}	9.66×10^{-1}	1.10×10^{-4}
Breathing	2.57×10^{-5}	1.54×10^{-1}	1.76×10^{-5}
Refueling	3.42×10^{-4}	2.05×10^{0}	2.34×10^{-4}
Spillage	3.10×10^{-3}	1.86×10^{1}	2.12×10^{-3}
Hose Permeation	9.63×10^{-6}	5.78×10^{-2}	6.60×10^{-6}
Naphthalene			
Loading	6.00×10^{-7}	3.60×10^{-3}	4.11×10^{-7}
Breathing	9.60×10^{-8}	5.76×10^{-4}	6.58×10^{-8}
Refueling	1.28×10^{-6}	7.68×10^{-3}	8.77×10^{-7}
Spillage	4.18×10^{-4}	2.51×10^{0}	2.86×10^{-4}
Hose Permeation	3.60×10^{-8}	2.16×10^{-4}	2.47×10^{-8}

lbs/year = pounds per year

[1] Assumes six million gallons of annual throughput.

Source: SCAQMD 2017b.

Downwash from the proposed on-site quick service restaurant and convenience market building was modeled using the Building Profile Input Program (BPIP – a building preprocessing program for AERMOD). Building sizes and locations were estimated from the project site plan and Google Earth aerial imagery.

AERMOD requires meteorological and topographic data. Pre-processed meteorological data was obtained from SCAQMD's Perris' Station, which similar to the project site is located in source receptor area (SRA) 24. The dataset was developed by SCAQMD for use in AERMOD and includes 5 years of meteorological data between 2010 and 2016 (i.e., 2010-2011 and 2014-2016). AERMOD's Urban Dispersion option and a 2,189,641 population for Riverside County was applied. This application is consistent with SCAQMD's Modeling Guidance for AERMOD (SCAQMD 2017b). A 30-meter resolution topographic digital elevation model (DEM) in the northwestern portion of Riverside County was used (i.e., Sunnymead DEM file) (CARB 2021c).

Risk Analysis

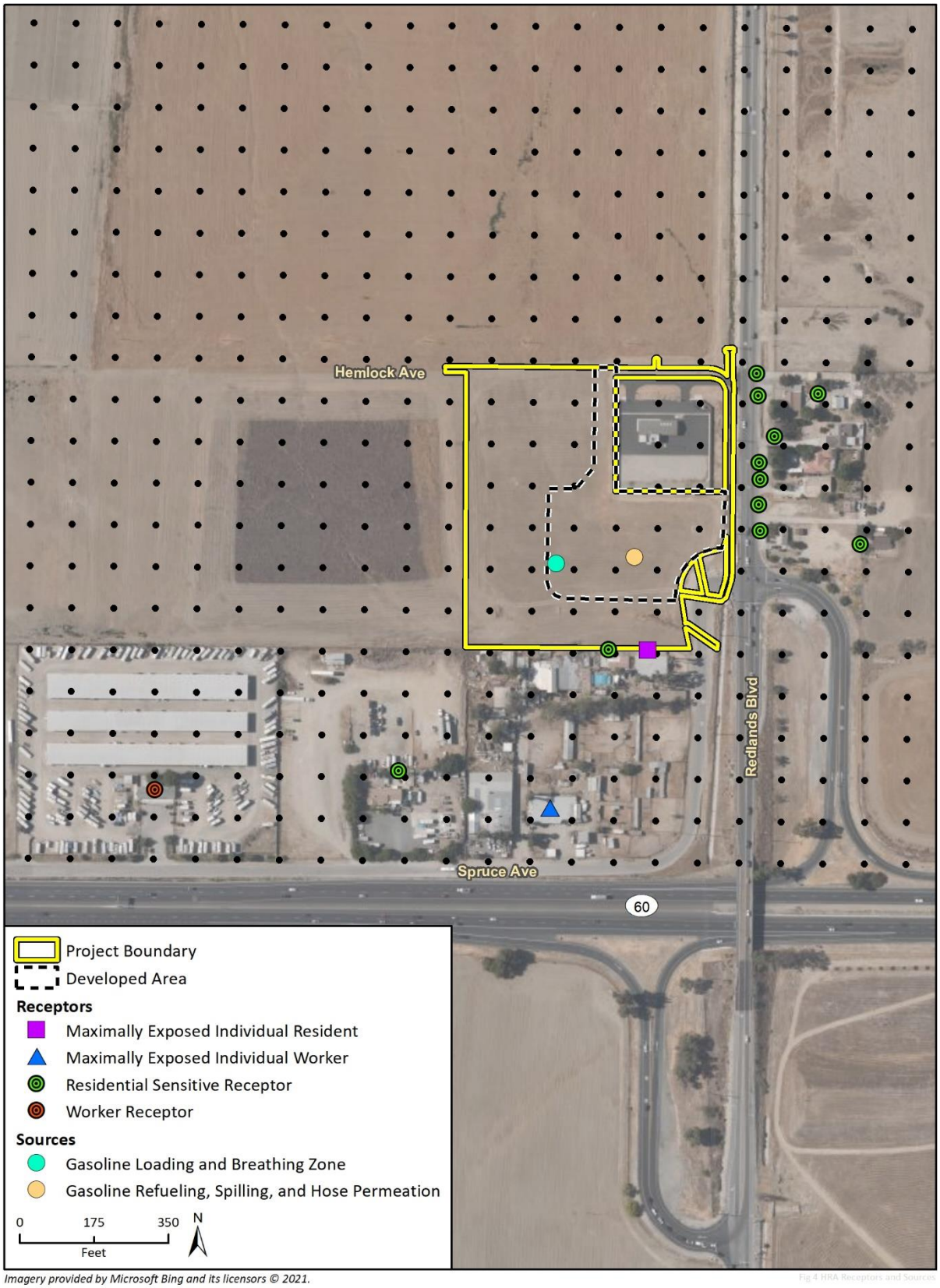
To develop risk contours and ensure the area of maximum impact was captured, receptors were placed in a Cartesian grid 720 meters by 720 meters, centered on the project site with a grid spacing

of 30 meters. Additionally, to determine cancer risk for the Maximum Exposed Individual Resident (MEIR), ground level concentrations were modeled at 12 adjacent residential receptors. To determine cancer risk for the Maximum Exposed Individual Worker (MEIW), ground level concentrations were modeled at two adjacent off-site commercial buildings. For modeling purposes, the location of these receptors was conservatively sited at the property line nearest the project site. Receptors were located along Redlands Boulevard east of the project site. For the receptors south of the project site, they were located along the project's southern boundary that is adjacent to the property boundaries of the single-family residences. Additionally, property boundary receptors were modeled along the edge of the project site at 10-meter spacing. Figure 4 shows emissions sources and receptor locations.

Following the calculation of ground level concentrations, residential cancer risks were calculated for a 30-year exposure duration using the Risk Management Policy (RMP) and the Derived Method by selecting HARP 2's Inhalation, Soil Ingestion, Dermal, Mother's Milk, and Homegrown Produce pathways. Pursuant to SCAQMD Risk Assessment Procedures, residents age 16 and older were assumed to spend 73 percent of their time at home. Residents under age 16 were assumed to attend a school or daycare proximate to their home, and therefore, fraction of time at home values were not applied to this age group. (For off-site worker receptors, cancer risk was calculated using the OEHHA Derived Method for the Inhalation, Soil, and Dermal exposure pathways. A 25-year exposure duration for worker receptors was modeled. For all risk scenarios, a deposition rate of 0.02 meters/second was applied, and a warm climate was assumed for the dermal pathway pursuant to SCAQMD guidance (SCAQMD 2020).

Finally, for comparison with applicable SCAQMD thresholds, overall cancer burden associated with the project was calculated. Cancer burden evaluates the potential population-level increase in cancer risk and is defined as the increases in cancer cases in the population due exposure to TACs from a project. Pursuant to OEHHA, cancer burden uses a 70-year exposure duration and only evaluates residential exposure. In this analysis, cancer burden was calculated by estimating the number of residents that could be exposed to an incremental excess cancer risk of 1 in 1 million and multiplying the number of exposed residents by the estimated incremental excess cancer risk of the maximum exposed individual resident (MEIR) at the 70-year exposure duration. The number of residents that could be exposed to an incremental excess cancer risk was estimated by counting the number of residences in or touching the 1 in 1 million risk isopleth at the 70-year exposure duration (eight residences for this project) and assuming that each residence contains 3.85 individuals, the average household size in the city of Moreno Valley (California Department of Finance 2020).

Figure 4 Emissions Sources and Receptors



Imagery provided by Microsoft Bing and its licensors © 2021.

Fig 4 HRA Receptors and Sources

3.2 Significance Thresholds

To determine whether a project would result in a significant impact to air quality, Appendix G of the *CEQA Guidelines* requires consideration of whether a project would:

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

The SCAQMD has adopted guidelines for quantifying and determining the significance of air quality emissions.

SCAQMD Significance Thresholds

The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB, shown in Table 6, are used to evaluate a project's potential air quality impacts.

Table 6 SCAQMD Air Quality Significance Thresholds

Pollutant	Construction (Pounds per Day)	Operation (Pounds per Day)
NO_x	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550

NO_x = Nitrogen Oxides; VOC = Volatile Organic Compounds; PM_{10} = Particulate Matter with a diameter no more than 10 microns; $PM_{2.5}$ = Particulate Matter with a diameter no more than 2.5 microns; SO_x = Sulfur Oxide; CO = Carbon Monoxide

Source: SCAQMD 2019

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each SRA, distance to the sensitive receptor, and project size. LSTs have been developed for emissions within construction areas up to five acres in size. However, LSTs only apply to emissions in a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008a, 2009). As such, LSTs are typically

applied only to construction emissions because the majority of operational emissions are associated with project-generated vehicle trips.

The SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. If a site is greater than five acres, SCAQMD recommends a dispersion analysis be performed. The project parcel totals approximately 6.9 acres, but project construction would only disturb an area of approximately 2.4 acres. Therefore, this analysis utilizes the 2-acre LSTs. LSTs are provided for receptors at a distance of 82 feet (25 meters) 164 feet (50 meters), 328 feet (200 meters), 1,640 feet (500 meters) from the project disturbance boundary to the sensitive receptors. The main construction activity would occur approximately 125 feet (38 meters) north of the closest sensitive receptor, which is a single-family residential property. Therefore, the allowable emissions for 125 feet were linearly interpolated using the emissions at 82 feet and 164 feet at SRA-24 (Perris Valley) LSTs for construction in SRA-24 on a 2-acre site with a receptor 125 feet away are shown in Table 7.

Table 7 SCAQMD LSTs for Construction

Pollutant	Allowable Emissions for a 2-acre Site in SRA-24 for a Receptor 125 Feet Away (pounds per day)
Gradual conversion of NO_X to NO_2	162
CO	1,080
PM_{10}	14
$PM_{2.5}$	5

NO_x = Nitrogen Oxides; NO_2 = Nitrogen Dioxide; CO = Carbon Monoxide; PM_{10} = Particulate Matter with a diameter no more than 10 microns; $PM_{2.5}$ = Particulate Matter with a diameter no more than 2.5 microns

Source: SCAQMD 2009

Toxic Air Containments Thresholds

SCAQMD has developed significance thresholds for the emissions of TACs based on health risks associated with elevated exposure to such compounds. For carcinogenic compounds, cancer risk is assessed in terms of incremental excess cancer risk. A project would result in a potentially significant impact if it would generate an incremental excess cancer risk of 10 in 1 million (1×10^{-6}) or a cancer burden of 0.5 excess cancer cases in areas exceeding 1 in 1 million risk. Additionally, non-carcinogenic health risks are assessed in terms of a hazard index. A project would result in a potentially significant impact if it would result in a chronic and acute hazard index greater than 1.0 (SCAQMD 2019).

3.3 Impact Analysis

Threshold 1:	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 THE PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT THE IMPLEMENTATION OF THE SCAQMD FINAL 2016 AIR QUALITY MANAGEMENT PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates local city general plans and the SCAG's 2016 RTP/SCS socioeconomic forecast projections of regional population, housing, and employment growth (SCAQMD 2017a, SCAG 2016a).[2]

The employment growth forecasts in SCAG's 2016 RTP/SCS for the City estimate that the total number of jobs would increase from 31,400 in 2012 to 83,200 in 2040, for an increase of 51,800 jobs (SCAG 2016b). The minor increase in employment anticipated from a gas station with convenience store would be within the SCAG's project 2040 employment increase of 51,800 from 2012, and the project would not cause the City to exceed official regional employment projections.

In addition, the AQMP provides strategies and measures to reach attainment with the thresholds for 8-hour and 1-hour ozone and $PM_{2.5}$. As shown in Table 8 and Table 9, below, the project would not generate criteria pollutant emissions that would exceed SCAQMD thresholds for ozone precursors (ROG and NOX) and $PM_{2.5}$. Since the project's employment would be within SCAG 2016 forecasts, the project would be consistent with the AQMP. Impacts would be less than significant.

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

Impact AQ-2 PROJECT CONSTRUCTION AND OPERATION WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF A CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction Emissions

Project construction would involve site preparation, grading, building construction, paving, and architectural coating activities that have the potential to generate air pollutant emissions. Table 8 summarizes the estimated maximum daily emissions of VOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed the SCAQMD regional thresholds or LSTs. Furthermore, the project would implement all standard mitigation measures to control fugitive PM_{10} dust. Therefore, project construction would not result in a cumulatively considerable net increase of criteria pollutant, and impacts would be less than significant.

[2] On September 3, 2020, SCAG's Regional Council formally adopted the 2020-2045 RTP/SCS (titled Connect SoCal). However, the SIPs were adopted prior to this date and relies on the demographic and growth forecasts of the 2016-2040 RTP/SCS; therefore, these forecasts are utilized in the analysis of the project's consistency with the AQMP.

Table 8 Project Construction Emissions

	Maximum Daily Emissions (lbs/day)					
Year	**VOC**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
2022	5	18	16	4	2	<1
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum Onsite Emissions	5	17	14	4	2	<1
SCAQMD LST	N/A	162	1,080	N/A	14	5
Threshold Exceeded?	**No**	**No**	**No**	**No**	**N/A**	**N/A**

lbs/day = pounds per day; VOC = volatile organic compounds; NO_x = nitrogen oxide; CO = carbon monoxide; PM_{10} = particulate matter with a diameter no more than 10 microns; $PM_{2.5}$ = particulate matter with a diameter no more than 2.5 microns; SO_x = sulfur oxide

Notes: Some numbers may not add up precisely due to rounding considerations. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips

Source: Table 2.1 "Overall Construction-mitigated" emissions. Highest of Summer and Winter emissions results are shown for all emissions. See CalEEMod worksheets in Appendix A.

Operational Emissions

The project would generate criteria pollutants during operation. To determine whether a project would result in emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SCAQMD.

Table 9 summarizes the project's operational emissions by emission source (area, energy, and mobile). As shown below, the emissions generated by operation of the proposed project would not exceed the SCAQMD's threshold for any criteria pollutant. Therefore, project would not contribute substantially to an existing or projected air quality violation. In addition, because criteria pollutant emissions and regional thresholds are cumulative in nature, the project would not result in a cumulatively considerable net increase of criteria pollutants.

Table 9 Project Operational Emissions

	Maximum Daily Emissions (lbs/day)					
Emission Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	6	4	33	<1	4	1
Project Emissions	**6**	**4**	**33**	**<1**	**4**	**1**
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

lbs/day = pounds per day; VOC = volatile organic compounds; NO_x = nitrogen oxide; CO = carbon monoxide; PM_{10} = particulate matter with a diameter no more than 10 microns; $PM_{2.5}$ = particulate matter with a diameter no more than 2.5 microns; SO_x = sulfur oxide

Notes: Some numbers may not add up precisely due to rounding considerations.

Source: Table 2.2 "Overall Operation-Mitigated" emissions. Highest of Summer and Winter emissions results are shown for all emissions. The mitigated emissions account for project sustainability features and/or compliance with specific regulatory standards. No mitigation measures are required for this project. See CalEEMod worksheets in Appendix A.

Threshold 3	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3 **THE PROJECT WOULD NOT INCREASE CARBON MONOXIDE CONCENTRATIONS SUCH THAT IT WOULD CREATE CARBON MONOXIDE HOTSPOTS. CONSTRUCTION AND OPERATION OF THE PROJECT WOULD NOT RESULT IN EMISSIONS OF TACS SUFFICIENT TO EXCEED APPLICABLE HEALTH RISK CRITERIA. IMPACTS WOULD BE LESS THAN SIGNIFICANT.**

As discussed above, the sensitive receptors nearest to the project site are single-family residences approximately 125 feet south of the main project operational area. Residences are also located east the project boundaries across Redlands Boulevard.

Carbon Monoxide Hotspots

A carbon monoxide hotspot is a localized concentration of carbon monoxide that is above a carbon monoxide ambient air quality standard. Localized carbon monoxide hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local carbon monoxide concentration exceeds the federal one-hour standard of 35.0 ppm or the federal and state eight-hour standard of 9.0 ppm (CARB 2016).

A detailed carbon monoxide analysis was conducted during the preparation of SCAQMD's 2003 AQMP. The locations selected for microscale modeling in the 2003 AQMP included high average daily traffic (ADT) intersections in the SCAB, those which would be expected to experience the highest CO concentrations. The highest CO concentration observed was at the intersection of Wilshire Boulevard and Veteran Avenue on the west side of Los Angeles near the I-405 Freeway. The concentration of CO at this intersection was 4.6 ppm, which is well below the state and federal standards. The Wilshire Boulevard/Veteran Avenue intersection has an ADT of approximately 100,000 vehicles per day.

The total existing ADT for the nearest major intersection to the proposed project, Hemlock Avenue and State Route 60 westbound ramps, was estimated at 14,470 vehicles. (Ganddini Group, Inc. 2019). In the opening year of the project, the ADT at this intersection would increase to 19,150 vehicles with the project generating approximately 532 trips (11.4 percent of the total new trips). Both the existing and opening year ADT are below the 100,000-vehicle count on the Wilshire Boulevard/Veteran Avenue intersection that was already well below the standards. Thus, even though there would be more vehicle trips under the proposed project than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the one-hour or eight-hour CO standard. Therefore, impacts would be less than significant.

Toxic Air Contaminants

Construction Impacts

Construction-related activities would result in temporary project-generated emissions of DPM exhaust emissions from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities. DPM was identified as a TAC by CARB in 1998 (CARB 2017).

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the proposed project would occur over approximately 12 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of proposed construction activities (i.e., 12 months) is one percent of the total exposure period used for health risk calculation. Therefore, DPM generated by project construction would not create conditions where the probability is greater than 10 in one million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual. This impact would be less than significant.

Operational Impacts

The project would require a permit to construct and operate a gasoline dispensing facility from the SCAQMD, which will review the facility design and location for compliance with SCAQMD standards for air quality and community health. As stated in Section 3.1, *Methodology*, SCAQMD Rule 461 requires all retail service stations to have Phase I and Phase II EVR systems to control gasoline emissions (SCAQMD 2017b). All storage tank vent pipes are also required to have valves to further control emissions. While the emission factors employed in this analysis assume use of Phase I EVR technology to control loading emissions and Phase II EVR systems for spillage emissions, hose permeation and refueling emission factors do not account for use of Phase II EVR systems and, therefore, the analysis is conservative.

The incremental excess cancer risk is an estimate of the added risk a person exposed to a specific source of a TAC may have of developing cancer from that exposure, with all other conditions held constant. To provide a perspective on risk, the American Cancer Society (2021) reports that in the United States, men have about a 41 in 100 chance (0.40 probability) and women about a 39 in 100 chance (0.39) of developing cancer during a lifetime. Based on this background cancer risk level in the general population, application of a 1.0×10^{-5} excess risk limit means that the contribution from a toxic hazard should not cause the resultant cancer risk for the exposed population to exceed 0.41001 for men or 0.39001 for women.

Maximum resident and worker cancer risks, as well as cancer burden, are presented in Table 10. The MEIR is the modeled residential receptor experiencing the highest incremental excess cancer risk under 30-year residential exposure duration. The MEIW is the off-site work receptor experiencing the highest incremental excess cancer risk under a 25-year worker exposure duration. Both the MEIR and MEIW were determined through an iterative process evaluating and relocating potential receptors based on model-generated risk contours to ensure the maximum incremental excess cancer risk is captured. The model outputs and summary form are along with the risk isopleths are available in Appendix B. As shown in Table 10, incremental excess cancer risks resulting from operation of the project would not exceed SCAQMD thresholds. See Figure 4 for the approximate location of the MEIR and MEIW.

Table 10 Maximum Resident and Worker Cancer Risk

	Maximum Exposed Individual Resident (MEIR)[1]	Maximum Exposed Individual Worker (MEIW)[2]	Cancer Burden[3]
Incremental Excess Cancer Risk	4.5 in 1 million	0.2 in 1 million	0.0002
Threshold	10 in 1 million	10 in 1 million	0.5
Threshold Exceeded?	**No**	**No**	**No**

[1] Based on 30-year resident exposure.

[2] Based on 25-year worker exposure.

[3] Based on eight households within the 1 in 1 million incremental excess cancer risk contour, an average household size of 3.85 persons per household in the city of Moreno Valley (California Department of Finance 2020), and the MEIR 70-year incremental excess cancer risk of 6.24×10^{-6}.

See Appendix B for model outputs.

Other long-term operational TAC emissions include toxic substances such as cleaning agents in use on-site. Compliance with state and federal handling regulations would ensure that emissions remain below a level of significance. The use of such substances such as cleaning agents is regulated by the 1990 CAA Amendments as well as state-adopted regulations for the chemical composition of consumer products. Therefore, long-term operation of the project would not result in the exposure of sensitive receptors to substantial pollutant concentrations and the impact would be less than significant.

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

Impact AQ-4 THE PROJECT WOULD NOT GENERATE ODORS ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE DURING CONSTRUCTION OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

For construction activities, odors would be short-term in nature and are subject to SCAQMD Rule 402 *Nuisance* (SCAQMD 1976). Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Accordingly, the proposed project would not create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, a convenience store/quick serve restaurant with a fueling station, would not include any of these uses. The fueling station would emit odors during operation in the form of diesel exhaust from vehicles and operation of the fueling pumps. The increase in odor emissions, however, would be minimal, as vehicle exhaust is already prevalent due to the high levels of vehicle traffic on Redlands Boulevard and State Route 60.

Solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that any odors resulting from onsite waste would be managed and collected in a manner to prevent the proliferation of odors. Operational odor impacts would be less than significant.

4 Greenhouse Gas Emissions

4.1 Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but climate change is preferred because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates in historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The United Nations Intergovernmental Panel on Climate Change (IPCC) expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021). Furthermore, since the late 1700s, estimated concentrations of CO_2, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (U.S. EPA 2021a). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. The gases widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and natural processes, such as oceanic evaporation, largely determine its atmospheric concentrations.

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (U.S. EPA 2021a).

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon

dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (IPCC 2021).[3]

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2020). However, since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by 47 percent, 156 percent, and 23 percent, respectively, primarily due to human activity (IPCC 2021). GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

4.2 Greenhouse Gas Emissions Inventory

Global Emissions Inventory

In 2015, worldwide anthropogenic total 47,000 million MT of CO_2e, which is a 43 percent increase from 1990 GHG levels (U.S. EPA 2021b). Specifically, 34,522 million metric tons (MMT) of CO_2e of CO_2, 8,241 MMT of CO_2e of CH_4, 2,997 MMT of CO_2e of N_2O, and 1,001 MMT of CO_2e of fluorinated gases were emitted in 2015. The largest source of GHG emissions were energy 30production and use (includes fuels used by vehicles and buildings), which accounted for 75 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed for three percent and two percent was due to international transportation sources. These sources account for approximately 98 percent because there was a net sink of two percent from land-use change and forestry. (U.S. EPA 2021b).

United States Emissions Inventory

U.S. GHG emissions were 6,558 MMT of CO_2e in 2019. Emissions decreased by 1.7 percent from 2018 to 2019; since 1990, total U.S. emissions have increased by an average annual rate of 0.06 percent for a total increase of 1.8 percent between 1990 and 2019. The decrease from 2018 to 2019 reflects the combined influences of several long-term trends, including population changes, economic growth, energy market shifts, technological changes such as improvements in energy efficiency, and decrease carbon intensity of energy fuel choices. In 2019, the industrial and transportation end-use sectors accounted for 30 percent and 29 percent, respectively, of nationwide GHG emissions while the commercial and residential end-use sectors accounted for 16 percent and 15 percent of nationwide GHG emissions, respectively, with electricity emissions distributed among the various sectors (U.S. EPA 2021c).

California Emissions Inventory

Based on the CARB California Greenhouse Gas Inventory for 2000-2019, California produced 418.2 MMT of CO_2e in 2019, which is 7.2 MMT of CO_2e lower than 2018 levels. The major source of GHG emissions in California is the transportation sector, which comprises 40 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 21 percent of the

[3] The Intergovernmental Panel on Climate Change's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

state's GHG emissions while electric power accounts for approximately 14 percent (CARB 2021d). The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2016, the State of California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e (CARB 2021e). The annual 2030 statewide target emissions level is 260 MMT of CO_2e (CARB 2017).

Local Emissions Inventory

The City of Moreno Valley generated a total of 866,410 MT CO_2e in a 2018 GHG emissions inventory. Transportation GHG emissions were the largest contributor at approximately 54 percent of the total GHG emissions or 483,063 MT CO_2e. The second largest sector was residential emissions (natural gas and electricity), which generated approximately 206,790 MT CO_2e or 24 percent of the total. The commercial sector generated 100,766 or 12 percent of the total. The remaining 10 percent of the total GHG emissions are generated from off-road equipment (6 percent), industrial sources (2 percent), solid waste (1 percent), wastewater (<1 percent), water (<1 percent), public services and public lighting (<1 percent), and agriculture (<1 percent) (City of Moreno Valley 2021b).

4.3 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources though potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) from 2015 to 2017 was approximately 1.0°C higher than the average GMST over the period from 1880 to 1900 (National Oceanic and Atmospheric Administration 2020). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations jointly indicate that LSAT and sea surface temperatures have increased.

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018). In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state and regionally specific climate change case studies (State of California 2018). However, while there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California as a result of climate change. A summary follows of some of the potential effects that could be experienced in California because of climate change.

Air Quality and Wildfires

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century (State of California 2018). Higher temperatures are conducive to air pollution formation, and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have occurred at higher elevations in the Sierra Nevada Mountains (State of California 2018). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality could worsen. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains could tend to temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them (California Natural Resources Agency 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts (State of California 2018). The Sierra snowpack provides the majority of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack (State of California 2018). Projections indicate that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018).

Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding (State of California 2018). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 1993 to 2020, observed by satellites, is approximately 3.3 millimeters per year, double the twentieth century trend of 1.6 millimeters per year (World Meteorological Organization 2013; National Aeronautics and Space Administration 2020). Global mean sea levels in 2013 were about 0.23 meter higher than those of 1880 (National Aeronautics and Space Administration 2020). Sea levels are rising faster now than in the previous two millennia, and the

rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea level rise ranging between 0.25 to 0 1.01 meters by 2100 with the sea level ranges dependent on a low, intermediate, or high GHG emissions scenario (IPCC 2021). A rise in sea levels could erode 31 to 67 percent of southern California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This would also jeopardize California's water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2018). Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has an over $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2020). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, crop yield could be threatened by water-induced stress and extreme heat waves, and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018). Temperature increases could also change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems

Climate change and the potential resultant changes in weather patterns could have ecological effects on the global and local scales. Soil moisture is likely to decline in many regions as a result of higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018).

4.4 Regulatory and Legal Setting

Federal Regulations

Federal Clean Air Act

The U.S. Supreme Court determined in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) that the U.S. EPA has the authority to regulate motor vehicle GHG emissions under the federal Clean Air Act. The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the U.S. EPA issued a Final Rule that established the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 Supreme Court 2427 [2014]), the U.S. Supreme Court held the U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of Significant Deterioration or Title V permit. The Court also held that Prevention of Significant Deterioration permits otherwise required based on emissions of other pollutants may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

Safer Affordable Fuel-Efficient Vehicles Rule

On September 27, 2019, the U.S. E.PA and the National Highway Traffic Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program. The SAFE Rule Part One revokes California's authority to set its own GHG emissions standards and to adopt its own zero-emission vehicle mandates. On April 30, 2020, the U.S. E.PA and the National Highway Traffic Safety Administration published Part Two of the SAFE Vehicles Rule, which revised corporate average fuel economy and CO_2 emissions standards for passenger cars and trucks of model years 2021-2026 such that the standards increase by approximately 1.5 percent each year through model year 2026 as compared to the approximately five percent annual increase required under the 2012 standards (National Highway Traffic Safety Administration 2020). To account for the effects of the SAFE Vehicles Rule, CARB released off-model adjustment factors on June 26, 2020 to adjust GHG emissions outputs from the EMFAC model (CARB 2020c).

State Regulations

CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. There are numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below. For more information on the Senate and Assembly Bills, executive orders, building codes, and reports discussed below, and to view reports and research referenced below, please refer to the following websites: https://www.energy.ca.gov/data-reports/reports/californias-fourth-climate-change-assessment, www.arb.ca.gov/cc/cc.htm, and https://www.dgs.ca.gov/BSC/Codes.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, the U.S. EPA granted the waiver of Clean Air Act preemption to California for its GHG emission standards for motor vehicles, beginning with the 2009 model year, which allows California to implement more stringent vehicle emission standards than those promulgated by the U.S. EPA. Pavley I regulates model years from 2009 to 2016 and Pavley II, now referred to as "LEV (Low Emission Vehicle) III GHG," regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, the rules will be fully implemented, and new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32)

The "California Global Warming Solutions Act of 2006," (AB 32), outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT CO_2e, which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014. The update defined the CARB's climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 and SB 100 (discussed later). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of six MT CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") can receive incentives to streamline CEQA processing.

On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Southern California Association of Governments (SCAG) was assigned targets of an 8 percent reduction in per capita GHG emissions from passenger vehicles by 2020 and

a 19 percent reduction in per capita GHG emissions from passenger vehicles by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

Senate Bill 1383

Adopted in September 2016, SB 1383 (Lara, Chapter 395, Statues of 2016) requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard (RPS) Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, the former Governor Brown issued Executive Order (EO) B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Building Standards Code

The California Code of Regulations (CCR) Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The current iteration is the 2019 Title 24 standards. The California Building Standards Code's energy-efficiency and green building standards are outlined below.

PART 6 – BUILDING ENERGY EFFICIENCY STANDARDS/ENERGY CODE

CCR Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the

California Energy Commission (CEC). The 2019 Title 24 standards are the applicable building energy efficiency standards for the project because they became effective on January 1, 2020.

PART 11 – CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 California Building Standards Code). The 2019 CALGreen includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures. It also includes voluntary tiers (Tiers I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;[4]
- 65 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards;
- Dedicated circuitry to facilitate installation of electric vehicle charging stations in newly constructed attached garages for single-family and duplex dwellings; and
- Installation of electric vehicle charging stations at least three percent of the parking spaces for all new multi-family developments with 17 or more units.

The voluntary standards require:

- **Tier I:** stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste with third-party verification, 10 percent recycled content for building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof; and
- **Tier II:** stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste with third-party verification, 15 percent recycled content for building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar reflective roof.

California Integrated Waste Management Act (Assembly Bill 341)

The California Integrated Waste Management Act of 1989, as modified by AB 341 in 2011, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995 through source reduction, recycling, and composting activities and (2) diversion of 50 percent of all solid waste on and after January 1, 2000.

[4] Similar to the compliance reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen water-reduction requirements must be demonstrated through completion of water use reporting forms. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

Executive Order N-79-20

On September 23, 2020, Governor Newsom issued EO N-79-20, which established the following new statewide goals:

- All new passenger cars and trucks sold in-state to be zero-emission by 2035;
- All medium- and heavy-duty vehicles in the state to be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks; and
- All off-road vehicles and equipment to be zero-emission by 2035 where feasible.

EO N-79-20 directs CARB, the Governor's Office of Business and Economic Development, the CEC, the California Department of Transportation, and other state agencies to take steps toward drafting regulations and strategies and leveraging agency resources toward achieving these goals.

Local Regulations

2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development and the environment. On September 3, 2020, SCAG's Regional Council formally adopted the 2020-2045 RTP/SCS (titled Connect SoCal). The 2020-2045 RTP/SCS builds upon the progress made through implementation of the 2016-2040 RTP/SCS and includes ten goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. The SCS implementation strategies include focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of sustainability policies. The SCS establishes a land use vision of center focused placemaking, concentrating growth in and near Priority Growth Areas, transferring of development rights, urban greening, creating greenbelts and community separators, and implementing regional advance mitigation (SCAG 2020).

City of Moreno Valley General Plan

As stated in Section 2.3 *Air Quality Regulation* the City adopted their 2040 General Plan. The Safety Element lists specific climate change policies (City of Moreno Valley 2021a).

- **Policy S.3-1**. Continue to collaborate in regional climate action planning initiatives.
- **Policy S.3-6**. Encourage the use of landscaping, building materials, and site design techniques that provide passive cooling and reduce energy demand. In particular, promote the use of voluntary measures identified in the California Green Building Code (Title 24, Part 11 of the California Code of Regulations) to minimize heat island effects, including hardscape and roof materials with beneficial solar reflectance and thermal emittance values and measures for exterior wall shading.
- **Policy S.3-7**. Require new development to provide and maintain shade trees suitable to local climatic conditions. A climate-appropriate strategy may involve planting mostly drought-tolerant native trees that may have less foliage, interspersed with leafier trees at points where people gather.

City of Moreno Valley Climate Action Plan

The City of Moreno Valley Climate Action Plan (CAP) was adopted on June 15, 2021. The CAP addresses the SB 32 target of reducing GHG emissions 40 percent below 1990 levels by 2030 and the GHG emission target set in EO S-3-15 for 2050 (i.e., 80 percent below 1990 levels by 2050). Pursuant with CEQA Guidelines Section 15183.5(b), the CAP is considered a qualified GHG reduction strategy that will allow developments to tier off and streamline the GHG analyses under CEQA. The CAP is a qualified GHG reduction strategy since it completed the following steps required to be considered qualified: the GHGRS quantified community-wide GHG emissions; the GHGRS prepared GHG projections for the next target year (e.g. 2030) for business-as-usual conditions and conditions that include GHG reduction measures; the GHGRS established emission level targets based on substantial evidence; the GHGRS specified mandatory and enforceable reduction measures that are applicable to existing developments, new developments, and municipal operations; the GHGRS includes an implementation and monitoring plan to monitor the plan's progress; the GHRS underwent CEQA review and was adopted after public hearings. Thus, the 2030 GHGRS is a qualified CAP that projects can tier off of for CEQA review. In addition, the CAP includes a consistency checklist for project-level tiering purposes.

5 Greenhouse Gas Impact Analysis

5.1 Methodology

The City of Moreno Valley has adopted a qualified GHG reduction strategy that can be used to streamline the GHG analysis. Therefore, project-related GHG emissions are not quantified.

5.2 Significance Thresholds

Based on Appendix G of the CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. As a result, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

According to *CEQA Guidelines* Section 15183.5, projects can tier off of a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (AEP 2016). The City of Moreno Valley has not published a qualified climate action plan.

As mentioned under Section 4.4, *Regulatory and Legal Setting*, the City of Moreno Valley has adopted a qualified GHG reduction plan. For the purposes of this analysis the project's significance is determined by consistency with the CAP, which is consistent with the 2017 Scoping Plan and emission reduction targets per SB 32. GHG emissions associated with the proposed project would be less than significant if the project is consistent with the *Climate Action Plan Consistency Checklist*, which is included as Appendix C.

5.3 Project-level Impact Analysis

Threshold 1:	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
Threshold 2:	Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Impact GHG-1 THE PROPOSED PROJECT WOULD GENERATE TEMPORARY AND LONG-TERM INCREASES IN GHG EMISSIONS, BUT THE PROJECT WOULD BE CONSISTENT WITH THE CITY OF MORENO VALLEY CLIMATE ACTION PLAN CONSISTENCY CHECKLIST, WHICH IS CONSISTENT WITH THE 2017 SCOPING PLAN AND EMISSION REDUCTION TARGETS PER SB 32. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

A project that complies with a qualified GHG reduction strategy would be considered to have less than significant GHG impact. As mentioned in Section 5.2*, Significance Thresholds*, *the CAP* meets the criteria for a qualified GHG reduction strategy. The CAP includes a *Climate Action Plan Consistency Checklist* to demonstrate if new developments are consistent with reduction strategies from the City of Moreno CAP The purpose of the checklist is to streamline project-level CEQA requirements by identifying clear GHG reduction strategies that all new developments would need to implement for compliance with the GHGRS. If a project meets the checklist criteria, then it would be considered to have a less than significant GHG impact. Table 11 shows the projects consistency with the CAP checklist. Refer to Appendix C for the full checklist.

Table 11 Project Consistency with the City of Moreno Valley CAP Checklist

Goals, Targets, and Policies	Consistency
City of Moreno Valley General Plan Consistency	
Are the proposed land uses in the project consistent with the existing 2040 General Plan land use and zoning designation?	**Consistent** The project is a commercial development consisting of a 11 fueling stations (16 total dispensers), a 3,923 square foot food mart with 1,200 square feet of office and storage in the mezzanine level, and a 1,200 square foot retail store adjacent to the food mart. The project site is designated and zoned Highway Office/Commercial, which allows for office, education, and or research/development facilities, while the secondary permitted uses are for restaurant, retail, and service commercial uses. The project would be consistent with this land use designation and zoning since it would be a commercial use open to the general public.
City of Moreno Valley CAP Measure Consistency	
If the project includes new residential, commercial, and/or mixed-use development, would the project implement trip reduction programs? (Examples of residential trip reduction programs, or transportation demand management (TDM) strategies include, among others, installing and maintaining on-site bicycle parking; providing designated parking spaces for car share operations; offering an annual carshare membership to building residents or employees; posting wayfinding signage near major entrances directing building users to bus stops, bicycle facilities, car sharing kiosks, and other	**Not Applicable** The project would accommodate a few employees. The project is anticipated to be exempt from the trip reduction requirement because the limited number of employees generated by the project would be less than typical thresholds. However, the project would include on-site bicycle parking for employee and customer use.

Goals, Targets, and Policies	Consistency
alternative travel options; and unbundling the price of parking from rents or sale of units.)	
For projects including new construction or major remodeling of residential development, does the project include installation of real-time energy smart meters?	**Not Applicable** The project is a commercial use and would not be required to adhere to this measure.
During project construction, will clear signage reminding construction workers to limit idling of construction equipment provided?	**Consistent** The project would have clear signage onsite during all construction activities to limit idling of construction equipment.
During project construction, will the project limit construction-related GHG emissions through one or more of the following measures: substituting electrified or hybrid equipment for diesel/gas powered equipment; using alternative-fueled equipment on-site; and avoiding use of on-site diesel/gas powered generators?	**Consistent** The project would avoid the use of onsite diesel/gas powered generators. Instead, electricity would be provided onsite during construction.
For any new landscaping to be included as part of the project, does the project incorporate climate-appropriate, water-wise landscaping features, such as those identified in the *County of Riverside Guide To California Friendly Landscaping*.	**Consistent** The project would incorporate the climate-appropriate, water-wise landscaping features that are identified in the County of Riverside Guide to California Friendly Landscaping

Source: City of Moreno Valley 2021b, Appendix C

As shown in Table 11, the project would be consistent with the CAP Checklist measures. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and this impact would be less than significant.

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Appendix A

California Emissions Estimator Model Outputs

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Annual

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

Redlands & Hemlock Gas Station AQ-GHG

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.20	1000sqft	0.00	1,200.00	0
Other Asphalt Surfaces	1.30	Acre	1.32	56,628.00	0
Other Non-Asphalt Surfaces	31.54	1000sqft	0.72	31,536.00	0
Parking Lot	27.00	Space	0.24	10,800.00	0
Convenience Market with Gas Pumps	16.00	Pump	0.12	5,123.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is in Moreno Valley, whish is in South Coast AQMD.

Land Use - 11 fueling stations --> 16 pumps; 5,123 sf food mart and retail store; 31,536 sf planter area (non-hardscape). 1,200 sf of general office. 1.3 acres of hardscape estimated. Total area = 2.4 acres

Construction Phase - Default construction schedule with no demolition since site is vacant

Off-road Equipment - Default construction equipment

Grading - Export approximately 300 cubic yards during grading phase

Architectural Coating - SCAQMD Rule 1113, Building Envelope Coating = 50 g/L and Flats = 50 g/L

Vehicle Trips - Gas Station with Convenience Market Project Specific Trip Generation Rate. General office building trip generation

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Area Coating - SCAQMD Rule 1113

Water And Wastewater - No septic tanks proposed onsite but the Eastern Municipal Water District has faculatative lagons

Construction Off-road Equipment Mitigation - SCAQMD Rule 403, watering and vehicle speed from Table 1 BACT applicable to all construction activity

Area Mitigation -

Trips and VMT -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	300.00
tblLandUse	LandUseSquareFeet	31,540.00	31,536.00
tblLandUse	LandUseSquareFeet	2,258.80	5,123.00
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	1.30	1.32
tblLandUse	LotAcreage	0.05	0.12
tblVehicleTrips	ST_TR	322.50	205.36
tblVehicleTrips	SU_TR	322.50	205.36
tblVehicleTrips	WD_TR	322.50	205.36
tblVehicleTrips	WD_TR	9.74	10.84
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00

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

tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

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	0.2672	1.8426	1.8976	3.8100e-003	0.0907	0.0845	0.1751	0.0286	0.0808	0.1094	0.0000	326.8444	326.8444	0.0519	6.4400e-003	330.0610
Maximum	**0.2672**	**1.8426**	**1.8976**	**3.8100e-003**	**0.0907**	**0.0845**	**0.1751**	**0.0286**	**0.0808**	**0.1094**	**0.0000**	**326.8444**	**326.8444**	**0.0519**	**6.4400e-003**	**330.0610**

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	0.2672	1.8426	1.8976	3.8100e-003	0.0776	0.0845	0.1621	0.0228	0.0808	0.1036	0.0000	326.8441	326.8441	0.0519	6.4400e-003	330.0607
Maximum	**0.2672**	**1.8426**	**1.8976**	**3.8100e-003**	**0.0776**	**0.0845**	**0.1621**	**0.0228**	**0.0808**	**0.1036**	**0.0000**	**326.8441**	**326.8441**	**0.0519**	**6.4400e-003**	**330.0607**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**14.35**	**0.00**	**7.43**	**20.24**	**0.00**	**5.29**	**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	1-3-2022	4-2-2022	0.5707	0.5707
2	4-3-2022	7-2-2022	0.5700	0.5700
3	7-3-2022	9-30-2022	0.5638	0.5638
		Highest	0.5707	0.5707

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	0.0322	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003
Energy	8.0000e-005	7.5000e-004	6.3000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	14.4769	14.4769	1.1700e-003	1.5000e-004	14.5522
Mobile	0.9818	0.7272	5.8834	7.9400e-003	0.7502	7.2900e-003	0.7574	0.2002	6.7600e-003	0.2070	0.0000	742.2545	742.2545	0.0987	0.0569	761.6712
Waste						0.0000	0.0000		0.0000	0.0000	0.2274	0.0000	0.2274	0.0134	0.0000	0.5633
Water						0.0000	0.0000		0.0000	0.0000	0.1347	1.3385	1.4731	3.6300e-003	3.1000e-004	1.6553
Total	**1.0141**	**0.7280**	**5.8850**	**7.9400e-003**	**0.7502**	**7.3500e-003**	**0.7575**	**0.2002**	**6.8200e-003**	**0.2070**	**0.3620**	**758.0718**	**758.4338**	**0.1170**	**0.0573**	**778.4440**

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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	0.0322	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003
Energy	8.0000e-005	7.5000e-004	6.3000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	14.4769	14.4769	1.1700e-003	1.5000e-004	14.5522
Mobile	0.9818	0.7272	5.8834	7.9400e-003	0.7502	7.2900e-003	0.7574	0.2002	6.7600e-003	0.2070	0.0000	742.2545	742.2545	0.0987	0.0569	761.6712
Waste						0.0000	0.0000		0.0000	0.0000	0.2274	0.0000	0.2274	0.0134	0.0000	0.5633
Water						0.0000	0.0000		0.0000	0.0000	0.1347	1.3385	1.4731	3.6300e-003	3.1000e-004	1.6553
Total	**1.0141**	**0.7280**	**5.8850**	**7.9400e-003**	**0.7502**	**7.3500e-003**	**0.7575**	**0.2002**	**6.8200e-003**	**0.2070**	**0.3620**	**758.0718**	**758.4338**	**0.1170**	**0.0573**	**778.4440**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/5/2022	5	3	
2	Grading	Grading	1/6/2022	1/13/2022	5	6	
3	Building Construction	Building Construction	1/14/2022	11/17/2022	5	220	

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4	Paving	Paving	11/18/2022	12/1/2022	5	10	
5	Architectural Coating	Architectural Coating	12/2/2022	12/15/2022	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 2.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,485; Non-Residential Outdoor: 3,162; Striped Parking Area: 5,938 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	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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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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	44.00	17.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0700e-003	0.0235	0.0151	4.0000e-005		8.9000e-004	8.9000e-004		8.2000e-004	8.2000e-004	0.0000	3.2321	3.2321	1.0500e-003	0.0000	3.2582
Total	**2.0700e-003**	**0.0235**	**0.0151**	**4.0000e-005**	**2.3900e-003**	**8.9000e-004**	**3.2800e-003**	**2.6000e-004**	**8.2000e-004**	**1.0800e-003**	**0.0000**	**3.2321**	**3.2321**	**1.0500e-003**	**0.0000**	**3.2582**

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3.2 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	4.3000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1071	0.1071	0.0000	0.0000	0.1081
Total	**4.0000e-005**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1071**	**0.1071**	**0.0000**	**0.0000**	**0.1081**

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					1.0700e-003	0.0000	1.0700e-003	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0700e-003	0.0235	0.0151	4.0000e-005		8.9000e-004	8.9000e-004		8.2000e-004	8.2000e-004	0.0000	3.2321	3.2321	1.0500e-003	0.0000	3.2582
Total	**2.0700e-003**	**0.0235**	**0.0151**	**4.0000e-005**	**1.0700e-003**	**8.9000e-004**	**1.9600e-003**	**1.2000e-004**	**8.2000e-004**	**9.4000e-004**	**0.0000**	**3.2321**	**3.2321**	**1.0500e-003**	**0.0000**	**3.2582**

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3.2 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	4.3000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1071	0.1071	0.0000	0.0000	0.1081
Total	**4.0000e-005**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1071**	**0.1071**	**0.0000**	**0.0000**	**0.1081**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0213	0.0000	0.0213	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6200e-003	0.0510	0.0277	6.0000e-005		2.2300e-003	2.2300e-003		2.0500e-003	2.0500e-003	0.0000	5.4308	5.4308	1.7600e-003	0.0000	5.4747
Total	**4.6200e-003**	**0.0510**	**0.0277**	**6.0000e-005**	**0.0213**	**2.2300e-003**	**0.0235**	**0.0103**	**2.0500e-003**	**0.0123**	**0.0000**	**5.4308**	**5.4308**	**1.7600e-003**	**0.0000**	**5.4747**

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3.3 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	8.0000e-005	3.1200e-003	7.1000e-004	1.0000e-005	3.3000e-004	2.0000e-005	3.5000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.1444	1.1444	6.0000e-005	1.8000e-004	1.2001
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	1.0600e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2679	0.2679	1.0000e-005	1.0000e-005	0.2702
Total	**1.8000e-004**	**3.2000e-003**	**1.7700e-003**	**1.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.8000e-004**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**1.4123**	**1.4123**	**7.0000e-005**	**1.9000e-004**	**1.4703**

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					9.5700e-003	0.0000	9.5700e-003	4.6200e-003	0.0000	4.6200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6200e-003	0.0510	0.0277	6.0000e-005		2.2300e-003	2.2300e-003		2.0500e-003	2.0500e-003	0.0000	5.4308	5.4308	1.7600e-003	0.0000	5.4747
Total	**4.6200e-003**	**0.0510**	**0.0277**	**6.0000e-005**	**9.5700e-003**	**2.2300e-003**	**0.0118**	**4.6200e-003**	**2.0500e-003**	**6.6700e-003**	**0.0000**	**5.4308**	**5.4308**	**1.7600e-003**	**0.0000**	**5.4747**

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3.3 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	8.0000e-005	3.1200e-003	7.1000e-004	1.0000e-005	3.3000e-004	2.0000e-005	3.5000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.1444	1.1444	6.0000e-005	1.8000e-004	1.2001
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	1.0600e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2679	0.2679	1.0000e-005	1.0000e-005	0.2702
Total	**1.8000e-004**	**3.2000e-003**	**1.7700e-003**	**1.0000e-005**	**6.6000e-004**	**2.0000e-005**	**6.8000e-004**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**1.4123**	**1.4123**	**7.0000e-005**	**1.9000e-004**	**1.4703**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2041	1.6064	1.5789	2.7500e-003		0.0772	0.0772		0.0740	0.0740	0.0000	228.4481	228.4481	0.0441	0.0000	229.5500
Total	**0.2041**	**1.6064**	**1.5789**	**2.7500e-003**		**0.0772**	**0.0772**		**0.0740**	**0.0740**	**0.0000**	**228.4481**	**228.4481**	**0.0441**	**0.0000**	**229.5500**

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3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.0913	0.0303	3.6000e-004	0.0118	9.1000e-004	0.0127	3.4000e-003	8.7000e-004	4.2700e-003	0.0000	34.8979	34.8979	1.1700e-003	5.0600e-003	36.4361
Worker	0.0163	0.0131	0.1717	4.7000e-004	0.0531	3.2000e-004	0.0534	0.0141	3.0000e-004	0.0144	0.0000	43.2131	43.2131	1.1900e-003	1.1600e-003	43.5879
Total	**0.0196**	**0.1044**	**0.2020**	**8.3000e-004**	**0.0649**	**1.2300e-003**	**0.0661**	**0.0175**	**1.1700e-003**	**0.0187**	**0.0000**	**78.1110**	**78.1110**	**2.3600e-003**	**6.2200e-003**	**80.0240**

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	0.2041	1.6064	1.5789	2.7500e-003		0.0772	0.0772		0.0740	0.0740	0.0000	228.4478	228.4478	0.0441	0.0000	229.5497
Total	**0.2041**	**1.6064**	**1.5789**	**2.7500e-003**		**0.0772**	**0.0772**		**0.0740**	**0.0740**	**0.0000**	**228.4478**	**228.4478**	**0.0441**	**0.0000**	**229.5497**

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

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.0913	0.0303	3.6000e-004	0.0118	9.1000e-004	0.0127	3.4000e-003	8.7000e-004	4.2700e-003	0.0000	34.8979	34.8979	1.1700e-003	5.0600e-003	36.4361
Worker	0.0163	0.0131	0.1717	4.7000e-004	0.0531	3.2000e-004	0.0534	0.0141	3.0000e-004	0.0144	0.0000	43.2131	43.2131	1.1900e-003	1.1600e-003	43.5879
Total	**0.0196**	**0.1044**	**0.2020**	**8.3000e-004**	**0.0649**	**1.2300e-003**	**0.0661**	**0.0175**	**1.1700e-003**	**0.0187**	**0.0000**	**78.1110**	**78.1110**	**2.3600e-003**	**6.2200e-003**	**80.0240**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7500e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

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3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.0000e-004	2.6600e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6696	0.6696	2.0000e-005	2.0000e-005	0.6754
Total	**2.5000e-004**	**2.0000e-004**	**2.6600e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6696**	**0.6696**	**2.0000e-005**	**2.0000e-005**	**0.6754**

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	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7500e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

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

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.0000e-004	2.6600e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6696	0.6696	2.0000e-005	2.0000e-005	0.6754
Total	**2.5000e-004**	**2.0000e-004**	**2.6600e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6696**	**0.6696**	**2.0000e-005**	**2.0000e-005**	**0.6754**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0284					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	7.0400e-003	9.0700e-003	1.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2787
Total	**0.0294**	**7.0400e-003**	**9.0700e-003**	**1.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2787**

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

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.2000e-004	1.6000e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4018	0.4018	1.0000e-005	1.0000e-005	0.4053
Total	**1.5000e-004**	**1.2000e-004**	**1.6000e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4018**	**0.4018**	**1.0000e-005**	**1.0000e-005**	**0.4053**

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	0.0284					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	7.0400e-003	9.0700e-003	1.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2787
Total	**0.0294**	**7.0400e-003**	**9.0700e-003**	**1.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2787**

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

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.2000e-004	1.6000e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4018	0.4018	1.0000e-005	1.0000e-005	0.4053
Total	**1.5000e-004**	**1.2000e-004**	**1.6000e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4018**	**0.4018**	**1.0000e-005**	**1.0000e-005**	**0.4053**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	0.9818	0.7272	5.8834	7.9400e-003	0.7502	7.2900e-003	0.7574	0.2002	6.7600e-003	0.2070	0.0000	742.2545	742.2545	0.0987	0.0569	761.6712
Unmitigated	0.9818	0.7272	5.8834	7.9400e-003	0.7502	7.2900e-003	0.7574	0.2002	6.7600e-003	0.2070	0.0000	742.2545	742.2545	0.0987	0.0569	761.6712

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	3,285.76	3,285.76	3285.76	1,961,187	1,961,187
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
General Office Building	13.01	2.65	0.84	31,539	31,539
Total	3,298.77	3,288.41	3,286.60	1,992,726	1,992,726

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
Convenience Market with Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Parking Lot	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
General Office Building	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.6558	13.6558	1.1500e-003	1.4000e-004	13.7263
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.6558	13.6558	1.1500e-003	1.4000e-004	13.7263
NaturalGas Mitigated	8.0000e-005	7.5000e-004	6.3000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8211	0.8211	2.0000e-005	2.0000e-005	0.8260
NaturalGas Unmitigated	8.0000e-005	7.5000e-004	6.3000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8211	0.8211	2.0000e-005	2.0000e-005	0.8260

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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					
Convenience Market with Gas Pumps	11270.6	6.0000e-005	5.5000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6014	0.6014	1.0000e-005	1.0000e-005	0.6050
General Office Building	4116	2.0000e-005	2.0000e-004	1.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2197	0.2197	0.0000	0.0000	0.2210
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.0000e-005**	**7.5000e-004**	**6.3000e-004**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.8211**	**0.8211**	**1.0000e-005**	**1.0000e-005**	**0.8260**

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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					
Convenience Market with Gas Pumps	11270.6	6.0000e-005	5.5000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6014	0.6014	1.0000e-005	1.0000e-005	0.6050
General Office Building	4116	2.0000e-005	2.0000e-004	1.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2197	0.2197	0.0000	0.0000	0.2210
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.0000e-005**	**7.5000e-004**	**6.3000e-004**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.8211**	**0.8211**	**1.0000e-005**	**1.0000e-005**	**0.8260**

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			
Convenience Market with Gas Pumps	62193.2	11.0297	9.3000e-004	1.1000e-004	11.0866
General Office Building	11028	1.9558	1.7000e-004	2.0000e-005	1.9659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	3780	0.6704	6.0000e-005	1.0000e-005	0.6738
Total		**13.6558**	**1.1600e-003**	**1.4000e-004**	**13.7263**

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			
Convenience Market with Gas Pumps	62193.2	11.0297	9.3000e-004	1.1000e-004	11.0866
General Office Building	11028	1.9558	1.7000e-004	2.0000e-005	1.9659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	3780	0.6704	6.0000e-005	1.0000e-005	0.6738
Total		**13.6558**	**1.1600e-003**	**1.4000e-004**	**13.7263**

6.0 Area Detail

6.1 Mitigation Measures Area

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	0.0322	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003
Unmitigated	0.0322	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003

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	2.8400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0293					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003
Total	**0.0322**	**1.0000e-005**	**9.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9100e-003**	**1.9100e-003**	**1.0000e-005**	**0.0000**	**2.0400e-003**

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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	2.8400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0293					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9100e-003	1.9100e-003	1.0000e-005	0.0000	2.0400e-003
Total	**0.0322**	**1.0000e-005**	**9.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9100e-003**	**1.9100e-003**	**1.0000e-005**	**0.0000**	**2.0400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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	1.4731	3.6300e-003	3.1000e-004	1.6553
Unmitigated	1.4731	3.6300e-003	3.1000e-004	1.6553

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.167315 / 0.102548	0.6476	1.6000e-003	1.3000e-004	0.7277
General Office Building	0.213281 / 0.13072	0.8255	2.0400e-003	1.7000e-004	0.9276
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.4731**	**3.6400e-003**	**3.0000e-004**	**1.6553**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.167315 / 0.102548	0.6476	1.6000e-003	1.3000e-004	0.7277
General Office Building	0.213281 / 0.13072	0.8255	2.0400e-003	1.7000e-004	0.9276
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.4731**	**3.6400e-003**	**3.0000e-004**	**1.6553**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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	0.2274	0.0134	0.0000	0.5633
Unmitigated	0.2274	0.0134	0.0000	0.5633

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	1.12	0.2274	0.0134	0.0000	0.5633
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.2274**	**0.0134**	**0.0000**	**0.5633**

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			
General Office Building	1.12	0.2274	0.0134	0.0000	0.5633
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.2274**	**0.0134**	**0.0000**	**0.5633**

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

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

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

Redlands & Hemlock Gas Station AQ-GHG

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.20	1000sqft	0.00	1,200.00	0
Other Asphalt Surfaces	1.30	Acre	1.32	56,628.00	0
Other Non-Asphalt Surfaces	31.54	1000sqft	0.72	31,536.00	0
Parking Lot	27.00	Space	0.24	10,800.00	0
Convenience Market with Gas Pumps	16.00	Pump	0.12	5,123.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is in Moreno Valley, whish is in South Coast AQMD.

Land Use - 11 fueling stations --> 16 pumps; 5,123 sf food mart and retail store; 31,536 sf planter area (non-hardscape). 1,200 sf of general office. 1.3 acres of hardscape estimated. Total area = 2.4 acres

Construction Phase - Default construction schedule with no demolition since site is vacant

Off-road Equipment - Default construction equipment

Grading - Export approximately 300 cubic yards during grading phase

Architectural Coating - SCAQMD Rule 1113, Building Envelope Coating = 50 g/L and Flats = 50 g/L

Vehicle Trips - Gas Station with Convenience Market Project Specific Trip Generation Rate. General office building trip generation

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

Area Coating - SCAQMD Rule 1113

Water And Wastewater - No septic tanks proposed onsite but the Eastern Municipal Water District has faculatative lagons

Construction Off-road Equipment Mitigation - SCAQMD Rule 403, watering and vehicle speed from Table 1 BACT applicable to all construction activity

Area Mitigation -

Trips and VMT -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	300.00
tblLandUse	LandUseSquareFeet	31,540.00	31,536.00
tblLandUse	LandUseSquareFeet	2,258.80	5,123.00
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	1.30	1.32
tblLandUse	LotAcreage	0.05	0.12
tblVehicleTrips	ST_TR	322.50	205.36
tblVehicleTrips	SU_TR	322.50	205.36
tblVehicleTrips	WD_TR	322.50	205.36
tblVehicleTrips	WD_TR	9.74	10.84
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00

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

tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	5.9188	17.9960	16.3040	0.0327	7.3108	0.7512	8.0620	3.4856	0.6914	4.1770	0.0000	3,091.7439	3,091.7439	0.7703	0.0692	3,121.6859
Maximum	**5.9188**	**17.9960**	**16.3040**	**0.0327**	**7.3108**	**0.7512**	**8.0620**	**3.4856**	**0.6914**	**4.1770**	**0.0000**	**3,091.7439**	**3,091.7439**	**0.7703**	**0.0692**	**3,121.6859**

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	5.9188	17.9960	16.3040	0.0327	3.4123	0.7512	4.1635	1.6015	0.6914	2.2930	0.0000	3,091.7439	3,091.7439	0.7703	0.0692	3,121.6859
Maximum	**5.9188**	**17.9960**	**16.3040**	**0.0327**	**3.4123**	**0.7512**	**4.1635**	**1.6015**	**0.6914**	**2.2930**	**0.0000**	**3,091.7439**	**3,091.7439**	**0.7703**	**0.0692**	**3,121.6859**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.33**	**0.00**	**48.36**	**54.05**	**0.00**	**45.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
Mobile	5.9280	3.7354	30.9965	0.0453	4.2204	0.0402	4.2606	1.1246	0.0373	1.1619		4,667.3771	4,667.3771	0.5591	0.3314	4,780.1076
Total	**6.1050**	**3.7396**	**31.0078**	**0.0454**	**4.2204**	**0.0406**	**4.2609**	**1.1246**	**0.0377**	**1.1623**		**4,672.3534**	**4,672.3534**	**0.5593**	**0.3315**	**4,785.1144**

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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
Mobile	5.9280	3.7354	30.9965	0.0453	4.2204	0.0402	4.2606	1.1246	0.0373	1.1619		4,667.3771	4,667.3771	0.5591	0.3314	4,780.1076
Total	**6.1050**	**3.7396**	**31.0078**	**0.0454**	**4.2204**	**0.0406**	**4.2609**	**1.1246**	**0.0377**	**1.1623**		**4,672.3534**	**4,672.3534**	**0.5593**	**0.3315**	**4,785.1144**

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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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/5/2022	5	3	
2	Grading	Grading	1/6/2022	1/13/2022	5	6	
3	Building Construction	Building Construction	1/14/2022	11/17/2022	5	220	
4	Paving	Paving	11/18/2022	12/1/2022	5	10	
5	Architectural Coating	Architectural Coating	12/2/2022	12/15/2022	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 2.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,485; Non-Residential Outdoor: 3,162; Striped Parking Area: 5,938 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	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	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	44.00	17.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.2 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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0276	0.0194	0.3054	8.1000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		82.3318	82.3318	2.1400e-003	1.9600e-003	82.9685
Total	**0.0276**	**0.0194**	**0.3054**	**8.1000e-004**	**0.0894**	**5.3000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**82.3318**	**82.3318**	**2.1400e-003**	**1.9600e-003**	**82.9685**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.2 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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0276	0.0194	0.3054	8.1000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		82.3318	82.3318	2.1400e-003	1.9600e-003	82.9685
Total	**0.0276**	**0.0194**	**0.3054**	**8.1000e-004**	**0.0894**	**5.3000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**82.3318**	**82.3318**	**2.1400e-003**	**1.9600e-003**	**82.9685**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0882	0.0000	7.0882	3.4256	0.0000	3.4256			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0882**	**0.7423**	**7.8305**	**3.4256**	**0.6829**	**4.1085**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0268	0.9881	0.2362	3.8300e-003	0.1108	8.2600e-003	0.1190	0.0304	7.9000e-003	0.0383		420.4325	420.4325	0.0226	0.0667	440.8863
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.0612**	**1.0124**	**0.6179**	**4.8400e-003**	**0.2226**	**8.9300e-003**	**0.2315**	**0.0600**	**8.5100e-003**	**0.0685**		**523.3472**	**523.3472**	**0.0253**	**0.0692**	**544.5969**

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

3.3 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					3.1897	0.0000	3.1897	1.5415	0.0000	1.5415			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**3.1897**	**0.7423**	**3.9320**	**1.5415**	**0.6829**	**2.2244**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0268	0.9881	0.2362	3.8300e-003	0.1108	8.2600e-003	0.1190	0.0304	7.9000e-003	0.0383		420.4325	420.4325	0.0226	0.0667	440.8863
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.0612**	**1.0124**	**0.6179**	**4.8400e-003**	**0.2226**	**8.9300e-003**	**0.2315**	**0.0600**	**8.5100e-003**	**0.0685**		**523.3472**	**523.3472**	**0.0253**	**0.0692**	**544.5969**

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

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0310	0.7910	0.2712	3.2500e-003	0.1089	8.2700e-003	0.1171	0.0313	7.9100e-003	0.0393		349.6379	349.6379	0.0117	0.0507	365.0365
Worker	0.1515	0.1066	1.6795	4.4500e-003	0.4918	2.9400e-003	0.4948	0.1304	2.7100e-003	0.1331		452.8248	452.8248	0.0118	0.0108	456.3265
Total	**0.1825**	**0.8977**	**1.9507**	**7.7000e-003**	**0.6007**	**0.0112**	**0.6119**	**0.1618**	**0.0106**	**0.1724**		**802.4626**	**802.4626**	**0.0235**	**0.0615**	**821.3630**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.4 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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0310	0.7910	0.2712	3.2500e-003	0.1089	8.2700e-003	0.1171	0.0313	7.9100e-003	0.0393		349.6379	349.6379	0.0117	0.0507	365.0365
Worker	0.1515	0.1066	1.6795	4.4500e-003	0.4918	2.9400e-003	0.4948	0.1304	2.7100e-003	0.1331		452.8248	452.8248	0.0118	0.0108	456.3265
Total	**0.1825**	**0.8977**	**1.9507**	**7.7000e-003**	**0.6007**	**0.0112**	**0.6119**	**0.1618**	**0.0106**	**0.1724**		**802.4626**	**802.4626**	**0.0235**	**0.0615**	**821.3630**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.4087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3499**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659
Total	**0.0517**	**0.0363**	**0.5726**	**1.5200e-003**	**0.1677**	**1.0000e-003**	**0.1687**	**0.0445**	**9.2000e-004**	**0.0454**		**154.3721**	**154.3721**	**4.0100e-003**	**3.6700e-003**	**155.5659**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.5 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	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.4087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3499**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659
Total	**0.0517**	**0.0363**	**0.5726**	**1.5200e-003**	**0.1677**	**1.0000e-003**	**0.1687**	**0.0445**	**9.2000e-004**	**0.0454**		**154.3721**	**154.3721**	**4.0100e-003**	**3.6700e-003**	**155.5659**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.6832					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**5.8878**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0310	0.0218	0.3435	9.1000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		92.6232	92.6232	2.4100e-003	2.2000e-003	93.3395
Total	**0.0310**	**0.0218**	**0.3435**	**9.1000e-004**	**0.1006**	**6.0000e-004**	**0.1012**	**0.0267**	**5.5000e-004**	**0.0272**		**92.6232**	**92.6232**	**2.4100e-003**	**2.2000e-003**	**93.3395**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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

3.6 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	5.6832					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**5.8878**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0310	0.0218	0.3435	9.1000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		92.6232	92.6232	2.4100e-003	2.2000e-003	93.3395
Total	**0.0310**	**0.0218**	**0.3435**	**9.1000e-004**	**0.1006**	**6.0000e-004**	**0.1012**	**0.0267**	**5.5000e-004**	**0.0272**		**92.6232**	**92.6232**	**2.4100e-003**	**2.2000e-003**	**93.3395**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	5.9280	3.7354	30.9965	0.0453	4.2204	0.0402	4.2606	1.1246	0.0373	1.1619		4,667.3771	4,667.3771	0.5591	0.3314	4,780.1076
Unmitigated	5.9280	3.7354	30.9965	0.0453	4.2204	0.0402	4.2606	1.1246	0.0373	1.1619		4,667.3771	4,667.3771	0.5591	0.3314	4,780.1076

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	3,285.76	3,285.76	3285.76	1,961,187	1,961,187
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
General Office Building	13.01	2.65	0.84	31,539	31,539
Total	3,298.77	3,288.41	3,286.60	1,992,726	1,992,726

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
Convenience Market with Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
Other Asphalt Surfaces	16.60	8.40	6.90	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

	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
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Parking Lot	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
General Office Building	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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					
NaturalGas Mitigated	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
NaturalGas Unmitigated	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889

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					
Convenience Market with Gas Pumps	30.8784	3.3000e-004	3.0300e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6328	3.6328	7.0000e-005	7.0000e-005	3.6543
General Office Building	11.2767	1.2000e-004	1.1100e-003	9.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		1.3267	1.3267	3.0000e-005	2.0000e-005	1.3346
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.5000e-004**	**4.1400e-003**	**3.4700e-003**	**3.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**		**4.9594**	**4.9594**	**1.0000e-004**	**9.0000e-005**	**4.9889**

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					
Convenience Market with Gas Pumps	0.0308784	3.3000e-004	3.0300e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6328	3.6328	7.0000e-005	7.0000e-005	3.6543
General Office Building	0.0112767	1.2000e-004	1.1100e-003	9.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		1.3267	1.3267	3.0000e-005	2.0000e-005	1.3346
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.5000e-004**	**4.1400e-003**	**3.4700e-003**	**3.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**		**4.9594**	**4.9594**	**1.0000e-004**	**9.0000e-005**	**4.9889**

6.0 Area Detail

6.1 Mitigation Measures Area

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Unmitigated	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180

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	0.0156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1603					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**0.1766**	**7.0000e-005**	**7.8600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Summer

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	0.0156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1603					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**0.1766**	**7.0000e-005**	**7.8600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

7.0 Water Detail

7.1 Mitigation Measures Water

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

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

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

Redlands & Hemlock Gas Station AQ-GHG

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.20	1000sqft	0.00	1,200.00	0
Other Asphalt Surfaces	1.30	Acre	1.32	56,628.00	0
Other Non-Asphalt Surfaces	31.54	1000sqft	0.72	31,536.00	0
Parking Lot	27.00	Space	0.24	10,800.00	0
Convenience Market with Gas Pumps	16.00	Pump	0.12	5,123.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is in Moreno Valley, whish is in South Coast AQMD.

Land Use - 11 fueling stations --> 16 pumps; 5,123 sf food mart and retail store; 31,536 sf planter area (non-hardscape). 1,200 sf of general office. 1.3 acres of hardscape estimated. Total area = 2.4 acres

Construction Phase - Default construction schedule with no demolition since site is vacant

Off-road Equipment - Default construction equipment

Grading - Export approximately 300 cubic yards during grading phase

Architectural Coating - SCAQMD Rule 1113, Building Envelope Coating = 50 g/L and Flats = 50 g/L

Vehicle Trips - Gas Station with Convenience Market Project Specific Trip Generation Rate. General office building trip generation

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

Area Coating - SCAQMD Rule 1113

Water And Wastewater - No septic tanks proposed onsite but the Eastern Municipal Water District has faculatative lagons

Construction Off-road Equipment Mitigation - SCAQMD Rule 403, watering and vehicle speed from Table 1 BACT applicable to all construction activity

Area Mitigation -

Trips and VMT -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	300.00
tblLandUse	LandUseSquareFeet	31,540.00	31,536.00
tblLandUse	LandUseSquareFeet	2,258.80	5,123.00
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	1.30	1.32
tblLandUse	LotAcreage	0.05	0.12
tblVehicleTrips	ST_TR	322.50	205.36
tblVehicleTrips	SU_TR	322.50	205.36
tblVehicleTrips	WD_TR	322.50	205.36
tblVehicleTrips	WD_TR	9.74	10.84
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00

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

tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	5.9204	18.0417	16.1525	0.0325	7.3108	0.7512	8.0620	3.4856	0.6914	4.1770	0.0000	3,065.5886	3,065.5886	0.7703	0.0694	3,095.7487
Maximum	**5.9204**	**18.0417**	**16.1525**	**0.0325**	**7.3108**	**0.7512**	**8.0620**	**3.4856**	**0.6914**	**4.1770**	**0.0000**	**3,065.5886**	**3,065.5886**	**0.7703**	**0.0694**	**3,095.7487**

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	5.9204	18.0417	16.1525	0.0325	3.4123	0.7512	4.1635	1.6015	0.6914	2.2930	0.0000	3,065.5886	3,065.5886	0.7703	0.0694	3,095.7487
Maximum	**5.9204**	**18.0417**	**16.1525**	**0.0325**	**3.4123**	**0.7512**	**4.1635**	**1.6015**	**0.6914**	**2.2930**	**0.0000**	**3,065.5886**	**3,065.5886**	**0.7703**	**0.0694**	**3,095.7487**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.33**	**0.00**	**48.36**	**54.05**	**0.00**	**45.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
Mobile	5.5513	4.0172	32.6207	0.0435	4.2204	0.0403	4.2606	1.1246	0.0374	1.1620		4,474.8469	4,474.8469	0.6076	0.3472	4,593.4974
Total	**5.7283**	**4.0214**	**32.6320**	**0.0435**	**4.2204**	**0.0406**	**4.2610**	**1.1246**	**0.0377**	**1.1623**		**4,479.8231**	**4,479.8231**	**0.6078**	**0.3473**	**4,598.5042**

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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
Mobile	5.5513	4.0172	32.6207	0.0435	4.2204	0.0403	4.2606	1.1246	0.0374	1.1620		4,474.8469	4,474.8469	0.6076	0.3472	4,593.4974
Total	**5.7283**	**4.0214**	**32.6320**	**0.0435**	**4.2204**	**0.0406**	**4.2610**	**1.1246**	**0.0377**	**1.1623**		**4,479.8231**	**4,479.8231**	**0.6078**	**0.3473**	**4,598.5042**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/5/2022	5	3	
2	Grading	Grading	1/6/2022	1/13/2022	5	6	
3	Building Construction	Building Construction	1/14/2022	11/17/2022	5	220	
4	Paving	Paving	11/18/2022	12/1/2022	5	10	
5	Architectural Coating	Architectural Coating	12/2/2022	12/15/2022	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 2.28

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,485; Non-Residential Outdoor: 3,162; Striped Parking Area: 5,938 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	44.00	17.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.2 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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0290	0.0212	0.2761	7.6000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		77.5444	77.5444	2.1600e-003	2.0800e-003	78.2174
Total	**0.0290**	**0.0212**	**0.2761**	**7.6000e-004**	**0.0894**	**5.3000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**77.5444**	**77.5444**	**2.1600e-003**	**2.0800e-003**	**78.2174**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.2 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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0290	0.0212	0.2761	7.6000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		77.5444	77.5444	2.1600e-003	2.0800e-003	78.2174
Total	**0.0290**	**0.0212**	**0.2761**	**7.6000e-004**	**0.0894**	**5.3000e-004**	**0.0900**	**0.0237**	**4.9000e-004**	**0.0242**		**77.5444**	**77.5444**	**2.1600e-003**	**2.0800e-003**	**78.2174**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0882	0.0000	7.0882	3.4256	0.0000	3.4256			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0882**	**0.7423**	**7.8305**	**3.4256**	**0.6829**	**4.1085**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0260	1.0316	0.2406	3.8300e-003	0.1108	8.2800e-003	0.1191	0.0304	7.9200e-003	0.0383		420.5873	420.5873	0.0225	0.0668	441.0480
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.0623**	**1.0581**	**0.5857**	**4.7800e-003**	**0.2226**	**8.9500e-003**	**0.2315**	**0.0600**	**8.5300e-003**	**0.0686**		**517.5179**	**517.5179**	**0.0252**	**0.0694**	**538.8197**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.3 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					3.1897	0.0000	3.1897	1.5415	0.0000	1.5415			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**3.1897**	**0.7423**	**3.9320**	**1.5415**	**0.6829**	**2.2244**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0260	1.0316	0.2406	3.8300e-003	0.1108	8.2800e-003	0.1191	0.0304	7.9200e-003	0.0383		420.5873	420.5873	0.0225	0.0668	441.0480
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.0623**	**1.0581**	**0.5857**	**4.7800e-003**	**0.2226**	**8.9500e-003**	**0.2315**	**0.0600**	**8.5300e-003**	**0.0686**		**517.5179**	**517.5179**	**0.0252**	**0.0694**	**538.8197**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0304	0.8256	0.2810	3.2500e-003	0.1089	8.3000e-003	0.1172	0.0313	7.9400e-003	0.0393		349.8129	349.8129	0.0117	0.0508	365.2301
Worker	0.1594	0.1166	1.5183	4.1900e-003	0.4918	2.9400e-003	0.4948	0.1304	2.7100e-003	0.1331		426.4944	426.4944	0.0119	0.0114	430.1956
Total	**0.1899**	**0.9422**	**1.7992**	**7.4400e-003**	**0.6007**	**0.0112**	**0.6119**	**0.1618**	**0.0107**	**0.1724**		**776.3073**	**776.3073**	**0.0236**	**0.0622**	**795.4258**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.4 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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0304	0.8256	0.2810	3.2500e-003	0.1089	8.3000e-003	0.1172	0.0313	7.9400e-003	0.0393		349.8129	349.8129	0.0117	0.0508	365.2301
Worker	0.1594	0.1166	1.5183	4.1900e-003	0.4918	2.9400e-003	0.4948	0.1304	2.7100e-003	0.1331		426.4944	426.4944	0.0119	0.0114	430.1956
Total	**0.1899**	**0.9422**	**1.7992**	**7.4400e-003**	**0.6007**	**0.0112**	**0.6119**	**0.1618**	**0.0107**	**0.1724**		**776.3073**	**776.3073**	**0.0236**	**0.0622**	**795.4258**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.4087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3499**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576
Total	**0.0544**	**0.0398**	**0.5176**	**1.4300e-003**	**0.1677**	**1.0000e-003**	**0.1687**	**0.0445**	**9.2000e-004**	**0.0454**		**145.3958**	**145.3958**	**4.0600e-003**	**3.8900e-003**	**146.6576**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.5 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	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.4087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3499**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576
Total	**0.0544**	**0.0398**	**0.5176**	**1.4300e-003**	**0.1677**	**1.0000e-003**	**0.1687**	**0.0445**	**9.2000e-004**	**0.0454**		**145.3958**	**145.3958**	**4.0600e-003**	**3.8900e-003**	**146.6576**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.6832					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**5.8878**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0239	0.3106	8.6000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		87.2375	87.2375	2.4300e-003	2.3400e-003	87.9946
Total	**0.0326**	**0.0239**	**0.3106**	**8.6000e-004**	**0.1006**	**6.0000e-004**	**0.1012**	**0.0267**	**5.5000e-004**	**0.0272**		**87.2375**	**87.2375**	**2.4300e-003**	**2.3400e-003**	**87.9946**

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, Winter

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

3.6 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	5.6832					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**5.8878**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0239	0.3106	8.6000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		87.2375	87.2375	2.4300e-003	2.3400e-003	87.9946
Total	**0.0326**	**0.0239**	**0.3106**	**8.6000e-004**	**0.1006**	**6.0000e-004**	**0.1012**	**0.0267**	**5.5000e-004**	**0.0272**		**87.2375**	**87.2375**	**2.4300e-003**	**2.3400e-003**	**87.9946**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	5.5513	4.0172	32.6207	0.0435	4.2204	0.0403	4.2606	1.1246	0.0374	1.1620		4,474.8469	4,474.8469	0.6076	0.3472	4,593.4974
Unmitigated	5.5513	4.0172	32.6207	0.0435	4.2204	0.0403	4.2606	1.1246	0.0374	1.1620		4,474.8469	4,474.8469	0.6076	0.3472	4,593.4974

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	3,285.76	3,285.76	3285.76	1,961,187	1,961,187
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
General Office Building	13.01	2.65	0.84	31,539	31,539
Total	3,298.77	3,288.41	3,286.60	1,992,726	1,992,726

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
Convenience Market with Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
Other Asphalt Surfaces	16.60	8.40	6.90	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

	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
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
Parking Lot	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791
General Office Building	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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					
NaturalGas Mitigated	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889
NaturalGas Unmitigated	4.5000e-004	4.1300e-003	3.4700e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004		4.9594	4.9594	1.0000e-004	9.0000e-005	4.9889

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					
Convenience Market with Gas Pumps	30.8784	3.3000e-004	3.0300e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6328	3.6328	7.0000e-005	7.0000e-005	3.6543
General Office Building	11.2767	1.2000e-004	1.1100e-003	9.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		1.3267	1.3267	3.0000e-005	2.0000e-005	1.3346
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.5000e-004**	**4.1400e-003**	**3.4700e-003**	**3.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**		**4.9594**	**4.9594**	**1.0000e-004**	**9.0000e-005**	**4.9889**

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					
Convenience Market with Gas Pumps	0.0308784	3.3000e-004	3.0300e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6328	3.6328	7.0000e-005	7.0000e-005	3.6543
General Office Building	0.0112767	1.2000e-004	1.1100e-003	9.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		1.3267	1.3267	3.0000e-005	2.0000e-005	1.3346
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.5000e-004**	**4.1400e-003**	**3.4700e-003**	**3.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**		**4.9594**	**4.9594**	**1.0000e-004**	**9.0000e-005**	**4.9889**

6.0 Area Detail

6.1 Mitigation Measures Area

Redlands & Hemlock Gas Station AQ-GHG - South Coast AQMD Air District, 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	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Unmitigated	0.1766	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180

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	0.0156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1603					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**0.1766**	**7.0000e-005**	**7.8600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

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	0.0156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1603					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8600e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**0.1766**	**7.0000e-005**	**7.8600e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

7.0 Water Detail

7.1 Mitigation Measures Water

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

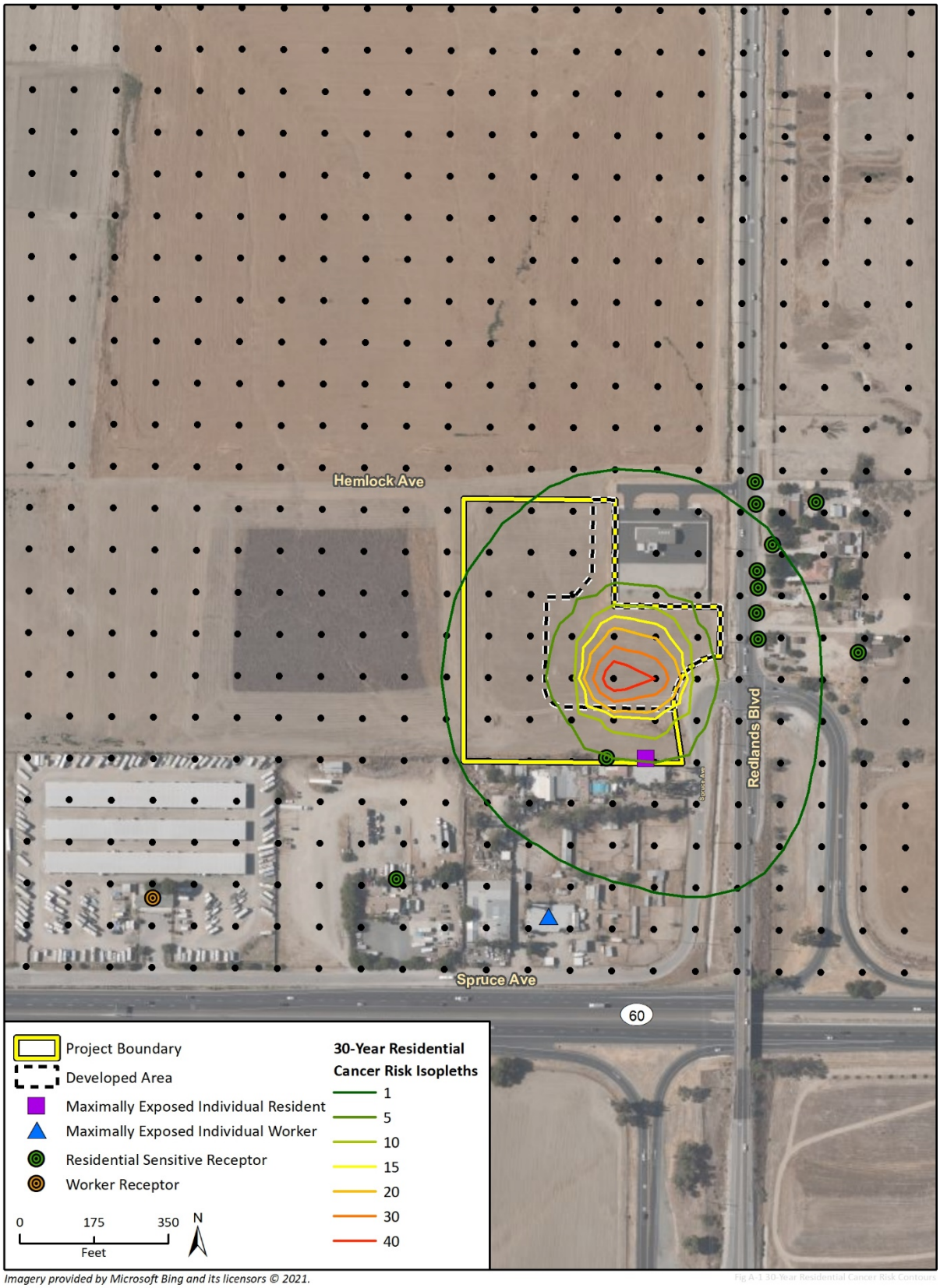
Equipment Type	Number

11.0 Vegetation

Appendix B

AERMOD Output, HARP Risk Results, and Risk Isopleths

Figure A-1 30-Year Residential Cancer Risk Contours



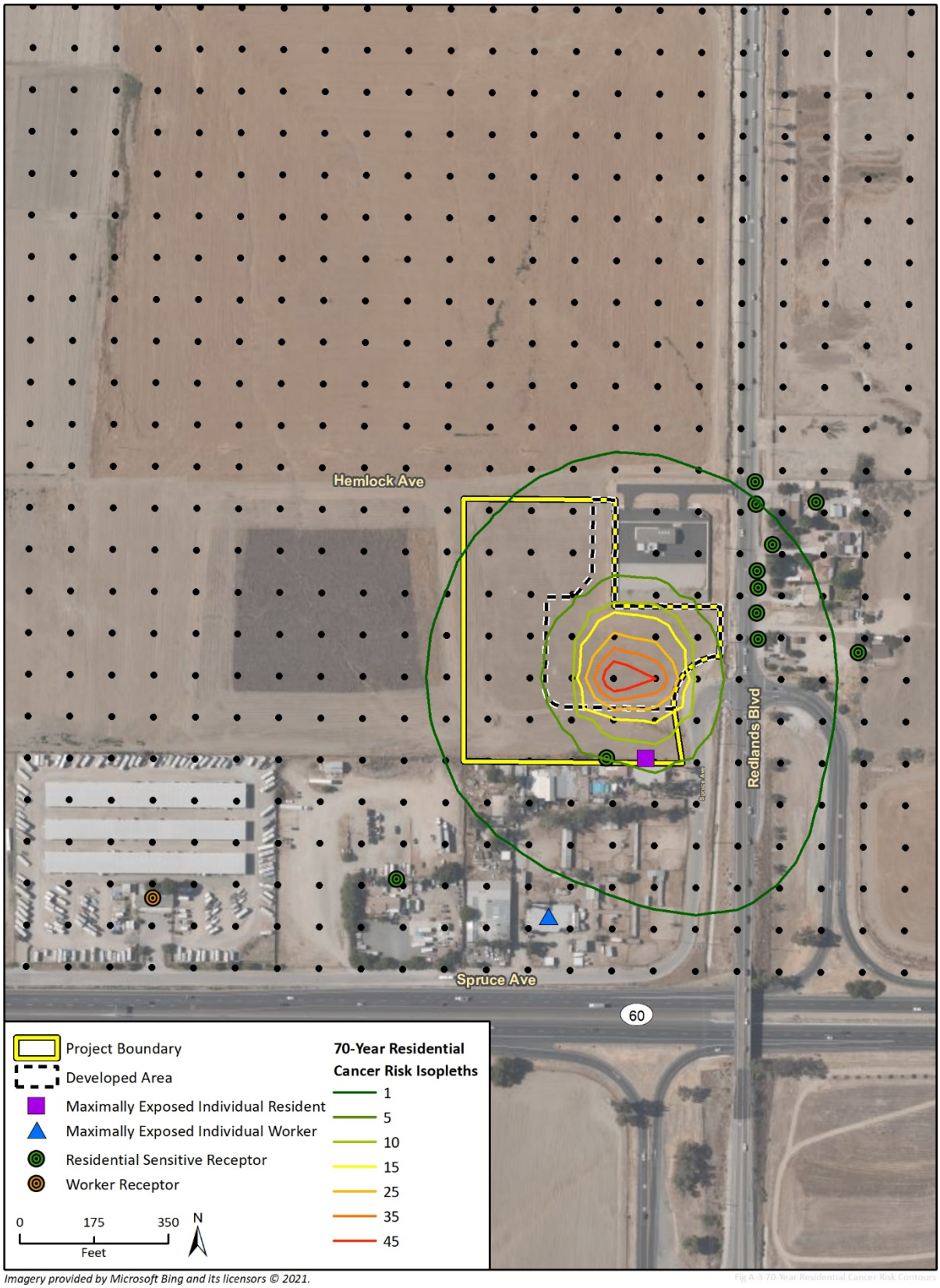
Imagery provided by Microsoft Bing and its licensors © 2021.

Figure A-2 25-Year Worker Cancer Risk Contours

Imagery provided by Microsoft Bing and its licensors © 2021.

Fig A-2 25-Year Worker Cancer Risk Contours

Figure A-3 70-Year Residential Cancer Risk Contours



Imagery provided by Microsoft Bing and its licensors © 2021.

Fig A-3 70-Year Residential Cancer Risk Contours

Table A-1 Residential and Worker Receptor Cancer Risk

Receptor	Distance to Project Site[1]	Cancer Risk
Residential Receptors[2]		
SR1	**120 feet (south)**	**5.5 in 1 million**
SR2	120 feet (south)	4.4 in 1 million
SR3	550 feet (southwest)	0.4 in 1 million
SR4	105 feet (east)	2.0 in 1 million
SR5	340 feet (east)	0.7 in 1 million
SR6	100 feet (east)	1.8 in 1 million
SR7	110 feet (northeast)	1.5 in 1 million
SR8	125 feet (northeast)	1.4 in 1 million
SR9	190 feet (northeast)	1.0 in 1 million
SR10	250 feet (northeast)	0.9 in 1 million
SR11	335 feet (northeast)	0.6 in 1 million
SR12	295 feet (northeast)	0.8 in 1 million
Worker Receptors[3]		
W1	465 feet (south)	0.2 in one million
W2	985 feet (south)	0.1 in one million

Bold text denotes MEIR and MEIW.

[1]Distance measured to border of developed project site area.

[2]Residential cancer risk based on 30-year residential exposure duration.

[3]Worker cancer risk based on 25-year worker exposure duration.

Appendix C

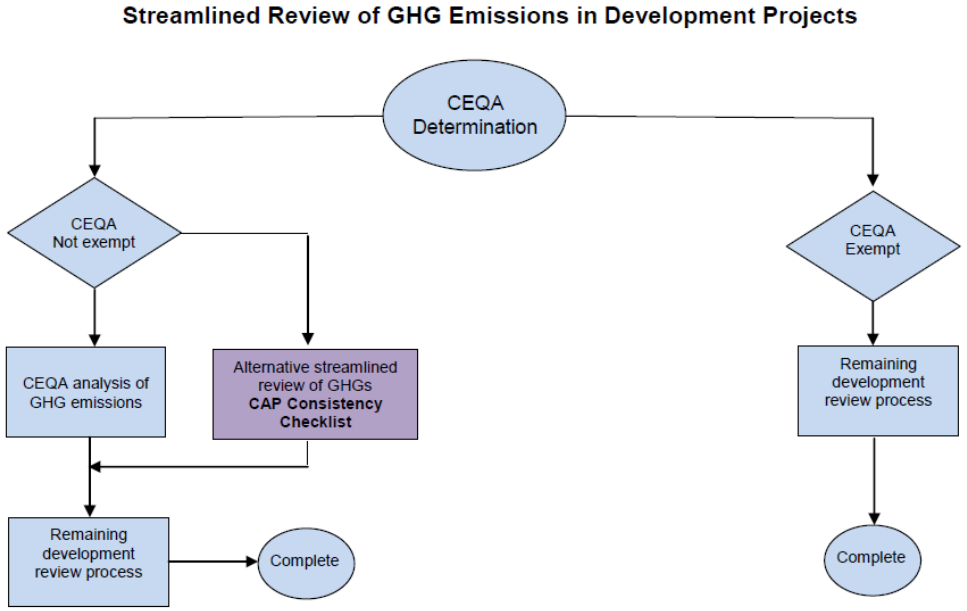
City of Moreno Valley Climate Action Plan Consistency Checklist

City of Moreno Valley
Climate Action Plan Consistency Checklist

The purpose of the Climate Action Plan Consistency Checklist (CAP Consistency Checklist) is to provide a streamlined review process for proposed new development projects which are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

CEQA Guidelines require the analysis of greenhouse gas (GHG) emissions and potential climate change impacts from new development. The Moreno Valley Climate Action Plan qualifies under section 15183.5 of the CEQA Guidelines as a plan for the reduction of GHG emissions for use in cumulative impact analysis pertaining to development projects. This allows projects that demonstrate consistency with the CAP to be eligible for this streamlining procedure. Projects that demonstrate consistency with the CAP and the Moreno Valley 2040 General Plan may be able to answer "No additional significant environmental effect" in the City's initial study checklist. Projects that do not demonstrate consistency may, at the City's discretion, prepare a more comprehensive project-specific analysis of GHG emissions consistent with CEQA requirements.

The diagram below shows the context for the CAP Consistency Review Checklist within the planning review process framework.



Section A: Application Information

This Checklist is required only for discretionary projects that are subject to and not exempt from CEQA. In this context, a project is any action that meets the definition of a "Project" in Section 15378 of the State CEQA Guidelines. Projects that are exempt from CEQA are deemed to be consistent with the City's CAP, and no further review is necessary, with the exception of a Class 32 "In-Fill Development Projects" categorical exemption (State CEQA Guidelines Section 15332), for which projects are required to demonstrate consistency with the CAP through this Checklist.

This Checklist is designed to assist the applicant and the City in identifying the minimum CAP-related requirements specific to the proposed project. However, the final determination of a project's consistency with the Checklist will be made by City staff. As a result, it may be necessary to supplement the completed Checklist with supporting materials, calculations, or certifications to demonstrate full compliance with the Checklist requirements.

Projects required to complete this Checklist must first provide the following information:

CONTACT INFORMATION

Project Number: PEN18-0038

Address of Property and APN: Southwestern corner of the Redlands Bouelvard and Hemlock Avenue Interserction. APN 488-310-012

Applicant Name and Company: Ahmad Ghaderi, A & S Engineering, Inc.

Contact Phone: 661-250-9300 Contact Email: ahmadg@asengineer.com

Was a special consultant retain to complete this checklist? ☐ Yes ☐No. If yes, complete the following.

Consultant Name: Bill Vosti

Company Name: Rincon Consultants, Inc.

Contact Phone: 909-253-0705 Contact Email: bvosti@rinconconsultants.com

PROJECT INFORMATION

What is the size of the project (acres)? 6.9-acres

Identify all applicable proposed land uses:

☐ Single-family residential (indicate # of single-family dwelling units): _____

☐ Multifamily residential (indicate # of multi-family dwelling units): _____

☒ Commercial (indicate total square footage): Fuel facility with 11 fuel stations, 3,923 square foot food mart with 1,200 square foot office and storage in the mezzanine level, and a 1,200 square foot retail store

☐ Industrial (indicate total square footage): _____

☐ Other (describe use and indicate size): _____

Provide a description of the proposed project. This description should match the basic project description used for the CEQA document. The description may be attached to the Checklist if there are space constraints.

The project would include the development of a gas station with 11 fueling stations (16 total dispensers), a 3,923 square foot food mart with 1,200 square feet of office and storage in the mezzanine level, and a 1,200 square foot retail store adjacent to the food mart. Of the 16 dispensers, 14 of the dispensers would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining two dispensers would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x 6 foot trash enclosure would also be constructed adjacent to the western boundary of the food mart/retail store. The project would provide a total of 29 parking spaces in a surface lot with two stalls for electric vehicle parking. Additional improvements include curb and sidewalk enhancements and landscaping. Access to the project site would be provided from two driveways with one off Redlands Boulevard and the other driveway off of Hemlock Avenue. Of the 6.9-acre site, only approximately 2.4 acres would be developed; the remaining 4.5 acres would remain undeveloped. An additional 0.63 acre would be improved for off-site modifications (e.g., storm drain improvements) for a total disturbed area of 7.53 acres.

Section B: General Plan Land Use Consistency

The first step in determining CAP consistency for a discretionary development project is to assess the project's consistency with the land use assumptions in the City's General Plan and zoning designations, which were used to calculate the future GHG emissions forecasts and targets for the CAP. If the proposed project is consistent with applicable General Plan and zoning designations, the proposed project may be determined to be within the scope of emissions covered under the CAP. If General Plan and zoning designation consistency is demonstrated, the project would still need to demonstrate consistency with all applicable required measures in the CAP Checklist.

If the project is not consistent with the existing General Plan and zoning designations, it is still possible that the land use changes required for the project would be small enough to remain consistent with the growth projections used in the CAP. The questions below must be completed, as applicable, to determine whether the project is consistent with the City's General Plan and zoning designations and related GHG emissions forecasts and targets.

1. Are the proposed land uses in the project consistent with the existing 2040 General Plan land use and zoning designations? *If "Yes," questions 2 and 3 below are not applicable and the project shall proceed to Section C of the checklist.* *If "No," proceed to question 2 below.*	Yes ☒	No ☐
2. Is a General Plan amendment and/or rezoning required for the project? *If "No," question 3 below is not applicable and the project shall proceed to Section C of the checklist.* *If "Yes," proceed to question 3 below.*	Yes ☐	No ☐
3. If the proposed project is not consistent with the 2040 General Plan land use or zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations? *If "Yes", attach to this checklist the estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation. If the proposed project is determined to result in an equivalent or less GHG-intensive project when compared to the existing designations, proceed to Section C of the checklist.*	Yes ☐	No ☐

If "No", the applicant must conduct a full GHG impact analysis for the project as part of the CEQA process. The project shall incorporate each of the applicable measures identified in Section C to mitigate cumulative GHG emissions impacts.		

Section C: CAP Measure Consistency

The completion of this Checklist will document a project's compliance with the GHG reduction measures in the City's CAP that are applicable to new development. The compliance requirements apply to development projects that include discretionary review, require environmental review, and, therefore, are not exempt under CEQA.

All required project-level measures that apply to the proposed project must be answered "Yes" in order to be consistent with the CAP, and documentation must be provided that substantiates how compliance would be achieved. For measures for which a "Yes" is indicated, the features must be demonstrated as part of the project's design and described. All applicable requirements in the checklist will be included in the conditions of approval or issuance of building permit stage of project approval.

If any required project-level measures are marked with a "No", the project cannot be determined to be consistent with the CAP, and project specific GHG analysis and mitigation would be required. If any questions are marked "NA" (meaning "not applicable"), a statement describing why the question is not applicable shall be provided to the satisfaction of the Planning Division.

REQUIRED PROJECT-LEVEL MEASURES

Checklist Item	Corresponding CAP Measure	Yes	No	NA
If the project includes new residential, commercial, and/or mixed-use development, would the project implement trip reduction programs? (Examples of residential trip reduction programs, or transportation demand management (TDM) strategies include, among others, installing and maintaining on-site bicycle parking; providing designated parking spaces for car share operations; offering an annual carshare membership to building residents or employees; posting wayfinding signage near major entrances directing building users to bus stops, bicycle facilities, car sharing kiosks, and other alternative travel options; and unbundling the price of parking from rents or sale of units.)	TR-5	☐	☐	☒
Please explain how the proposed project meets this requirement (i.e., list trip reduction measures). If "not applicable," explain why trip reduction measures were not required. The project would accommodate a few employees. The project is anticipated to be exempt from the trip reduction requirement because the limited number of employees generated by the project would be less than typical thresholds. However, the project would include on-site bicycle parking for employee and customer use.				

For projects including new construction or major remodeling of residential development, does the project include installation of real-time energy smart meters?	R-2	☐	☐	☒
Please explain how the proposed project meets this requirement. If "not applicable" (NA), explain why this was not required. The project is a commercial use and would not be required to adhere to this measure.				
During project construction, will clear signage reminding construction workers to limit idling of construction equipment provided?	OR-2	☒	☐	☐
Please explain how the proposed project meets this requirement. If "not applicable" (NA), explain why this was not required. Yes, the project would have clear signage onsite during all construction activities to limit idling of construction equipment				
During project construction, will the project limit construction-related GHG emissions through one or more of the following measures: substituting electrified or hybrid equipment for diesel/gas powered equipment; using alternative-fueled equipment on-site; and avoiding use of on-site diesel/gas powered generators?	OR-2	☒	☐	☐
Please explain how the proposed project meets this requirement. If "not applicable" (NA), explain why this was not required. The project would avoid the use of onsite diesel/gas powered generators. Instead, electricity would be provided onsite during construction.				
For any new landscaping to be included as part of the project, does the project incorporate climate-appropriate, water-wise landscaping features, such as those identified in the *County of Riverside Guide To California Friendly Landscaping.*	NC-1	☒	☐	☐
Please explain how the proposed project meets this requirement. If "not applicable" (NA), explain why this was not required. Yes, the project would incorporate the climate-appropriate, water-wise landscaping features that are identified in the County of Riverside Guide to California Friendly				

VOLUNTARY PROJECT-LEVEL MEASURES

The CAP also includes voluntary project-level measures that support municipal targets and measures included in the CAP. While not required of project applicants, compliance with these measures support implementation of the CAP and are considered evidence of consistency.

Checklist Item	Corresponding CAP Measure	Yes	No	NA
The CAP establishes a citywide target of increasing alternatives to single-occupant vehicle use by 10 percent for people employed in Moreno Valley by 2040. If the project involves a business with over 50 employees or tenants with such businesses, will the project implement Transportation Demand Management strategies and programs identified in Connect SoCal, the SCAG Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS), including but not limited to: implementing commuter benefit programs, promoting telecommuting and alternative work schedule options, and other financial incentives?	TR-3	☐	☐	☐
If the proposed project intends to include this beneficial measure, please explain how it will do so.				
If the project includes new multi-family residential and/or mixed-use development, will the project reduce the need for external trips by providing useful services/facilities on-site (Examples include an ATM, vehicle refueling, electric vehicle infrastructure, and shopping)?	TR-9	☐	☐	☐
If the proposed project intends to include this beneficial measure, please explain how it will do so.				
If the project includes new industrial facilities or involves the expansion of existing industrial facilities, will the project include energy efficient building operations systems to support the citywide goal of a 40 percent energy reduction in 30 percent of industrial square footage by 2040?	I-1	☐	☐	☐
If the proposed project intends to include this beneficial measure, please explain how it will do so.				

If the project includes industrial or warehousing facilities, will the project install solar energy infrastructure to support the City's goal of providing 25 percent of energy needs with solar in 30 percent of industrial and warehouse square footage by 2040?	I-2	☐	☐	☐
If the proposed project intends to include this beneficial measure, please explain how it will do so.				
Will the project use water efficient lawn and garden maintenance equipment, or reduce the need for landscaping maintenance through drought-resistant planting?	NC-2	☐	☐	☐
If the proposed project intends to include this beneficial measure, please explain how it will do so.				