Air Quality & Greenhouse Gas Emissions Assessment for the

Calvine Chevron Project

Sacramento County, California

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
µg/m3	Micrograms per cubic meter; ppm = parts per million
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
AB	Assembly Bill
APN	Assessor's Parcel Number
ASF	Age Sensitivity Factor
ATCM	airborne toxics control measure
BACT	Best Available Control Technology
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAP	Climate Action Plan
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
County	Sacramento County
DPM	Diesel particulate matter
EF	Exposure Frequency
EO	Executive Order

LIST OF ACRONYMS AND ABBREVIATIONS

FAH	Fraction of time at home
GDP	Gross Domestic Product
GHG	Greenhouse gas
GLC	Ground Level Concentration
GWP	Global warming potential
HRA	Health Risk Assessment
HVAC	Heating, ventilation, and air conditioning
IPCC	Intergovernmental Panel on Climate Change
Kg	Kilogram
L	Liter
MEIR	Maximum Exposed Individual Resident
MEIW	Maximum Exposed Individual Worker
mg	Milligram
mph	Miles per hour
MPO	Metropolitan Planning Organization
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen dioxide
NO_x	Nitric oxides
OEHHA	Office of Environment Health Hazard Assessment
O_3	Ozone
PERP	portable equipment registration
PM	Particulate matter
PMI	Point of Maximum Impact
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
ppm	Parts per million
PRC	Public Resources Code
Project	Calvine Chevron Project
REL	Reference Exposure Level
ROGs	Reactive organic gases
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SMAQMD	Sacramento Metropolitan Air Quality Management District
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
SVAB	Sacramento Valley Air Basin
TACs	Toxic air contaminants
TDM	Transportation Demand Management
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile organic compounds
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

This report documents the results of an Air Quality, Health Risk and Greenhouse Gas (GHG) Emissions Assessment completed for the Calvine Chevron Project (Project), which proposes the construction of a convenience store, drive-thru café, a restaurant/retail building, a 12-position gasoline dispensing facility, and carwash. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants, health risk and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the surrounding environment.

1.1 Project Location and Description

The Project Site is a 3.08-acre property located approximately 220 feet west of the Elk Grove Florin Road/Calvine Road intersection in the community of Vineyard in unincorporated Sacramento County. The Project Site encompasses the following Assessor's Parcel Number (APN): 115-0120-019-0000. The Project Site is roughly bounded by Calvine Road to the south, with commercial land uses beyond; a tire store and market to the west, with residential land uses beyond; an apartment complex to the northwest; land under construction to the north[1], with a carwash beyond; and a discount retail store and associated parking lot to the east, with a regional shopping center parking lot beyond (see Figure 1. Project Location).

The Project Site has a County of Sacramento General Plan land use designation of Commercial and Offices.

The Project proposes a mix of land uses as follows:

- 5,347-square foot convenience store
- 5,382 -square foot retail/restaurant building
- 1,316-square foot Drive-thru Cafe
- 1,550-square foot carwash
- 12-Position Gasoline Dispensing Facility
- 59-Space Parking Lot

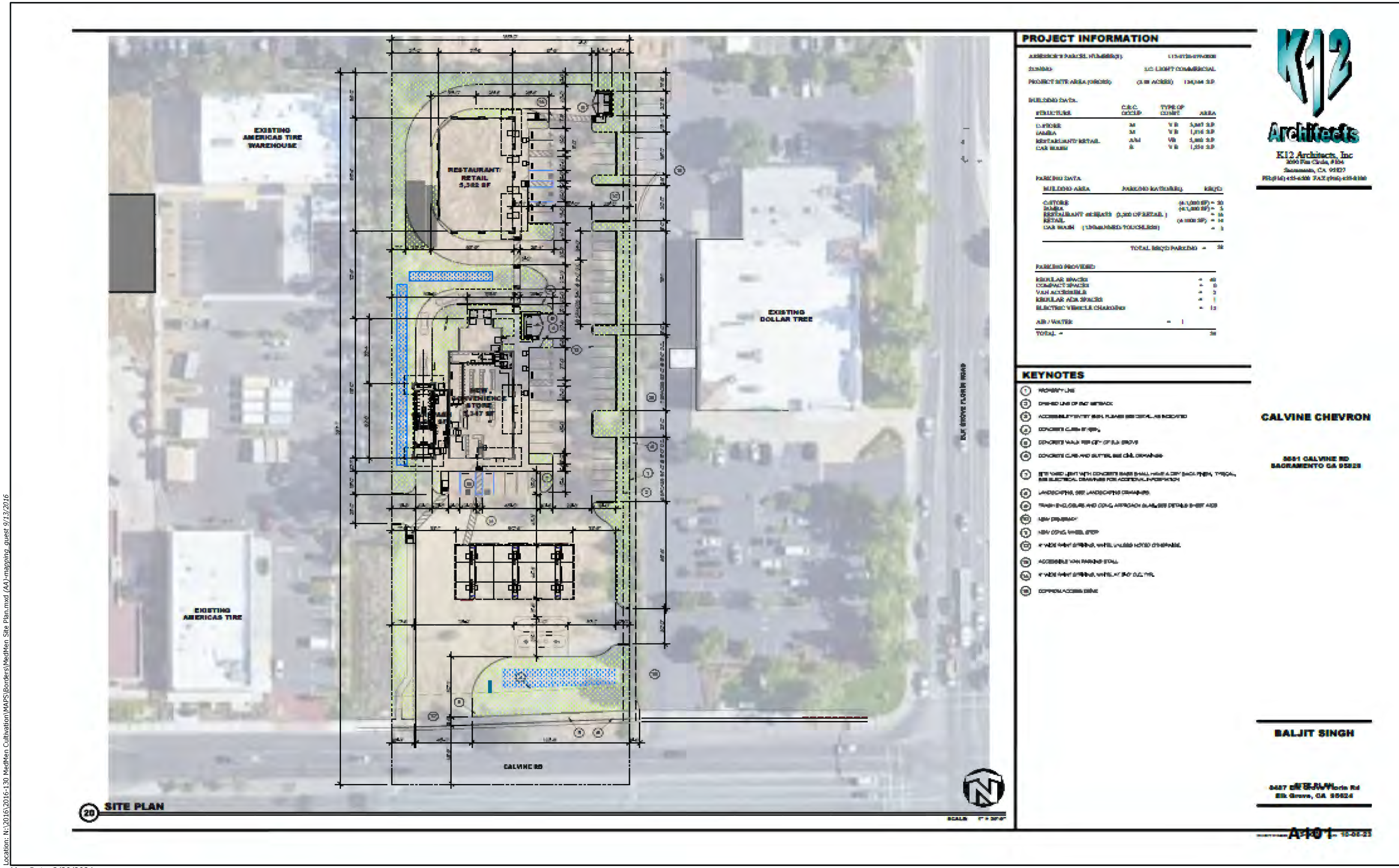
The Project Site would be accessible via Calvine Road to the south of the Project Site (See Figure 2. Project Site Plan).

Construction activities would involve the removal of vegetation and paved areas; grading to finished design elevations; excavation to allow construction of building foundations, utilities, roadways, parking

[1] This land is designated Low Density Residential in the County of Sacramento General Plan.

areas, sidewalks, and landscaping. Equipment used during construction may include, but is not limited to, crawler tractors, tractors, loaders, backhoes, excavators, graders, scrapers, cranes, forklifts, generator sets, welders, pavers, paving equipment, rollers, and air compressors.

Figure 1. Project Location



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Map Date: *3/20/2024*
Photo (or Base) Source: *K12 Architects 2023*

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Figure 2. Project Site Plan

2024-015 Calvine Chevron Project

2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Sacramento Valley Air Basin (SVAB), which encompasses the Project Site, pursuant to the regulatory authority of the SMAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

2.1.1 Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project Site lies in the SVAB, which is comprised all of Butte, Colusa, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties and parts of Solano and Placer County. The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. Air flows into the SVAB through the Carquinez Strait, moving across the Sacramento Delta, and bringing pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

2.1.1.1 Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the SVAB can create a barrier to airflow, which can trap air pollutants in the valley when certain meteorological conditions are present and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical air flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of exceeding federal or state standards.

2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N_2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

2.1.2.1 Carbon Monoxide

CO in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SVAB are in compliance with the state and federal one- and eight-hour standards.

2.1.2.2 Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

2.1.2.3 Ozone

O_3 is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROGs and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

2.1.2.4 Particulate Matter

PM includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x, sulfur oxides (SO_x) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and

emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

2.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

2.1.3.1 Gasoline Vapor

Gasoline vapor consists of the TACs, benzene, ethyl benzene, n-hexane, naphthalene, propylene (or propene), xylenes, and toluene. However, of all the TACs in gasoline, benzene is the most toxic component of gas station emissions (CARB & CAPCOA 2022a). According to CAPCOA, benzene is the most important substance driving cancer risk, while xylene, another air toxic associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA, not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract. Redness and blisters may result from dermal exposure to benzene. Chronic inhalation of certain levels of benzene

causes blood disorders because benzene specifically affects bone marrow, which produces blood cells. Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.

2.1.3.2 Diesel Exhaust

CARB identified diesel particulate matter (DPM) as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

2.1.4 Ambient Air Quality

Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region. As described in detail below, the region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3 and PM_{10} (CARB 2022a). The Sloughhouse air monitoring station (7250 Sloughhouse Road, Elk Grove), located approximately 9.2 miles northeast of the Project Site, monitors ambient concentrations of O_3 and $PM_{2.5}$. The Branch Center #2 air monitoring station (3847 Branch Center Road), located approximately 6.8 miles north of the Project Site, monitors ambient concentrations of PM_{10}. Ambient emissions concentrations vary due to localized variation in emissions sources and climate conditions, but the concentrations from this air quality monitoring station should be considered "generally" representative of ambient concentrations in the Project Area.

Table 2-2 summarizes the published data concerning O_3, $PM_{2.5}$ and PM_{10} from the Sloughhouse monitoring station and Sacramento – Branch Center #2 monitoring station. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

Table 2-2. Summary of Ambient Air Quality Data			
Pollutant Standards	**2020**	**2021**	**2022**
O_3 - Sloughhouse Monitoring Station			
Max 1-hour concentration (ppm)	0.092	0.104	0.098
Max 8-hour concentration (ppm) (state/federal)	0.077 / 0.077	0.097 / 0.097	0.085 / 0.085
Number of days above 1-hour standard (state/federal)	0 / 0	2 / 0	1 / 0
Number of days above 8-hour standard (state/federal)	6 / 5	13 / 13	5 / 5
PM_{10} - Sacramento-Branch Center #2 Monitoring Station			
Max 24-hour concentration (µg/m^3) (state/ federal)	203.0 / 201.0	58.0 / 57.0	54.0 / 55.0
Number of days above 24-hour standard (state/federal)	* / 7.7	25.4 / 0.0	6.0 / 0.0
$PM_{2.5}$ - Sloughhouse Monitoring Station			
Max 24-hour concentration (µg/m^3) (state/federal)	126.0 / 126.0	190.4 / 190.4	26.1 / 26.1
Number of days above federal 24-hour standard	20.1	*	0.0

Source: CARB 2023
Note: µg/m^3 = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10} and $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the Sacramento County portion of the SVAB, which encompasses the Project Site, is included in Table 2-3.

Table 2-3. Attainment Status of Criteria Pollutants in the Sacramento County Portion of the SVAB		
Pollutant	**State Designation**	**Federal Designation**
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Attainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

Source: CARB 2022a

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3 and PM_{10} (CARB 2022a).

2.1.5 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project Site include the residential apartments located approximately 135 feet from its northwest corner. Additionally, the land immediately adjacent to the northern boundary of the Project Site is currently under construction. It is noted that this land is designated Low Density Residential in the County of Sacramento General Plan, and it is therefore likely that sensitive receptors will be present in the near future.

2.2 Regulatory Framework

2.2.1 Federal

2.2.1.1 Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants.

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

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the SVAB for the criteria pollutants.

2.2.2 State

2.2.2.1 California Clean Air Act

The California Clean Air Act (CCAA) allows the State to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

2.2.2.2 California State Implementation Plan

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS

revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. To comply with California law, the SMAQMD has rolled out a series of air quality plans and reports that constitute the SIP for the Sacramento County portion of the SVAB. The most recent report, the *2021 Sacramento County Second 10-Year PM_{10} Maintenance Plan* as a comprehensive strategy to update emission inventories, demonstrates maintenance efforts and updated control measures, and establishes new motor vehicle emission budgets. Additional plans include the SMAQMD *2017 Sacramento Regional 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (including 2018 updates) and the *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area* (2013). These air quality planning documents present comprehensive strategies to reduce the O_3 precursor pollutants (ROG and NOx) as well as PM emissions from stationary, area, mobile, and indirect sources.

2.2.2.3 Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act

CARB's statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the State's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by SB 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

2.2.2.4 Gasoline Service Station Industrywide Risk Assessment Technical Guidance

CARB and the CAPCOA have developed the 2022 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Manual (2022a) to assess the health impacts of emissions from gasoline service stations in California. This manual provides guidance for local districts in the state to follow when preparing gas station emission inventories and health risk assessments to meet the requirements of the Air Toxics "Hot Spots" Information and Assessment Act (also known as the Hot Spots Act). The Hot Spots Act requires districts to establish health risk levels at which facilities are required to notify the public if

these levels are exceeded and may also require facilities to implement measures to reduce emissions and potential health impacts if the cancer or noncancer risk levels are above certain levels.

2.2.3 Local

2.2.3.1 Sacramento Metropolitan Air Quality Management District

The SMAQMD is the air pollution control agency for Sacramento County, including the Project Site. The agency's primary responsibility is ensuring that the NAAQS and CAAQS are attained and maintained in the Sacramento County portion of the SVAB. The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with SMAQMD rules and regulations, and conducts long-term planning related to air quality. The SMAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities.

The following is a list of noteworthy SMAQMD rules that are required of construction activities associated with the Proposed Project:

> **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Other general types of uses that require a permit include, but are not limited to, dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower is required to have a SMAQMD permit or a CARB portable equipment registration (PERP).
>
> **Rule 402: Nuisance.** The purpose of this rule is to limit emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
>
> **Rule 403: Fugitive Dust.** The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from non-combustion sources from being airborne beyond the property line from which the emission originates.
>
> **Rule 442: Architectural Coatings.** The purpose of this rule is to limit the emissions of volatile organic compounds from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the SMAQMD.

Rule 448: Gasoline Transfer into Stationary Storage Containers & Rule 449: Transfer of Gasoline into Vehicle Fuel Tanks. SMAQMD Rule 448, *Gasoline Transfer into Stationary Storage Containers*, prohibits the transfer or allowance of the transfer of gasoline into stationary tanks at a gasoline-dispensing facility unless a CARB-certified Phase I vapor recovery system is used; and SMAQMD Rule 449, *Transfer of Gasoline into Vehicle Fuel Tanks*, further prohibits the transfer or allowance of the transfer of gasoline from stationary tanks into motor vehicle fuel tanks at a gasoline-dispensing facility unless a CARB-certified Phase II vapor recovery system is used during each transfer. Vapor recovery systems collect gasoline vapors that would otherwise escape into the air during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Phase I vapor recovery system components include the couplers that connect tanker trucks to the underground tanks, spill containment drain valves, overfill prevention devices, and vent pressure/vacuum valves. Phase II vapor recovery system components include gasoline dispensers, nozzles, piping, break away, hoses, face plates, vapor processors, and system monitors. SMAQMD Rule 448 also requires fuel storage tanks to be equipped with a permanent submerged fill pipe and storage tank that prevents the escape of gasoline vapors. In addition, all gasoline must be stored underground with valves installed on the tank vent pipes to further control gasoline emissions.

Stationary sources having the potential to emit TACs, including gas stations, are required to obtain permits from the SMAQMD. Permits may be granted to these operations provided they are operated in accordance with applicable SMAQMD rules and regulations. SMAQMD's gasoline station permitting process provides for the review of gasoline TAC emissions to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. SMAQMD's permitting procedures require substantial control of emissions, and permits are not issued unless TAC risk screening or TAC risk assessment can show that risks are not significant. According to the SMAQMD (2017), SMAQMD may impose limits on annual throughput to ensure that risks are within acceptable limits. In addition, California has statewide limits on the benzene content in gasoline, which greatly reduces the toxic potential of gasoline emissions.

2.2.3.2 County of Sacramento General Plan

The County of Sacramento Air Quality Element identifies objectives, policies, and implementation measures that are meant to balance the City's actions regarding land use, circulation and other issues with their potential effects on air quality. The Air Quality Element contains policies designed to establish a regional basis for improving air quality. The following relevant and applicable policies from the County's Air Quality Element have been identified for the Project:

Policy AQ-1: New development shall be designed to promote pedestrian/bicycle access and circulation to encourage community residents to use alternative modes of transportation to conserve air quality and minimize direct and indirect emission of air contaminants.

Policy AQ-3: Buffers and/or other appropriate exposure reduction measures shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Strategies to Reduce Air Pollution Exposure Near High Volume Roadways" Technical Advisory and the AQMD's "Mobile Sources Air Toxics Protocol" or applicable AQMD guidance shall be utilized when establishing these exposure reduction measures.

Policy AQ-4: Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

Policy AQ-8: Promote mixed-use development and provide for increased development intensity along existing and proposed transit corridors to reduce the length and frequency of vehicle trips.

Policy AQ-10: Encourage vehicle trip reduction and improved air quality by requiring development projects that exceed the SMAQMD's significance thresholds for operational emissions to provide on-going, cost-effective mechanisms for transportation services that help reduce the demand for existing roadway infrastructure.

Policy AQ-13: Use California State Air Resources Board and SMAQMD guidelines for Sacramento County facilities and operations to comply with mandated measures to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.

Policy AQ-16: Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

Implementation Measure: Identify the air quality impacts of development proposals to avoid significant adverse impacts, require appropriate mitigation measures or offset fees and submit development proposals to SMAQMD for review and comment prior to consideration by appropriate decision-making bodies.

Implementation Measure: Require the use of Best Available Control Technology (BACT)3 to reduce air pollution emissions.

2.3 Air Quality Emissions Impact Assessment

2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan.

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

3) Expose sensitive receptors to substantial pollutant concentrations.

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

2.3.1.1 Sacramento Metropolitan Air Quality Management District Criteria Air Pollutant Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (SMAQMD) may be relied upon to make the above determinations. According to the SMAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SMAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 2-4.

Table 2-4. SMAQMD Regional Significance Thresholds

Air Pollutant	Construction Activities		Operations	
Reactive Organic Gas	-		65 pounds/day	
Carbon Monoxide	-		-	
Nitrogen Oxide	85 pounds/day		65 pounds/day	
Sulfur Oxide	-		-	
Coarse Particulate Matter (PM_{10})	*80 pounds/day (If all feasible BACT/BMP applied)	*14.6 tons/year	*80 pounds/day (If all feasible BACT/BMP applied)	*14.6 tons/year
Fine Particulate Matter ($PM_{2.5}$)	*82 pounds/day (If all feasible BACT/BMP applied)	*15 tons/year	*82 pounds/day (If all feasible BACT/BMP applied)	*15 tons/year

Source: SMAQMD 2020
Notes: BACT= best available control technology; BMP = best management practices
* = The allowable threshold level is 0 pounds/day or 0 tons/year unless all SMAQMD recommended BACT/BMP are implemented.

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed any significance thresholds would not be considered cumulative considerable.

2.3.1.2 Sacramento Metropolitan Air Quality Management District Health Risk Thresholds

In addition to the emission of criteria air pollutants, this Projects evaluates the health risk from operations of the Proposed Project. Specifically, the activities occurring at the proposed gasoline dispensing facility.

The SMAQMD thresholds for what constitute an exposure of substantial air toxics are as follows.

- Cancer Risk: Emit carcinogenic or toxic contaminants that exceed the maximum individual cancer risk of 10 in one million.
- Non-Cancer Risk: Emit toxic contaminants that exceed the maximum hazard quotient of 1 in one million.

Cancer risk is expressed in terms of expected incremental incidence per million population. The SMAQMD has established an incidence rate of 10 persons per million as the maximum acceptable incremental cancer risk due to TAC exposure. This threshold serves to determine whether or not a given project has a

potentially significant development-specific and cumulative impact. The 10-in-one-million standard is a very health-protective significance threshold. A risk level of 10 in one million implies a likelihood that up to 10 persons out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of TACs over a specified duration of time. This risk would be an excess cancer that is in addition to any cancer risk borne by a person not exposed to these air toxics. To put this risk in perspective, the risk of dying from accidental drowning is 1,000 in a million, which is 100 times more than the SMAQMD's threshold of 10 in one million.

The SMAQMD has also established non-carcinogenic risk parameters for use in HRAs. Noncarcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at, or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less than significant.

2.3.2 Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the SMAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated primarily using CalEEMod model defaults for Sacramento County. Operational air pollutant emissions were based on the land use mix identified in Section 1.0 of this report and traffic trip generation rates provided by Fehr and Peers (2024). Lastly, CalEEMod does not account for ROG emissions associated with gasoline vapors that are released during fuel dispensing activities. In order to calculate these emissions, CAPCOA's and CARB's Gasoline Service Station Industrywide Risk Assessment Technical Guidance (2022a) is employed.

Additionally, health risks associated with gasoline vapor and DPM concentrations that would be emitted by the proposed gasoline dispensing station and the heavy-duty trucks delivering gasoline to the site during Project operations were modeled using the HARP2 modeling program provided by CARB, with regulatory default settings, to perform the dispersion and health risk modeling for this analysis. HARP2 implements the latest regulatory guidance to develop inputs from the USEPA AERMOD pollutant dispersion model for calculations of the various health risk levels. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The resultant concentration values at vicinity sensitive receptors are used to calculate chronic and carcinogenic health risk using the standardized equations contained in the OEHHA Guidance Manual for Preparation of Health Risk Assessments (2015). Project specific methodology is discussed further in Section 2.3.3.4.

2.3.3 Impact Analysis Impact Analysis

2.3.3.1 Project Construction-Generated Criteria Air Quality Emissions

Construction Significance Analysis

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation.

Construction-generated emissions associated with the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis. Construction activities would be subject to mitigation measure AQ-1 (presented below), which would implement the SMAQMD's Basic Construction Emission Control Practices, known as Best Management Practices (BMPs) during the Project's construction. The application of AQ-1 ensures that the construction of the Project will not have significant air quality impacts.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 2-5. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SMAQMD's thresholds of significance.

Table 2-5. Construction-Related Emissions						
Construction Year	**Pollutant**					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily (pounds per day)						
Calendar Year One	3.72	36.00	34.10	0.05	9.44	5.45
Calendar Year Two	7.55	10.60	13.40	0.02	0.51	0.42
SMAQMD Significance Threshold	-	*85 pounds/day*	-	-	**80 pounds/day (If all feasible BACT/BMP applied)*	**82 pounds/day (If all feasible BACT/BMP applied)*
Exceed SMAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Annual (tons per year)						
Calendar Year One	0.1	1.0	1.0	<0.0	0.1	0.1
Calendar Year Two	0.2	0.8	1.0	<0.0	0.0	0.0
SMAQMD Significance Threshold	-	-	-	-	**14.6 tons/year*	**15 tons/year*
Exceed SMAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SMAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include sweeping/cleaning adjacent roadway access areas daily, water exposed surfaces twice daily, and limit speeds on unpaved roads to 15 miles per hour. Emissions taken of the season, summer or winter, with the highest outputs. Building construction, paving and painting assumed to occur simultaneously.
* = The allowable threshold level is 0 pounds/day or 0 tons/year unless all SMAQMD recommended BACT/BMP are implemented.

As shown in Table 2-5, emissions generated during Project construction would not exceed the SMAQMD's daily or annual thresholds of significance with the implementation of mitigation measure AQ-1. This mitigation measure ensures that the SMAQMD's BACT/BMPs are implemented; which, according to air district regulations, allows the particulate matter significance threshold to be non-zero (allowing PM_{10} to be 80 pounds/day or 14.6 tons/year and $PM_{2.5}$ to be 82 pounds/day or 15 tons/year). Without the implementation of AQ-1, the Project's construction emissions would be over the threshold of 0 pounds/day and thus have a significant effect. The County of Sacramento General Plan promotes the thresholds and standards set out by the SMAQMD and ensures the enforcement of the air pollution control measures during construction periods. With mitigation measure AQ-1, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any

criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard, and no health effects from Project criteria pollutants would occur.

Recommended Mitigation Measures

AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust.

The implementing agency will require the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust as a standard or specification of their contract. The following measures are required for the entirety of the construction area. The implementing agency will ensure, through contract provisions and specifications, that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

Control of fugitive dust is required by District Rule 403 and enforced by District staff.

Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.

Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].

Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

2.3.3.2 Project Operation-Generated Criteria Air Quality Emissions

Operational Significance Analysis

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10}, $PM_{2.5}$, CO, and SO_2 as well as O_3 precursors such as ROGs and NO_X. Project-generated increases in emissions would be predominantly associated with motor vehicle use. As previously described, operational air pollutant emissions were based on the land use mix identified in Section 1.0 of this report and traffic trip generation rates from Fehr & Peers (2024). Long-terms operational emissions attributable to the Project are identified in Table 2-6 and compared to the operational significance thresholds promulgated by the SMAQMD. The PM_{10} and $PM_{2.5}$ non-zero thresholds are reliant on the implementation of the SMAQMD's BACT/BMPs for land use development project operations. The following are the recommendations made by the SMAQMD for land use development project operations:

> Compliance with District rules that control operational PM and NOx emissions. Reference rules regarding wood burning devices, boilers, water heaters, generators and other PM control rules that may apply to equipment to be located at the project.
>
> Compliance with mandatory measures in the California Building Energy Efficiency Standards (Title 24, Part 6) that pertain to efficient use of energy at a residential or a non-residential land use.
>
> Compliance with mandatory measures in the California Green Building Code (Title 24, Part 11). Current mandatory measures related to operational PM include requirements for bicycle parking, parking for fuel efficient vehicles, electric vehicle charging, and fireplaces for non-residential projects. Residential project measures include requirements for electric vehicle charging and fireplaces.

The Proposed Project will comply with the above recommendations in order to justify the use of a non-zero operational threshold for PM_{10} and $PM_{2.5}$. As seen by Table 2-6, the air pollutant concentrations are below the SMAQMD significance threshold for the Project.

Table 2-6. Operational-Related Emissions

Emission Source	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer Emissions						
Mobile	16.60	7.58	65.70	0.10	7.91	2.07
Area	2.60	0.01	0.63	<0.00	<0.00	<0.00
Energy	0.01	0.25	0.21	<0.00	0.02	0.02
Total:	**19.21**	**7.84**	**66.50**	**0.10**	**7.93**	**2.09**
SMAQMD Significance Threshold	*65 pounds/day*	*65 pounds/day*	-	-	**80 pounds/day*	**82 pounds/day*
Exceed SMAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Mobile	14.40	8.82	69.0	0.09	7.91	2.07
Area	2.49	<0.00	<0.00	<0.00	<0.00	<0.00
Energy	0.01	0.25	0.21	<0.00	0.02	0.02
Total:	**16.90**	**9.07**	**69.20**	**0.09**	**7.93**	**2.09**
SMAQMD Significance Threshold	*65 pounds/day*	*65 pounds/day*	-	-	**80 pounds/day*	**82 pounds/day*
Exceed SMAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

Notes: Emission projections are based on the land use mix identified in Section 1.0 of this report and traffic trip generation rates from Fehr & Peers (2024). Area source emissions for the gasoline station include ROG released gasoline vapor during dispensing activities. Gasoline vapor emissions are calculated based on emission factors identified in CAPCOA's and CARB's Gasoline Service Station Industrywide Risk Assessment Technical Guidance (2022a) and the prediction of 158,500 gallons of gasoline dispensed per month (158,500 x 12 = 1,902,000 gallons annually) as identified by Kalibrate Insight (2022) as the average throughput of four potential throughput scenarios specific to the Project (2.14 pounds daily. See Attachment B).

* = The allowable threshold level is 0 pounds/day or 0 tons/year unless all SMAQMD recommended BACT/BMP are implemented.

As shown in Table 2-6, the Project's emissions would not exceed any SMAQMD thresholds for any criteria air pollutants during operation.

As identified in Table 2-3, the Sacramento County portion of the SVAB is listed as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, and PM_{10} (CARB 2022a). O_3 is a health threat to persons who already suffer from respiratory diseases and can cause severe ear, nose and throat irritation and increases susceptibility to respiratory infections. PM can adversely affect the human respiratory system. As shown in Table 2-6, the Proposed Project would result in increased emissions of the O_3 precursor pollutants ROG and NOx, PM_{10}, and $PM_{2.5}$, however, the correlation between a project's emissions and increases in nonattainment days, or frequency or severity of related illnesses, cannot be accurately quantified. The overall strategy for reducing air pollution and related health effects in the SMAQMD is contained in the SMAQMD *2017 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2018), *2021 Sacramento County Second 10-Year PM_{10} Maintenance Plan*, and *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area* (2013). These air quality planning documents present comprehensive strategies to reduce the O_3 precursor pollutants (ROG and NOx) as well as PM emissions from stationary, area, mobile, and indirect sources. Each of these air quality planning documents provide control measures that reduce emissions to attain and maintain federal ambient air quality standards such as the application of available cleaner technologies, best management practices, incentive programs, as well as development and implementation of zero and near-zero technologies and control methods. The CEQA thresholds of significance established by the SMAQMD are designed to meet the objectives of these air quality planning documents and in doing so achieve and maintain attainment status with state and federal standards. As noted above, the Project would increase the emission of certain pollutants, but would not exceed the thresholds of significance established by the SMAQMD for purposes of reducing air pollution and its deleterious health effects.

2.3.3.3 Project Consistency with Air Quality Planning

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project Site is located within the SVAB, which is under the jurisdiction of the SMAQMD. SMAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SVAB is in nonattainment. The SMAQMD is required to submit air quality plans and rate-of-progress milestone evaluations in accordance with the federal Clean Air Act. The SMAQMD air quality attainment plans and reports, which include the *2017 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2018), *2021 Sacramento County Second 10-Year PM_{10} Maintenance Plan*, and *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area* (2013), present comprehensive strategies to reduce the O_3 precursor pollutants (ROG and NO_x) as well as PM emissions from stationary, area, mobile, and indirect sources.

A project is consistent with regional air quality planning efforts in part if it is consistent with the population and housing assumptions that were used in the development of the SMAQMD air quality plans and does nothing to inhibit the region's achievement of air quality standards. Growth projections in unincorporated Sacramento County are based largely on the County General Plan. As such, projects that propose development consistent with the growth anticipated by the General Plan would generally be consistent with the SMAQMD regional air quality planning efforts. The Project Site has a County of Sacramento General Plan land use designation of Commercial and Offices. The Commercial and Office designation provides for a full range of neighborhood, community and regional shopping centers and a variety of business and professional offices. Uses include locally-oriented retail, professional offices, and regional commercial operations. As such, the Project is consistent with the County's General Plan and is therefore consistent with the types, intensity, and patterns of land use envisioned for the site. Furthermore, as shown in Tables 2-5 and 2-6, all Project emissions would fall below SMAQMD significance thresholds. For these reasons the Project would not conflict with SMAQMD's air quality planning.

It is additionally noted that the Project is considered "infill development" as it proposes to redevelop a previously developed property and enhance the physical design of the urban environment. Under Public Resources Code (PRC) section 21061.3, an "infill site" is defined as a site that "has been previously developed for qualified urban uses." In turn, a "qualified urban use" is defined, pursuant to PRC section 21072, as "a residential, commercial, or public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses." These aspects of the Project would result in the generation of a reduced amount of criteria air pollutant emissions. According to the USEPA, redevelopments (namely at brownfield sites such as the Project Site) produce 32 to 57 percent less emissions per capita relative to conventional developments (USEPA 2011); this is because the number of daily vehicle trips and daily vehicle miles traveled (VMT) associated with the redevelopment tend to be lower compared with development on vacant land. This is confirmed by the traffic data prepared for the Project and provided by Fehr & Peers (2023). Project traffic data identifies that 64.9 percent of all Project automobile trips would be "pass-by" trips, which are trips already traveling on Calvine Road and/or Elk Grove Florin Road that would stop at the Project Site on their way to other destinations (Fehr & Peers 2024). These trips are present at the Project driveway but would not be "new" trips on the roadway system (Fehr & Peers 2024). The reduction of vehicle VMT is a primary goal of SMAQMD air quality planning.

2.3.3.4 Exposure of Sensitive Receptors to Toxic Air Contaminants

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project Site include the residential apartments located approximately 135 feet from its northwest corner. Additionally, the land immediately adjacent to the northern boundary of the Project Site is currently under construction. It is noted that this land is designated Low Density Residential in the

County of Sacramento General Plan, and it is therefore likely that sensitive receptors will be present in the near future.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of DPM, ROG, NOx, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The Sacramento County portion of the SVAB is listed as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3 and PM_{10}. Thus, existing O_3, PM_{10} and $PM_{2.5}$ levels in the SVAB are at unhealthy levels during certain periods. However, as shown in Table 2-5 the Project would not exceed the SMAQMD significance thresholds for construction emissions and therefore no regional health effects from Project criteria pollutants would occur.

The health effects associated with O_3 are generally associated with reduced lung function. O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of ROG and NOx in the presence of sunlight. The reactivity of O_3 causes health problems because it damages lung tissue, reduces lung function and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O_3 for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

Studies show associations between short-term O_3 exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to O_3 may increase the risk of respiratory-related deaths. The concentration of O_3 at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of O_3 and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum O_3 concentration reaches 80 parts per billion. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NOx) in excess of the SMAQMD thresholds, which are set to be protective of human health and account for cumulative emissions in the SVAB, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in substantial CO emissions. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. PM_{10} exhaust is considered a surrogate for DPM as it contains $PM_{2.5}$ exhaust as a subset and all diesel exhaust is considered to be DPM. As with O_3 and NOx, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SMAQMD's thresholds. The increases of these pollutants generated by the Proposed Project would not on their own generate an increase in the number of days exceeding the NAAQS or CAAQS standards. Therefore, PM_{10} and $PM_{2.5}$ emissions, when combined with the existing PM emitted regionally, would have minimal health effect on people located in the immediate vicinity of the Project Site. Additionally, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects from these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operational Air Contaminants

Operation of the Project would result in the development of sources of air toxins. Specifically, the Project would be a source of gasoline vapors such as benzene, methyl tertiary-butyl ether, toluene, and xylene. CARB identifies benzene as a TAC and is the primary TAC of concern associated with gas stations. Benzene is highly carcinogenic and occurs throughout California. According to CAPCOA, benzene is the most important substance driving cancer risk, while xylene, another air pollutant associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA, not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects.

Project Health Risk Assessment

Project related onsite sources were modeled into AERMOD to account for the fueling, spillage and hose permeation occurring at the fueling canopy, loading and breathing from the underground storage tanks, and heavy-duty truck movement on area roadways carrying fuel to the Project Site. The fueling, spillage and hose permeation were modeled as a volume source placed at the location of the proposed canopy with source dimensions and parameters set forth by CAPCOA and CARB (CAPCOA & CARB 2022a). Loading and breathing from the underground storage tanks were modeled as two point sources at the location of the proposed tanks with parameters set forth by CAPCOA and CARB (CAPCOA & CARB 2022a). Heavy-duty movement on area roadways carrying fuel to the Project Site were modeled as line volume sources exiting the Project Site onto Calvine Road and traversing west towards State Route 99 totaling 785.5 meters (0.5 mile). A conservative estimate of two fuel trucks per day was assumed in the modeling.

Fueling Station Emission Calculations

Fueling station throughput for the Project Site was modeled using the estimated gasoline throughput of 1,902,000 gallons per year, as identified by Kalibrate Insight (2022) as the average throughput of four potential throughput scenarios specific to the Project. Maximum hourly throughput was calculated using the annual throughput. Gasoline vapor emissions were calculated for tank loading and breathing; vehicle fueling and spillage and hose permeation for each station using emission factors found in the Gasoline Service Station Industrywide Risk Assessment Technical Guidance (CARB & CAPCOA 2022a). The calculated gasoline vapor emissions were speciated in the TACs contained in total gasoline vapor using a summer/winter gasoline profile from the 2022 Gasoline Service Station Industrywide Risk Assessment Technical Guidance (CARB & CAPCOA 2022a). Emission calculations for fueling can be found in Attachment B of this document.

Dispersion Modeling

The air dispersion modeling for the HRA was performed using the USEPA AERMOD Version 22112 dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources. The alberhill30m.dem file found at CARB's website for HARP Digital Elevation Model Files was used for elevation data for all sources and receptors in the Project domain. All regulatory defaults were used for dispersion modeling as configured in the latest version of HARP2 (22118).

AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Pre-processed meteorological data files provided by SMAQMD using USEPA's AERMET program, designed to create AERMOD input files, for the Sacramento Executive Airport monitoring station were selected as being the most representative meteorology based on proximity. The location of the meteorological monitoring site is shown in Attachment B of this document.

The unit emission rate of one gram per second was utilized in AERMOD to create plot files containing the dispersion factor (X/Q) for each source group. A uniform grid was placed over the Project Area with a spacing of no more than 50 meters by 50 meters including 525 receptors. The grid was placed evenly over the area surrounding the Project. No onsite receptors were modeled for this analysis. Emissions for each source group as described above were input into HARP2 to calculate the ground level concentrations (GLC) at the modeled receptors. Source and receptor locations can be found in Attachment B of this document.

Risk during operations was also modeled utilizing worker factors and residential factors to find the Maximumly Exposed Individual Resident (MEIR), Maximumly Exposed Individual Resident (MEIW) and Point of Maximum Impact (PMI). The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the California Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual (2015) as implemented in CARB's HARP2 program (CARB 2022b).

Based on the OEHHA methodology, the residential inhalation cancer risk from the annual average TAC concentrations is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor (ASF), the frequency of time spent at home, and the exposure duration divided

by averaging time, to yield the excess cancer risk. These factors are discussed in more detail below. Cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure.

Exposure through inhalation (Dose-air) is a function the breathing rate, the exposure frequency, and the concentration of a substance in the air. For residential exposure, the breathing rates are determined for specific age groups, so Dose-air is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. To estimate cancer risk, the dose was estimated by applying the following formula to each ground-level concentration:

$$\textbf{Dose-air} = (C_{air} * \{BR/BW\} * A * EF * 10^{-6})$$

Where:

Dose-air = dose through inhalation (mg/kg/day)

C_{air} = air concentration ($\mu g/m^3$) from air dispersion model

{BR/BW} = daily breathing rate normalized to body weight (L/kg body weight – day) (361 L\kg BW-day for 3rd Trimester, 1,090 L/kg BW-day for 0<2 years, 861 L/kg BW-day for 2<9 years, 745 L/kg BW-day for 2<16 years, 335 L/kg BW-day for 16<30 years, and 290 L/kg BW-day 16<70 years)

A = Inhalation absorption factor (unitless [1])

EF = exposure frequency (unitless), days/365 days (0.96 [approximately 350 days per year])

10^{-6} = conversion factor (micrograms to milligrams, liters to cubic meters)

OEHHA developed ASFs to take into account the increased sensitivity to carcinogens during early-in-life exposure. In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood and an ASF of 1 for ages 16 through 70 years.

Fraction of time at home (FAH) during the day is used to adjust exposure duration and cancer risk from a specific facility's emissions, based on the assumption that exposure to the facility's emissions are not occurring away from home. OEHHA recommends the following FAH values: from the third trimester to age <2 years, 85 percent of time is spent at home; from age 2 through <16 years, 72 percent of time is spent at home; from age 16 years and greater, 73 percent of time is spent at home.

To estimate the cancer risk, the dose is multiplied by the cancer potency factor, the ASF, the exposure duration divided by averaging time, and the frequency of time spent at home (for residents only):

$$\textbf{Risk}_{\textbf{inh-res}} = (\textbf{Dose}_{\textbf{air}} * \textbf{CPH} * \textbf{ASF} * \textbf{ED/AT} * \textbf{FAH})$$

Where:

$Risk_{inh\text{-}res}$	=	residential inhalation cancer risk (potential chances per million)
$Dose_{air}$	=	daily dose through inhalation (mg/kg-day)
CPF	=	inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	=	age sensitivity factor for a specified age group (unitless)
ED	=	exposure duration (in years) for a specified age group (0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70)
AT	=	averaging time of lifetime cancer risk (years)
FAH	=	fraction of time spent at home (unitless)

Non-cancer chronic impacts are calculated by dividing the annual average concentration by the Reference Exposure Level (REL) for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The following equation was used to determine the non-cancer risk:

Hazard Quotient = Ci/RELi

Where:

Ci	=	Concentration in the air of substance i (annual average concentration in $\mu g/m^3$)
RELi	=	Chronic noncancer Reference Exposure Level for substance i ($\mu g/m^3$)

Lastly, the resultant values modeled using AERMOD and HARP2, as described above, are verified for accuracy against CARB's "Look-up Tool", which is health risk screening tool. The CARB Look-up Tool is a health risk screening spreadsheet that allows the user to select from predetermined modeling results and scale risk results by facility specific emissions. The Look-up Tool provides health risk screening results based on less robust calculations processes when compared to the AERMOD and HARP2 modeling prepared for this analysis; nonetheless, a comparison of the AERMOD and HARP2 modeling results against the Look-up Tool is helpful for verifying the certainty of results.

Cancer Risk

Operational cancer risk calculations for existing residential receptors are based on 70-, 30-, and 9-year exposure periods and worker receptors are based on a 25-year exposure period to for operations. The calculated cancer risk accounts for 350 days per year of exposure to residential receptors. While the average American spends 87 percent of their life indoors (USEPA 2001), neither the pollutant dispersion modeling nor the health risk calculations account for the reduced exposure structures provide. Instead, health risk calculations account for the equivalent exposure of continual outdoor living and working. The calculated carcinogenic risk at Project vicinity receptors is depicted in Table 2-7.

Table 2-7. Maximum Cancer Risk Summary	
Maximum Exposure Scenario	**Total Maximum Risk (in 1 million)**
70-Year Exposure Resident	0.36
30-Year Exposure Resident	0.31
9-Year Exposure Resident	0.22
25-Year Exposure Worker	0.20
CARB & CAPCOA Screening Tool @ 41 Meters	*3.18*
Significance Threshold	*10*
Exceed Threshold?	**No**

Source: ECORP Consulting 2024. See Attachment B.

As shown, impacts related to cancer risk for all modeled scenarios would be below the 10 in one million threshold for Project operations. The existing residents and workers in the surrounding area would not experience a significant amount of cancer risk from fueling operations at the Proposed Project. It is noted that these calculations do not account for any pollutant-reducing remedial components inherent to the Project or the Project Site. In addition, the values modeled using AERMOD and HARP2 show a relatively good agreement with the conservative numbers provided in the CARB Lookup Tool. As previously described, the Look-up Tool provides health risk screening results based on less robust calculations processes when compared to the AERMOD and HARP2 modeling prepared for this analysis; nonetheless, a comparison of the AERMOD and HARP2 modeling results against the Look-up Tool is helpful for verifying the certainty of less than significant results.

The MEIR for operational emissions is located just north of the Project Site. This area is currently under construction, yet it is noted that this land is designated Low Density Residential in the County of Sacramento General Plan, and it is therefore likely that sensitive receptors will be present in the near future. The existing residences located approximately 135 feet from the Project Site's northwest corner would be exposed to slightly less cancer risk than the values identified in Table 2-7. The MEIW for Project operations is the discount retail store parking lot located east of the Project Site across Elk Grove Florin Road. In addition, the PMI is located within Calvine Road just southeast of the Project Site. All of the above listed points are presented on a map in Attachment B of this document.

Non-Carcinogenic Hazards

In addition to cancer risk, the significance thresholds for TAC exposure requires an evaluation of non-cancer risk stated in terms of a hazard index. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. The potential for acute non-cancer hazards is

evaluated by comparing the maximum short-term exposure level to an acute REL. RELs are designed to protect sensitive individuals within the population. The calculation of acute non-cancer impacts is like the procedure for chronic non-cancer impacts.

A chronic or acute hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the chronic exposure by the REL. The highest maximum chronic and acute hazard indexes for residents and workers due to Project fueling operations are presented in Table 2-8.

Table 2-8. Maximum Non-Cancer Risk Summary

Maximum Exposure Scenario	Health Hazard Index (HHI)	
	Chronic	Acute
Resident	0.00	0.02
Worker	0.01	0.34
CARB & CAPCOA Tool	*0.05*	*0.57*
Significance Threshold	*1.0*	*1.0*
Exceed Threshold?	**No**	**No**

Source: ECORP Consulting 2024. See Attachment B.

As shown in Table 2-8, the highest maximum chronic hazard indexes for residents and workers are under the SMAQMD significance threshold of 1.0. As with cancer risk, benzene is the largest contributor to both acute and chronic scenarios. Like cancer risk, chronic and acute risk is calculated from the maximum annual concentration using the most recent five years of available meteorological data.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the Sacramento County portion of the SVAB is designated as in attainment. Detailed

modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District's (SCAQMD's) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting Los Angeles, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District, the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The Proposed Project is anticipated to result in 4,324 daily traffic trips (Fehr & Peers 2024). Thus, the Proposed Project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day) and there is no likelihood of the Project traffic exceeding CO values.

2.3.3.5 Odors

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

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same

odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

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

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

According to the SMAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include wastewater treatment plants, sanitary landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging plants. The Proposed Project does not include any uses identified by the SMAQMD as being associated with odors.

However, as previously described, the ability to detect odors varies considerably among the population and is inherently subjective in nature. For instance, the Project proposes restaurant uses, which are a potential source of odors that may affect certain people. Cooking odors (molecules) generated by the combustion of animal and vegetable matter result in a complex mixture of reactive odorous gases. A small percentage of these odors may be absorbed by the grease particles, but the vast majority exist separately in the airstream. The two common methods of abating odor from cooking are (1) the use of an odor oxidant (potassium permanganate) that oxidizes the molecules to solids and then retains them; and (2) a spray odor neutralizer system. Either of the above-mentioned types of odor control can remove 85 to 90 percent of the molecules, depending on the type of cooking. However, determining the efficiency of odor control is subjective, as testing is usually conducted by people rather than machines.

The restaurant uses would be required to comply with all state regulations associated with cooking equipment and controls, such as grease filtration and removal systems, exhaust hood systems, and blowers to move air into the hood systems, through air cleaning equipment, and then outdoors. The proposed restaurant uses would be equipped with kitchen exhaust systems and pollution/odor control systems. Pollution/odor control systems typically include smoke control, odor control, and exhaust fan

sections. Such equipment would ensure that pollutants associated with smoke and exhaust from cooking surfaces would be captured and filtered, allowing only filtered air to be released into the atmosphere.

The Project Site could be considered a source of unpleasant odors by some given its proposed use as a gasoline dispensing station; however, as previously stated, the SMAQMD has stringent requirements for the control of gasoline vapor emissions from gasoline-dispensing facilities as articulated in SMAQMD Rules 448 and 449. The Proposed Project would also be required to comply with SMAQMD Rule 402 to prevent occurrences of public nuisances. Rule 402 prohibits the discharge from any source that causes injury, detriment, nuisance, or annoyance to a considerable number of persons. Adherence to these rules would result in a less than significant impact related to operational odor emissions.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and N_2O. Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. More specifically, experts agree that human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 in 2011–2020. (Intergovernmental Panel on Climate Change [IPCC] 2023).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Despite the sequestration of CO_2, human-

caused climate change is already causing damaging effects, including weather and climate extremes in every region across the globe (IPCC 2023).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1]USEPA 2016a, [2] USEPA 2016b, [3] USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.1.1 Sources of Greenhouse Gas Emissions

In 2023, CARB released the 2023 edition of the California GHG inventory covering calendar year 2021 emissions. In 2021, California emitted 381.3 million gross metric tons of CO2e including from imported electricity. This inventory is 3.4 percent higher than the State's 2020 inventory, but 5.7 percent lower than 2019 level, which aligns with the global changes, shutdowns, and economic recoveries affected by the COVID-19 pandemic. Additionally, between 2020 and 2021, California's Gross Domestic Product (GPD) increased 7.8 percent while the GHG intensity of California's economy (GHG emissions per unit GDP)

decreased 4.1 percent. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2021, accounting for approximately 38.2 percent of total GHG emissions in the state. Transportation emissions have increased 7.4 percent compared to 2020, which is most likely from light duty vehicle emissions that rebounded when COVID-19 shelter-in-place orders were lifted. Emissions from the electricity sector account for 16.4 percent of the inventory, which is an increase of 4.8 percent since 2020, despite the growth of in-state solar and imported renewable energy. California's industrial sector accounts for the second largest source of the state's GHG emissions in 2021, accounting for 19.4 percent, which saw an increase of nearly 1 percent since 2020 (CARB 2023b).

3.2 Regulatory Framework

3.2.1 State

3.2.1.1 Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

3.2.1.2 Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2022 Scoping Plan Update, outlines strategies and actions to reduce greenhouse gas emissions in California. The plan focuses on achieving the state's goal of reaching carbon neutrality by 2045 and reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030. The plan includes a range of strategies across various sectors, including transportation, industry, energy, and agriculture. Some of the key strategies include transitioning to zero-emission vehicles, expanding renewable energy sources, promoting sustainable land use practices, implementing a low-carbon fuel standard, and reducing emissions from buildings. Additionally, the plan addresses equity and environmental justice by prioritizing investments in communities most impacted by pollution and climate change. The plan also aims to promote economic growth and job creation through the transition to a low-carbon economy.

3.2.1.3 Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

3.2.1.4 Senate Bill 100 of 2018

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

3.2.1.5 Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008, which became effective in January 2009, helps facilitate AB 32's GHG reduction goals by addressing the emissions from passenger vehicles. The main objectives of the bill aim to reduce GHG emissions through extensive transportation, housing, and land use planning. SB 375 directs CARB to establish regional targets to reduce GHG emissions from passenger vehicle use. CARB administers 2035 targets for each of the regions throughout the State. The corresponding metropolitan planning organizations (MPOs) in each region are required to prepare and adopt a Sustainable Communities Strategy (SCS) that helps to adhere to the CARB administered targets. Sustainable Community Strategies play a vital role in regional transportation plans by allowing transportation, land use, and housing strategies to align with the State's GHG emission goals. Project Plans that are consistent with their region's SCS may be subject to a more streamlined CEQA process.

3.2.1.6 2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings

The Building and Efficiency Standards (Energy Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. These standards are a unique California asset that have placed the State on the forefront of energy efficiency, sustainability, energy independence and climate change issues. The 2022 California Building Codes include provisions related to energy efficiency to reduce energy consumption and greenhouse gas emissions from buildings. Some of the key energy efficiency components of the codes are:

1. Energy Performance Requirements: The codes specify minimum energy performance standards for the building envelope, lighting, heating and cooling systems, and other components.
2. Lighting Efficiency: The codes require that lighting systems meet minimum efficiency standards, such as the use of energy-efficient light bulbs and fixtures.
3. HVAC Systems: The codes establish requirements for heating, ventilation, and air conditioning (HVAC) systems, including the use of high-efficiency equipment, duct sealing, and controls.

4. Building Envelope: The codes include provisions for insulation, air sealing, glazing, and other building envelope components to reduce energy loss and improve indoor comfort.
5. Renewable Energy: The codes encourage the use of renewable energy systems, such as photovoltaic panels and wind turbines, to reduce dependence on non-renewable energy sources.
6. Commissioning: The codes require the commissioning of building energy systems to ensure that they are installed and operate correctly and efficiently.

Overall, the energy efficiency provisions of the 2022 California Building Codes aim to reduce the energy consumption of buildings, lower energy costs for building owners and occupants, and reduce the environmental impact of the built environment. The 2022 Building Energy Efficiency Standards improve upon the 2019 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The exact amount by which the 2022 Building Codes are more efficient compared to the 2019 Building Codes would depend on the specific provisions that have been updated and the specific building being considered. However, in general, the 2022 Building Codes have been updated to include increased requirements for energy efficiency, such as higher insulation and air sealing standards, which are intended to result in more efficient buildings. The 2022 standards are a major step toward meeting Zero Net Energy.

3.2.2 Local

3.2.2.1 Sacramento Metropolitan Air Quality Management District

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SMAQMD has established operational GHG reduction thresholds, as well as construction-related thresholds. The GHG targets and reduction recommendations made by the SMAQMD have taken into considerations reports and guidelines from various state agencies and organizations, such as the California Air Pollution Control Officers Association CEQA & Climate Change guidelines, the CARB Scoping Plan, the California Natural Resource Agency's CEQA Guidelines, and other reputable sources. In February 2021, the SMAQMD revised the Greenhouse Gas Emissions Chapter within their CEQA Guide.

The SMAQMD has both construction and operational thresholds for GHG emissions within their CEQA Guide. Their construction thresholds establish a bright line threshold of 1,100 metric tons/year. Similarly, SMAQMD recommends a comparison of a project's annual operational GHG emissions to a significance threshold of 1,100 metric tons per year, though coupled with implementation of SMAQMD Tier 1 Best Management Practices (BMPs). Specifically, if a project's annual operational GHG emissions are calculated to fall under 1,100 metric tons and the project implements all SMAQMD Tier 1 BMPs, GHG-related impacts would be less than significant. If the threshold is exceeded, or in the case the project does not implement the Tier 1 BMPs, then the project may have a cumulatively considerable contribution to a significant cumulative environmental impact.

The Tier 1 BMPs are:

- BMP 1 – projects shall be designed and constructed without natural gas infrastructure; and

- BMP 2 - projects shall meet the current CalGreen Tier 2 standards[2], except all electric vehicle capable spaces shall instead be electric vehicle ready.

If Tier 1 BMPs are not fully implemented then emissions, including natural gas emissions, should be estimated and the project should mitigate any natural gas emissions and require all prewiring necessary so that the building is ready for a future retrofit to all-electric (e.g., such that electric space heating, water heating, drying, and cooking appliances could be installed). If emissions still exceed 1,100 metric tons of CO_2e per year, then the project must implement SMAQMD's Tier 2 BMP 3:

- Office projects must achieve a 15 percent reduction in VMT per worker compared to the existing average VMT per capita for the County.
- Residential projects must achieve a 15 percent reduction in VMT per resident compared to the existing average VMT per capita in the County.
- Retail projects must achieve no net increase in total VMT.

If the project achieves BMP 3, then the operational impact is considered less than significant, and no further analysis is needed. If a project cannot incorporate the required BMPs, other reductions or purchasing and retiring GHG/carbon offsets from a registry approved by the SMAQMD may be required. Carbon offsets are instruments that can be bought, sold, and traded. Like a stock or equity that represents a unit of ownership in a company, a carbon offset represents a unit of GHG emissions reductions. Each offset is essentially a certification that a certain quantity of GHG emissions has been avoided, prevented, or sequestered. Offset registries that the SMAQMD may approve have developed a broad consensus around the standards that are necessary to ensure that offsets are environmentally sound, namely, that offsets be real, permanent, quantifiable, verifiable, enforceable, and additional. Approved registries may include but are not limited to any of the following: (i) the Climate Action Reserve, the American Carbon Registry and Verra, which are all approved by CARB; (ii) any entity approved at any time by CARB to act as an "offset project registry" under the state's cap-and-trade program; (iii) other regulatory or voluntary credits that demonstrate, based on substantial evidence, that the offsets are real, permanent, quantifiable, verifiable, enforceable, and additional.

3.2.2.2 Sacramento Area Council of Governments

The Sacramento Area Council of Government's (SACOG's) Metropolitan Transportation Plan/Sustainable Communities Strategy 2020 (MTP/SCS) is the latest update of a long-range policy and planning program that establishes GHG emissions goals for automobiles and light-duty trucks for and the year 2035, and thus establishes an overall GHG target for the region beyond 2020 applicable to these subsectors of the transportation sector. CARB assigned SACOG a 19 percent GHG reduction target from 2005 levels by 2035. The GHG reduction target is the percent reduction in passenger vehicle GHG emission per capita,

[2] CalGreen contains voluntary "Tier 1" and "Tier 2" standards that are not mandatory statewide but could be required by a City or County. These are 'reach' standards, related to energy efficiency, that can be adopted by local jurisdictions and may be incorporated as mandatory standards in future code cycles.

compared to Year 2005. This change represents a reduction from just over 23 pounds per capita on a given weekday in 2005, to just under 19 pounds by 2035 (SACOG 2020).

3.2.2.3 County of Sacramento Climate Action Plan

Sacramento County is currently in the process of developing a climate action plan (CAP). The Revised Final Draft CAP was presented to the Board of Supervisors on March 23, 2022, and a Second Revised Final Draft CAP public review period took place during summer 2022 with a Board of Supervisors hearing in September 2022. Based on input from the Board of Supervisors during that hearing, additional review of and response to comments is being undertaken to finalize the CAP. The Revised Final Draft CAP details specific measures that will be implemented in the County by 2030 to reduce GHG emissions from communitywide activities and government operations (County of Sacramento 2022). It also includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The Revised Final Draft CAP has been developed in response to mitigation measures contained in the County's General Plan, the County's adoption of a Climate Emergency Resolution in December 2020, and State legislation including Assembly Bill 32, SB 32, and SB 743 as well as Executive Orders S-3-05 and B-55-18. The strategies and measures contained in the Revised Final Draft CAP complement a wide range of policies, plans, and programs that have been adopted by the County, State, and regional agencies to protect communities from hazards and activities contributing to GHG emissions.

3.3 Greenhouse Gas Emissions Impact Assessment

3.3.1 Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to greenhouse gas emissions if it would:

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

2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases or

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model

or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The local air quality agency regulating the SVAB is the SMAQMD, the regional air pollution control officer for the basin. As previously stated, to provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SMAQMD has set thresholds and required BMPs to implement throughout the Project construction and operations. The numeric bright line thresholds and BMPs described in Section 3.2.2.1 above were developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to CEQA

practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The County of Sacramento may set a project-specific threshold based on the context of each particular project, including using the SMAQMD expert recommendation. For the Proposed Project, the SMAQMD's 1,100 metric tons of CO_2e per year threshold and implementation of SMAQMD BMPs are used as the significance threshold for the Project. Additionally, the Project is assessed for consistency with SACOG's MTP/SCS. As previously described, the MTP/SCS is the latest update of a long-range policy and planning program that establishes GHG emissions goals for automobiles and light-duty trucks for the year 2035, and thus establishes an overall GHG target for the region beyond 2020 applicable to these subsectors of the transportation sector. CARB assigned SACOG a 19 percent GHG reduction target from 2005 levels by 2035 (SACOG 2020).

3.3.2 Methodology

GHG impacts were assessed in accordance with methodologies recommended by the SMAQMD. Where GHG emission quantification was required, emissions were modeled using the CalEEMod software, version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated primarily using CalEEMod model defaults for Sacramento County. Operational air pollutant emissions were based on the land use mix identified in Section 1.0 of this report and traffic trip generation rates provided by Fehr and Peers (2024).

3.3.3 Impact Analysis

3.3.3.1 Generation of GHG Emissions

Construction

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 3-2. Construction-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/ Year)**
Calendar Year One	170
Calendar Year Two	168
SMAQMD Annual Construction Significance Threshold	*1,100*
Exceed SMAQMD Threshold?	**No**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

As shown in Table 3-2, Project construction would result in the maximum generation of 170 metric tons of CO_2e over the first calendar year of construction, which is below the SMAQMD significance threshold. Once construction is complete, the generation of these GHG emissions would cease.

Operational Significance Analysis

Operation of the Project would result in an increase in GHG emissions primarily associated with motor vehicle trips and onsite energy sources. Long-term operational GHG emissions attributed to the Project are identified in Table 3-3.

As previously described, SMAQMD specifies that all projects must adhere to the Tier 1 BMP requirements in order to be considered less than significant. In order to ensure compliance with the SMAQMD guidelines, this Project is subject to mitigation measure GHG-1 (see below), which will ensure that Tier 1 BMPs are implemented. The long-term Project operational GHG emissions identified in Table 3-3 account for SMAQMD Tier 1 BMP 1, which requires that all development be designed and constructed without natural gas infrastructure. Due to limitations in the modeling software, GHG-reductions resulting from Tier 1 BMP 2, which requires projects to meet the current CalGreen Tier 2 standards with the exception that all electric vehicle capable spaces be electric vehicle ready, are unable to be quantified.

Table 3-3. Operational-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/ Year)**
Mobile	1,645
Area	0.29
Energy	290
Water	5
Waste	31
Refrigeration	185
Total	**2,156**
SMAQMD Annual Operational Significance Threshold	*1,100*
Exceed SMAQMD Threshold?	**Yes**

Source: CalEEMod version 2022.1. Refer to Attachment A for Model Data Outputs.

Notes: Emission projections are predominately based on the land use mix identified in Section 1.0 of this report and traffic trip generation rates from Fehr & Peers (2024). SMAQMD Tier 1 BMP 1, which requires that all development be designed and constructed without natural gas infrastructure, is included in the modeling calculations per mitigation measure GHG-1.

As shown in Table 3-3, the Proposed Project's operational GHG emissions would be approximately 2,156 metric tons of CO_2e per year, which exceeds the SMAQMD significance threshold of 1,100 metric tons of CO_2e per year. Projects that exceed 1,100 metric tons of CO_2e per year after implementation of the Tier 1 BMPs must also implement SMAQMD Tier 2 BMPs. As previously discussed, the SMAQMD's Tier 2 BMP are as follows:

- Office projects must achieve a 15 percent reduction in VMT per worker compared to the existing average VMT per capita for the County.
- Retail projects must achieve no net increase in total VMT.

If the project achieves this SMAQMD Tier 2 BMP, then the operational impact is considered less than significant, and no further analysis is needed. If a project cannot incorporate the required BMPs, other reductions or purchasing and retiring GHG/carbon offsets from a registry approved by the SMAQMD may be required. Carbon offsets are instruments that can be bought, sold, and traded. Like a stock or equity that represents a unit of ownership in a company, a carbon offset represents a unit of GHG emissions reductions. Each offset is essentially a certification that a certain quantity of GHG emissions has been avoided, prevented, or sequestered. Offset registries that the SMAQMD may approve have developed a broad consensus around the standards that are necessary to ensure that offsets are environmentally sound, namely that offsets be real, permanent, quantifiable, verifiable, enforceable, and additional. Approved registries may include but are not limited to any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and Verra, which are all approved by CARB; (ii) any entity approved at any time by CARB to act as an "offset project registry" under the state's cap-and-trade program; (iii) other

regulatory or voluntary credits that demonstrate, based on substantial evidence, that the offsets are real, permanent, quantifiable, verifiable, enforceable, and additional.

Therefore, in addition to mitigation measure GHG-1, mitigation measure GHG-2 is required in order for the Project's contribution of GHG emissions to be considered less than significant.

Mitigation Measures

GHG-1: Implement SMAQMD Tier 1 Best Management Practices.

The County of Sacramento Planning Department will require the Project to implement Sacramento Metropolitan Air Quality Management District Tier 1 Best Management Practices:

BMP 1 – The project shall be designed and constructed without natural gas infrastructure.

BMP 2 – The project shall meet the current CalGreen Tier 2 standards, except all electric vehicle capable spaces shall instead be electric vehicle ready.

GHG-2: Implement SMAQMD Tier 2 Best Management Practices.

The County of Sacramento Planning Department will require the Project to implement Sacramento Metropolitan Air Quality Management District Tier 2 Best Management Practices:

BMP 3 - The Project applicant shall coordinate with the County of Sacramento to implement feasible transportation demand management (TDM) strategies, which would decrease the vehicle miles traveled generated by the Project as follows:

1. The Project office space component must achieve a 15 percent reduction in VMT per worker compared to the existing average VMT per capita for Sacramento County.
2. The Project retail component must achieve no net increase in total VMT.

Examples of potential measures include (but are not limited to): paid parking, employee telecommuting, employee shuttle service, expansion of transit service coverage / subsidized transit fares, enhanced bicycle and pedestrian connections, and flexible work schedules.

In the case that the necessary VMT reductions are infeasible, the purchasing and retiring GHG/carbon offsets from a SMAQMD-approved registry is required. Approved registries may include but are not limited to any of the following: (i) the Climate Action Reserve, the American Carbon Registry and Verra; (ii) any entity approved at any time by the California Air Resources Board to act as an "offset project registry" under the state's cap-and-trade program; (iii) other regulatory or voluntary credits that demonstrate, based on substantial evidence, that the offsets are real, permanent, quantifiable, verifiable, enforceable, and additional.

Adherence to both mitigation measures GHG-1 and GHG-2 are required in order for the Project's contribution of GHG emissions to be considered less than significant.

3.3.3.2 Conflict with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

As previously described, SACOG's MTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks. As shown in Table 3-3, GHG emissions resulting from Project-related transportation sources are one of the most potent sources of emissions, and therefore comparison to the MTP/SCS is an appropriate indicator of whether the Project is consistent with the MTP/SCS. Since the development site is classified as a "Developing Community" in the MTP/SCS (SACOG 2020, Appendix D), it is included in an area where urban development is predicted by SACOG. According to the MTP/SCS, land uses in Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely though many Developing Communities are designed with dedicated pedestrian and bicycle trails. The Project is consistent with the "Developing Community" classification in the MTP/SCS, and it can be assumed that regional mobile emissions will decrease in line with the goals of the MTP/SCS with implementation of the future development within the Project Area.

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LIST OF ATTACHMENTS

Attachment A – CalEEMod Output File for Criteria Pollutant and Greenhouse Gas Emissions

Attachment B – Health Risk Analysis Output Files

ATTACHMENT A

CalEEMod Output Files – Criteria Air Pollutant and Greenhouse Gas Emissions

Calvine Chevron Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Calvine Chevron
Construction Start Date	7/1/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	37.8
Location	38.45299519795523, -121.37280969207384
County	Sacramento
City	Unincorporated
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	769
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Convenience Market (24 hour)	5.35	1000sqft	0.12	5,347	10,420	0.00	—	—
High Turnover (Sit Down Restaurant)	5.38	1000sqft	0.12	5,382	0.00	0.00	—	—
Fast Food Restaurant with Drive Thru	1.32	1000sqft	0.03	1,316	0.00	0.00	—	—
Gasoline/Service Station	6.00	Pump	0.02	847	0.00	0.00	—	—
General Light Industry	1.55	1000sqft	0.04	1,550	0.00	0.00	—	—
Parking Lot	59.0	Space	0.53	0.00	0.00	0.00	—	—
Other Asphalt Surfaces	2.20	Acre	2.20	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.72	36.0	34.1	0.05	1.60	7.84	9.44	1.47	3.98	5.45	—	5,498	5,498	0.22	0.07	1.19	5,520
2025	7.55	10.6	13.4	0.02	0.43	0.20	0.51	0.40	0.05	0.42	—	2,528	2,528	0.10	0.03	0.87	2,540
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.23	11.4	13.4	0.02	0.50	0.07	0.57	0.46	0.02	0.48	—	2,523	2,523	0.10	0.03	0.01	2,535

2025	1.15	10.6	13.3	0.02	0.43	0.07	0.51	0.40	0.02	0.42	—	2,521	2,521	0.10	0.03	0.01	2,533
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.56	5.29	5.68	0.01	0.23	0.21	0.44	0.21	0.09	0.31	—	1,019	1,019	0.04	0.01	0.09	1,025
2025	0.85	4.27	5.44	0.01	0.17	0.04	0.21	0.16	0.01	0.17	—	1,012	1,012	0.04	0.01	0.09	1,017
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.10	0.97	1.04	< 0.005	0.04	0.04	0.08	0.04	0.02	0.06	—	169	169	0.01	< 0.005	0.01	170
2025	0.16	0.78	0.99	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	—	168	168	0.01	< 0.005	0.01	168

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.6	7.58	65.7	0.10	0.09	7.82	7.91	0.08	1.99	2.07	—	10,356	10,356	0.91	0.64	36.6	10,606
Area	0.46	0.01	0.63	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.58	2.58	< 0.005	< 0.005	—	2.59
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,746	1,746	0.08	0.01	—	1,751
Water	—	—	—	—	—	—	—	—	—	—	11.2	11.6	22.8	0.04	0.02	—	31.0
Waste	—	—	—	—	—	—	—	—	—	—	53.1	0.00	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,119	1,119
Total	17.1	7.59	66.3	0.10	0.09	7.82	7.91	0.08	1.99	2.07	64.3	12,117	12,181	6.33	0.67	1,156	13,696
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.4	8.82	69.0	0.09	0.09	7.82	7.91	0.08	1.99	2.07	—	9,532	9,532	1.15	0.71	0.95	9,772
Area	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,746	1,746	0.08	0.01	—	1,751
Water	—	—	—	—	—	—	—	—	—	—	11.2	11.6	22.8	0.04	0.02	—	31.0

Waste	—	—	—	—	—	—	—	—	—	—	53.1	0.00	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,119	1,119
Total	14.7	8.82	69.0	0.09	0.09	7.82	7.91	0.08	1.99	2.07	64.3	11,290	11,354	6.57	0.74	1,120	12,859
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.5	8.20	62.3	0.09	0.09	7.64	7.72	0.08	1.94	2.02	—	9,695	9,695	1.02	0.67	15.8	9,935
Area	0.43	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.77	1.77	< 0.005	< 0.005	—	1.78
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,746	1,746	0.08	0.01	—	1,751
Water	—	—	—	—	—	—	—	—	—	—	11.2	11.6	22.8	0.04	0.02	—	31.0
Waste	—	—	—	—	—	—	—	—	—	—	53.1	0.00	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,119	1,119
Total	14.9	8.21	62.8	0.09	0.09	7.64	7.72	0.08	1.94	2.02	64.3	11,455	11,519	6.44	0.70	1,135	13,024
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.64	1.50	11.4	0.02	0.02	1.39	1.41	0.02	0.35	0.37	—	1,605	1,605	0.17	0.11	2.61	1,645
Area	0.08	< 0.005	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	289	289	0.01	< 0.005	—	290
Water	—	—	—	—	—	—	—	—	—	—	1.85	1.92	3.77	0.01	< 0.005	—	5.14
Waste	—	—	—	—	—	—	—	—	—	—	8.79	0.00	8.79	0.88	0.00	—	30.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	185	185
Total	2.72	1.50	11.5	0.02	0.02	1.39	1.41	0.02	0.35	0.37	10.6	1,896	1,907	1.07	0.12	188	2,156

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	0.17	0.17	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.36	1.19	< 0.005	0.06	—	0.06	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.25	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.05	0.97	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	174	174	0.01	0.01	0.71	176
Vendor	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

Hauling	0.01	0.43	0.16	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	231	231	0.02	0.04	0.48	243
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.67	8.67	< 0.005	< 0.005	0.02	8.79
Vendor	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
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.01	13.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.44	1.44	< 0.005	< 0.005	< 0.005	1.46
Vendor	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
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.09	2.09	< 0.005	< 0.005	< 0.005	2.20

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.49	0.45	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.5	72.5	< 0.005	< 0.005	—	72.8
Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.1
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	1.14	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	203	203	0.01	0.01	0.83	206
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.53	2.53	< 0.005	< 0.005	< 0.005	2.56
Vendor	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

Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.42
Vendor	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
Hauling	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

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.40	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.8	64.8	< 0.005	< 0.005	—	65.1
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.05	0.97	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	174	174	0.01	0.01	0.71	176
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.47	3.47	< 0.005	< 0.005	0.01	3.52
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.58
Vendor	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
Hauling	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

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	2.96	3.46	0.01	0.13	—	0.13	0.12	—	0.12	—	633	633	0.03	0.01	—	636
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.54	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	105	105	< 0.005	< 0.005	—	105
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	63.1	63.1	< 0.005	< 0.005	0.26	64.1
Vendor	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	69.8	69.8	< 0.005	0.01	0.18	73.1
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.0	56.0	< 0.005	< 0.005	0.01	56.7
Vendor	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	69.8	69.8	< 0.005	0.01	< 0.005	72.9
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.2	15.2	< 0.005	< 0.005	0.03	15.4
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.4	18.4	< 0.005	< 0.005	0.02	19.3
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.51	2.51	< 0.005	< 0.005	< 0.005	2.55
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.05	3.05	< 0.005	< 0.005	< 0.005	3.19
Hauling	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

3.9. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	3.84	4.80	0.01	0.16	—	0.16	0.15	—	0.15	—	882	882	0.04	0.01	—	885
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.70	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	146	146	0.01	< 0.005	—	147
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.33	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.8	61.8	< 0.005	< 0.005	0.24	62.7
Vendor	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.5	68.5	< 0.005	0.01	0.18	71.8
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.9	54.9	< 0.005	< 0.005	0.01	55.6

Vendor	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.4	68.4	< 0.005	0.01	< 0.005	71.6
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.04	21.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.2	25.2	< 0.005	< 0.005	0.03	26.4
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	0.01	3.48
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.36
Hauling	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

3.11. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	6.52	8.84	0.01	0.29	—	0.29	0.26	—	0.26	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.32	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	1.21	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	227	227	< 0.005	0.01	0.87	230
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.02	10.3
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.69	1.69	< 0.005	< 0.005	< 0.005	1.71
Vendor	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
Hauling	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

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	7.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	—	6.61
Architectural Coatings	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.09
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.05	12.5
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.56
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	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
Hauling	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

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	7.27	3.57	31.5	0.05	0.04	4.01	4.06	0.04	1.02	1.06	—	5,245	5,245	0.41	0.30	18.7	5,364
High Turnover (Sit Down Restaurant)	1.07	0.50	4.40	0.01	0.01	0.54	0.55	0.01	0.14	0.14	—	714	714	0.06	0.04	2.54	730
Fast Food Restaurant with Drive Thru	1.09	0.50	4.31	0.01	0.01	0.52	0.52	0.01	0.13	0.14	—	682	682	0.06	0.04	2.41	698
Gasoline/ Service Station	7.18	3.01	25.5	0.04	0.03	2.75	2.79	0.03	0.70	0.73	—	3,716	3,716	0.38	0.25	12.9	3,813
General Light Industry	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
Parking Lot	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
Other Asphalt Surfaces	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
Total	16.6	7.58	65.7	0.10	0.09	7.82	7.91	0.08	1.99	2.07	—	10,356	10,356	0.91	0.64	36.6	10,606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	6.30	4.16	32.0	0.05	0.04	4.01	4.06	0.04	1.02	1.06	—	4,820	4,820	0.52	0.33	0.49	4,933

High Turnover (Sit Down Restauran:)	0.92	0.59	4.56	0.01	0.01	0.54	0.55	0.01	0.14	0.14	—	656	656	0.07	0.05	0.07	672
Fast Food Restauran: with Drive Thru	0.94	0.58	4.52	0.01	0.01	0.52	0.52	0.01	0.13	0.14	—	627	627	0.08	0.05	0.06	643
Gasoline/ Service Station	6.19	3.49	27.8	0.03	0.03	2.75	2.79	0.03	0.70	0.73	—	3,428	3,428	0.48	0.28	0.33	3,523
General Light Industry	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
Parking Lot	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
Other Asphalt Surfaces	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
Total	14.4	8.82	69.0	0.09	0.09	7.82	7.91	0.08	1.99	2.07	—	9,532	9,532	1.15	0.71	0.95	9,772
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenie nce Market (24 hour)	1.16	0.71	5.35	0.01	0.01	0.71	0.72	0.01	0.18	0.19	—	812	812	0.08	0.05	1.34	831
High Turnover (Sit Down Restauran:)	0.17	0.10	0.76	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	111	111	0.01	0.01	0.18	113
Fast Food Restauran: with Drive Thru	0.17	0.10	0.75	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	106	106	0.01	0.01	0.17	108
Gasoline/ Service Station	1.14	0.59	4.53	0.01	0.01	0.49	0.50	0.01	0.12	0.13	—	577	577	0.07	0.04	0.92	593

General Light Industry	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
Parking Lot	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
Other Asphalt Surfaces	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
Total	2.64	1.50	11.4	0.02	0.02	1.39	1.41	0.02	0.35	0.37	—	1,605	1,605	0.17	0.11	2.61	1,645

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
High Turnover (Sit Down Restauran:)	—	—	—	—	—	—	—	—	—	—	—	179	179	0.01	< 0.005	—	179
Fast Food Restauran: with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	43.7	43.7	< 0.005	< 0.005	—	43.8
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	—	7.55	7.55	< 0.005	< 0.005	—	7.58

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1,286	1,286	0.06	0.01	—	1,290
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	16.4	16.4	< 0.005	< 0.005	—	16.4
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,746	1,746	0.08	0.01	—	1,751
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	214	214	0.01	< 0.005	—	214
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	179	179	0.01	< 0.005	—	179
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	43.7	43.7	< 0.005	< 0.005	—	43.8
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	—	7.55	7.55	< 0.005	< 0.005	—	7.58
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1,286	1,286	0.06	0.01	—	1,290
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	16.4	16.4	< 0.005	< 0.005	—	16.4
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,746	1,746	0.08	0.01	—	1,751

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	35.4	35.4	< 0.005	< 0.005	—	35.5
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	29.6	29.6	< 0.005	< 0.005	—	29.7
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	7.24	7.24	< 0.005	< 0.005	—	7.26
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	—	1.25	1.25	< 0.005	< 0.005	—	1.25
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	213	213	0.01	< 0.005	—	214
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	2.71	2.71	< 0.005	< 0.005	—	2.72
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	289	289	0.01	< 0.005	—	290

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market (24 hour)	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
High Turnover (Sit Down Restaurant)	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
Fast Food Restaurant with Drive Thru	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
Gasoline/ Service Station	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
General Light Industry	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
Parking Lot	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
Other Asphalt Surfaces	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	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
High Turnover (Sit Down Restaurant)	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

Fast Food Restaurant with Drive Thru	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
Gasoline/ Service Station	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
General Light Industry	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
Parking Lot	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
Other Asphalt Surfaces	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	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
High Turnover (Sit Down Restaurant)	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
Fast Food Restaurant with Drive Thru	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
Gasoline/ Service Station	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
General Light Industry	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

Parking Lot	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
Other Asphalt Surfaces	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
Total	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

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.10	0.01	0.63	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.58	2.58	< 0.005	< 0.005	—	2.59
Total	0.46	0.01	0.63	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.58	2.58	< 0.005	< 0.005	—	2.59
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Total	0.08	< 0.005	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	0.85	1.06	1.90	< 0.005	< 0.005	—	2.53
High Turnover (Sit Down Restauran:)	—	—	—	—	—	—	—	—	—	—	3.49	3.57	7.06	0.01	0.01	—	9.64

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	0.85	0.87	1.73	< 0.005	< 0.005	—	2.36
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	0.17	0.17	0.34	< 0.005	< 0.005	—	0.47
General Light Industry	—	—	—	—	—	—	—	—	—	—	5.80	5.93	11.7	0.02	0.01	—	16.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	11.2	11.6	22.8	0.04	0.02	—	31.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	0.85	1.06	1.90	< 0.005	< 0.005	—	2.53
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	3.49	3.57	7.06	0.01	0.01	—	9.64
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	0.85	0.87	1.73	< 0.005	< 0.005	—	2.36
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	0.17	0.17	0.34	< 0.005	< 0.005	—	0.47
General Light Industry	—	—	—	—	—	—	—	—	—	—	5.80	5.93	11.7	0.02	0.01	—	16.0

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	11.2	11.6	22.8	0.04	0.02	—	31.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	0.14	0.17	0.31	< 0.005	< 0.005	—	0.42
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	0.58	0.59	1.17	< 0.005	< 0.005	—	1.60
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	0.14	0.14	0.29	< 0.005	< 0.005	—	0.39
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	0.03	0.03	0.06	< 0.005	< 0.005	—	0.08
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.96	0.98	1.94	< 0.005	< 0.005	—	2.65
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	1.85	1.92	3.77	0.01	< 0.005	—	5.14

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	8.66	0.00	8.66	0.87	0.00	—	30.3
High Turnover (Sit Down Restauran:)	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.45	0.00	—	121
Fast Food Restauran: with Drive Thru	—	—	—	—	—	—	—	—	—	—	8.17	0.00	8.17	0.82	0.00	—	28.6
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	1.74	0.00	1.74	0.17	0.00	—	6.10
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	53.1	0.00	53.1	5.31	0.00	—	186
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	8.66	0.00	8.66	0.87	0.00	—	30.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.45	0.00	—	121
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	8.17	0.00	8.17	0.82	0.00	—	28.6
Gasoline/ Service Station	—	—	—	—	—	—	—	—	—	—	1.74	0.00	1.74	0.17	0.00	—	6.10
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	53.1	0.00	53.1	5.31	0.00	—	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	1.43	0.00	1.43	0.14	0.00	—	5.02
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	5.71	0.00	5.71	0.57	0.00	—	20.0
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	1.35	0.00	1.35	0.14	0.00	—	4.73

Gasoline/ Station	—	—	—	—	—	—	—	—	—	—	0.29	0.00	0.29	0.03	0.00	—	1.01
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	8.79	0.00	8.79	0.88	0.00	—	30.8

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,109	1,109
High Turnover (Sit Down Restauran:)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.41	8.41
Fast Food Restauran: with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.06	2.06
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,119	1,119
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,109	1,109
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.41	8.41
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.06	2.06
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,119	1,119
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	184	184
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.39	1.39
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	185	185

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	7/1/2024	7/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	7/30/2024	8/6/2024	5.00	5.00	—
Grading	Grading	8/7/2024	8/18/2024	5.00	8.00	—
Building Construction	Building Construction	8/19/2024	7/7/2025	5.00	230	—
Paving	Paving	7/8/2025	8/2/2025	5.00	18.0	—
Architectural Coating	Architectural Coating	8/3/2025	8/28/2025	5.00	18.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	—	8.80	HHDT,MHDT

Demolition	Hauling	3.05	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	5.45	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	2.37	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.09	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	21,663	7,221	7,138

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	243	—
Site Preparation	0.00	0.00	7.50	0.00	—
Grading	0.00	0.00	8.00	0.00	—
Paving	0.00	0.00	0.00	0.00	2.73

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Convenience Market (24 hour)	0.00	0%
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Gasoline/Service Station	0.00	0%
General Light Industry	0.00	0%
Parking Lot	0.53	100%
Other Asphalt Surfaces	2.20	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	312	0.01	< 0.005
2025	0.00	295	0.01	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Convenience Market (24 hour)	1,869	1,869	1,869	682,183	5,654	5,654	5,654	2,063,680
High Turnover (Sit Down Restaurant)	276	276	276	100,740	765	765	765	279,144
Fast Food Restaurant with Drive Thru	283	283	283	103,295	726	726	726	265,018

Gasoline/Service Station	1,896	1,896	1,896	692,040	3,882	3,882	3,882	1,416,973
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	21,663	7,221	7,138

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

Convenience Market (24 hour)	264,605	295	0.0129	0.0017	0.00
High Turnover (Sit Down Restaurant)	221,235	295	0.0129	0.0017	0.00
Fast Food Restaurant with Drive Thru	54,096	295	0.0129	0.0017	0.00
Gasoline/Service Station	9,347	295	0.0129	0.0017	0.00
General Light Industry	1,591,200	295	0.0129	0.0017	0.00
Parking Lot	20,262	295	0.0129	0.0017	0.00
Other Asphalt Surfaces	0.00	295	0.0129	0.0017	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Convenience Market (24 hour)	396,066	145,529
High Turnover (Sit Down Restaurant)	1,633,618	0.00
Fast Food Restaurant with Drive Thru	399,450	0.00
Gasoline/Service Station	79,691	0.00
General Light Industry	2,714,432	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Convenience Market (24 hour)	16.1	—
High Turnover (Sit Down Restaurant)	64.0	—

Fast Food Restaurant with Drive Thru	15.2	—
Gasoline/Service Station	3.23	—
General Light Industry	0.00	—
Parking Lot	0.00	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Convenience Market (24 hour)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market (24 hour)	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

ATTACHMENT B

Health Risk Analysis Output Files

Calvine Chevron Project

Gasoline Vapor Emission Calculations

Table B-1. Fueling Information

Fuel Tank[1]	Gasoline Throughput (gallons)
Annual Throughput	1,902,000
Peak Hourly Loading[1]	8,800
Peak Hourly Dispensing[2]	700

(1) Peak hourly filling per Gasoline Service Station Industrywide Risk Assessment Technical Guidance (CARB & CAPCOA 2022)

(2) Peak hourly throughput per Gasoline Service Station Industrywide Risk Assessment Technical Guidance (CARB & CAPCOA 2022)

Notes: Evaporative emissions from diesel are considered negligible.

Table B-2. TOG Emission Factor by Category

	Total Organic Gas (TOG) Emission Factors (lb/1,000 gal)				
Scenario	**Loading**	**Breathing**	**Fueling[1]**	**Spillage**	**Hose Permeation**
EVR Phase 1 and II	0.15	0.092	0.089	0.24	0.009

Source: Emission Factors per Gas Station Scenario (CARB & CAPCOA, 2022)

(1) Assumes 88% of vehicles have ORVR in 2021 per CARB Revised Phase II Document.

Table B-3. Peak Hourly and Annual Emissions by Activity

Activity	Peak Hourly[1] (lbs/hr)	Annual[2] (lbs/yr)
Gasoline UST (Point Sources)	**ROG Station Total**	
Filling Storage Tanks	1.32	285
Storage Tanks Breathing	0.81	175
Station (Volume Sources)	**ROG Station Total**	
Consumer Filling	0.06	169
Spillage	0.17	456
Hose Permeation	0.01	17

(1) Peak Hourly Emissions = Peak Hourly Throughput (gal/hr) * TOG EF (lbs/1,000 gal) / 1,000 gal

(2) Annual Emissions = Annual Throughput (gal/yr) * TOG EF (lbs/1,000 gal) / 1,000 gal

Calvine Chevron Project
Gasoline Vapor Emission Calculations

Table B-4. Gasoline Speciation

Chemical	Weight Percentage
Benzene	0.457%
Ethyl Benzene	0.107%
n-Hexane	0.0182%
Naphthalene	0.0445%
Propylene (propene)2	0.0359%
Toluene	1.11%
Xylenes	0.4090%

Source: Content of Gasoline (Combined Winter/Summer) (CARB & CAPCOA, 2022)

Table B-5. Total VOC Emissions by HARP2 Source

HARP2 Source	Max Hourly VOC (lbs/hr)	Annual VOC (lbs/yr)
Tank Filling + Breathing	2.13	460
Station Volume Sources	0.12	321

Table B-5. Peak Hourly HARP2 Emissions Input

	Max Hourly Emissions (lbs/hr)						
HARP2 Source	Benzene	Ethyl Benzene	n-Hexane	Naphthalene	Propylene	Toluene	Xylenes
Tank Filling + Breathing	0.0097	0.0023	0.0004	0.0009	0.0008	0.0236	0.0087
Volume Sources	0.0005	0.0001	0.0000	0.0001	0.0000	0.0013	0.0005

Table B-6. Annual HARP2 Emissions Input

	Annual Emissions (lbs/yr)						
HARP2 Source	Benzene	Ethyl Benzene	n-Hexane	Naphthalene	Propylene	Toluene	Xylenes
Tank Filling + Breathing	2.10	0.49	0.08	0.20	0.17	5.1	1.9
Volume Sources	1.47	0.34	0.06	0.14	0.12	3.6	1.3

Calvine Chevron Project Delivery Truck Emissions

Table B-7. Modeled Roadway Dimensions

Roadway Link Description	AERMOD ID	Length (miles)	Width (m)	Area (m^2)
Project Site to Hwy 99	SLINE2	1.8	3.7	10,718.20
Internal Circulation	SLINE3	0.1	7.4	952.73

Notes: (1)All roadways, except that on the Project Site, modeled as two lanes with standard 3.7 meter width per lane.

Table B-8. Total Haul and Vendor Trip Information

	Trips/Day
Operational Heavy Duty Trucks	2

Note: A conservative estimate of 2 fuel delivery trucks per day is used in this analysis

Table B-9. Modeled Roadway Trip Information

	Truck Trips		
Roadway Link	Percentage Total Trips	Hourly	Average Daily
Project Site to Hwy 99	100%	0.3	2
Internal Circulation	100%	0.3	2

Table B-10. Onroad DPM Emission Rates

	DPM Emission Rates[1] (g/mi)					
Vehicle Type	Idle[2]	5 mph	15 mph	45 mph	Onsite Composite[3]	Offsite Composite[4]
Heavy-Duty Delivery Truck (T7 Utility Class 8)	0.002	0.005	0.004	0.006	0.004	0.001

Notes: (1) DPM Emission Rates conservativly represented using EMFAC2021 PM10 Exhaust emission factors averaged for 2025

(2) Idle emission rates in grams per minute.

(3) Onsite Composite factor is 85% @ 15 mph + 15% @ 5 mph + 1 minute idle per mile

(4) Offsite Composite factor is 80% @ 45 mph + 10% @ 15 mph + 10% @ 5 mph + .1 minute idle per mile

Calvine Chevron Project Delivery Truck Emissions

Table B-11. Modeled Roadway Emission Rates

Roadway Link	DPM Emissions[1,2]	
	Peak Hourly (lbs/hr)	Annual (lbs/yr)
Project Site to Hwy 99	0.0000	0.0020
Internal Circulation	0.0000	0.0004

Notes: (1) Peak Hourly Emissions = DPM Emission Rate (g/mi) * Peak Hourly Trips * Link Length (mi) / 453.6 (g/lb)

(2) Annual Emissions = DPM Emission Rate (g/mi) * Daily Trips * Link Length (mi) * 365 (days/yr) / 453.6 (g/lb)

Location: W:\Projects\2024\2024-015 Calvine Chevron\Emissions\Figures\mapping\Calvine Chevron Mapping.aprx - Portrait Template (agre - 4/3/2024)

Map Date: 4/3/2024

Sources: Esri 2024

Meteorological Station Location

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2024-015 Calvine Chevron Project

Location: W:\Projects\2024\2024-015 Calvine Chevron\Emissions\Figures\mapping\Calvine Chevron Mapping.aprx - Portrait Template (agne - 4/5/2024)

Map Date: 4/5/2024

Sources: Esri 2024

Maximum Risk Locations Map

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