# APPENDIX A:
# AIR QUALITY AND GREENHOUSE GAS EMISSIONS DATA

# Air Quality and Greenhouse Gas Appendix

# 1. Air Quality

Ambient air quality standards (AAQS) have been adopted at State and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of toxic air contaminants (TACs). The City of San Francisco is in the San Francisco Bay Area Air Basin (SFBAAB) and is subject to the rules and regulations imposed by the Bay Area Air Quality Management District (BAAQMD), as well as the California AAQS adopted by the California Air Resources Board (CARB) and national AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, State, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below. The discussion also identifies the natural factors in the air basin that affect air pollution.

## 1.1 REGULATORY FRAMEWORK

### 1.1.1 Ambient Air Quality Standards

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

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

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, these pollutants include ozone ($O_3$), nitrogen dioxide ($NO_2$), carbon monoxide (CO), sulfur dioxide ($SO_2$), coarse inhalable particulate matter ($PM_{10}$), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

| Pollutant | Averaging Time | California Standard[1] | Federal Primary Standard[2] | Major Pollutant Sources |
|---|---|---|---|---|
| Ozone ($O_3$)[3] | 1 hour | 0.09 ppm | * | Motor vehicles, paints, coatings, and solvents. |
| | 8 hours | 0.070 ppm | 0.070 ppm | |
| Carbon Monoxide (CO) | 1 hour | 20 ppm | 35 ppm | Internal combustion engines, primarily gasoline-powered motor vehicles. |
| | 8 hours | 9.0 ppm | 9 ppm | |
| Nitrogen Dioxide ($NO_2$) | Annual Arithmetic Mean | 0.030 ppm | 0.053 ppm | Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads. |
| | 1 hour | 0.18 ppm | 0.100 ppm | |
| Sulfur Dioxide ($SO_2$) | Annual Arithmetic Mean | * | 0.030 ppm | Fuel combustion, chemical plants, sulfur recovery plants, and metal processing. |
| | 1 hour | 0.25 ppm | 0.075 ppm | |
| | 24 hours | 0.04 ppm | 0.14 ppm | |
| Respirable Coarse Particulate Matter ($PM_{10}$) | Annual Arithmetic Mean | 20 µg/m3 | * | Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays). |
| | 24 hours | 50 µg/m3 | 150 µg/m3 | |
| Respirable Fine Particulate Matter ($PM_{2.5}$)[4] | Annual Arithmetic Mean | 12 µg/m3 | 12 µg/m3 | Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays). |
| | 24 hours | * | 35 µg/m3 | |
| Lead (Pb) | 30-Day Average | 1.5 µg/m3 | * | Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline. |
| | Calendar Quarter | * | 1.5 µg/m3 | |
| | Rolling 3-Month Average | * | 0.15 µg/m3 | |
| Sulfates ($SO_4$)[5] | 24 hours | 25 µg/m3 | * | Industrial processes. |
| Visibility Reducing Particles | 8 hours | ExCo =0.23/km visibility of 10≥ miles | No Federal Standard | Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. |
| Hydrogen Sulfide | 1 hour | 0.03 ppm | No Federal Standard | Hydrogen sulfide ($H_2S$) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. |

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

| Pollutant | Averaging Time | California Standard[1] | Federal Primary Standard[2] | Major Pollutant Sources |
|---|---|---|---|---|
| Vinyl Chloride | 24 hours | 0.01 ppm | No Federal Standard | Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents. |

Source: California Air Resources Board (CARB). 2016, October 1. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
Notes: ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for $O_3$, CO (except 8-hour Lake Tahoe), $SO_2$ (1 and 24 hour), $NO_2$, and particulate matter ($PM_{10}$, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than $O_3$, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The $O_3$ standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For $PM_{10}$, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour $PM_{10}$ standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

## 1.1.2 Air Pollutants of Concern

A substance in the air that can cause harm to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made.

### 1.1.2.1 CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), coarse inhalable particulate matter ($PM_{10}$), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, $SO_2$, $NO_2$, $PM_{10}$, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen ($NO_x$) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone ($O_3$) and $NO_2$ are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

**Carbon Monoxide (CO)** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen-carrying capacity. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death. [1]

**Volatile Organic Compounds (VOC)** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as $O_3$. There are no AAQS established for ROGs. However, because they contribute to the formation of $O_3$, the Air District has established a significance threshold for this pollutant.

**Nitrogen Oxides ($NO_x$)** are a by-product of fuel combustion and contribute to the formation of $O_3$, $PM_{10}$, and $PM_{2.5}$. The two major components of $NO_x$ are nitric oxide (NO) and $NO_2$. The principal component of $NO_x$ produced by combustion is NO, but NO reacts with oxygen to form $NO_2$, creating the mixture of NO and $NO_2$ commonly called $NO_X$. $NO_2$ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure.[2] $NO_2$ acts as an acute irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, $NO_2$ is only potentially irritating. There is some indication of a relationship between $NO_2$ and chronic pulmonary fibrosis. Some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million (ppm). [3]

**Sulfur Dioxide ($SO_2$)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of $SO_2$. When $SO_2$ forms sulfates ($SO_4$) in the atmosphere, together these pollutants are referred to as sulfur oxides ($SO_x$). Thus, $SO_2$ is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, $SO_2$ may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, $SO_2$ may do greater harm by injuring lung tissue. [4]

**Suspended Particulate Matter ($PM_{10}$ and $PM_{2.5}$)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. In the San Francisco Bay Area Air Basin (SFBAAB or Air Basin), most particulate matter is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Two forms of fine particulates are now recognized and regulated. Inhalable coarse

1 Bay Area Air Quality Management District, 2017, Revised California Environmental Quality Act Air Quality Guidelines.
2 Bay Area Air Quality Management District, 2017, Revised California Environmental Quality Act Air Quality Guidelines.
3 Bay Area Air Quality Management District, 2017, Revised California Environmental Quality Act Air Quality Guidelines.
4 Bay Area Air Quality Management District, 2017, Revised California Environmental Quality Act Air Quality Guidelines.

particles, or $PM_{10}$, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., 2.5 millionths of a meter or 0.0001 inch). Diesel particulate matter (DPM) is also classified a carcinogen.

Extended exposure to particulate matter can increase the risk of chronic respiratory disease. $PM_{10}$ bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The EPA scientific review concluded that $PM_{2.5}$ penetrates even more deeply into the lungs, and this is more likely to contribute to health effects—at concentrations well below current $PM_{10}$ standards. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing). Motor vehicles are currently responsible for about half of particulates in the SFBAAB. Wood burning in fireplaces and stoves is another large source of fine particulates. [5]

**Ozone ($O_3$)** is commonly referred to as "smog" and is a gas that is formed when ROGs and $NO_x$, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. $O_3$ is a secondary criteria air pollutant. $O_3$ concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions to the formation of this pollutant. $O_3$ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. $O_3$ levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. $O_3$ can also damage plants and trees and materials such as rubber and fabrics.[6]

**Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phasing out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Because emissions of lead are found only in projects that are permitted by the Air District, lead is not an air quality of concern for the proposed project.

#### 1.1.2.2 TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as

[5] Bay Area Air Quality Management District, 2017, Revised California Environmental Quality Act Air Quality Guidelines.
[6] Bay Area Air Quality Management District, 2017. Revised California Environmental Quality Act Air Quality Guidelines.

a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

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

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[7] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

### Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

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

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

### Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective*[8] to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and

[7] California Air Resources Board (CARB). 1999. California Air Resources Board (CARB). Final Staff Report: Update to the Toxic Air Contaminant List. https://ww3.arb.ca.gov/toxics/id/finalstaffreport.htm.

[8] California Air Resources Board (CARB). 2005, April. Air Quality and Land Use Handbook: A Community Health Perspective. https://www.arb.ca.gov/ch/handbook.pdf.

gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

## 1.1.3 Bay Area Air Quality Management District

The Air District is the agency responsible for assuring that the National and California AAQS are attained and maintained in the Air Basin. Air quality conditions in the Air Basin have improved significantly since the Air District was created in 1955. The Air District prepares air quality management plans (AQMP) to attain ambient air quality standards in the Air Basin. The Air District prepares ozone attainment plans for the National O3 standard and clean air plans for the California $O_3$ standard. These air quality management plans are prepared in coordination with Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). The Air District adopted the 2017 Clean Air Plan, Spare the Air, Cool the Climate (2017 Clean Air Plan) on April 19, 2017, making it the most recent adopted comprehensive plan. The 2017 Clean Air Plan incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

### 1.1.3.1 BAY AREA AIR QUALITY MANAGEMENT DISTRICT 2017 CLEAN AIR PLAN

#### 2017 Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area

The 2017 Clean Air Plan serves as an update to the adopted Bay Area 2010 Clean Air Plan and continues in providing the framework for SFBAAB to achieve attainment of the California and National AAQS. The 2017 Clean Air Plan updates the Bay Area's ozone plan, which is based on the "all feasible measures" approach to meet the requirements of the California Clean Air Act. Additionally, it sets a goal of reducing health risk impacts to local communities by 20 percent by 2020. Furthermore, the 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the state's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following [9]:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.

[9] Bay Area Air Quality Management District. 2017, April 19. Final 2017 Clean Air Plan, Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. http://www.baaqmd.gov/plans-and-climate/air-quality-plans/plans-under-development.

- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, TACs, and GHG from a full range of emission sources. These control measures cover the following sectors: 1) stationary (industrial) sources; 2) transportation; 3) energy; 4) agriculture; 5) natural and working lands; 6) waste management; 7) water; and 8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
- Increase efficiency of the energy and transportation systems.
- Reduce demand for vehicle travel, and high-carbon goods and services.
- Decarbonize the energy system.
- Make the electricity supply carbon-free.
- Electrify the transportation and building sectors.

#### 1.1.3.2 BAAQMD'S COMMUNITY AIR RISK EVALUATION PROGRAM (CARE)

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area. Based on findings of the latest report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed 4 percent of the cancer risk-weighted emissions, and benzene contributed 3 percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk–weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB's diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for State diesel regulations and other reductions.[10]

Modeled cancer risks from TAC in 2005 were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. The highest modeled risks were found east of San Francisco, near West Oakland, and the Maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

- Western Contra Costa County and the cities of Richmond and San Pablo

[10] Bay Area Air Quality Management District. 2014. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective and Path Forward (2004–2013), April.

- Western Alameda County along the Interstate 880 (I-880) corridor and the cities of Berkeley, Alameda, Oakland, and Hayward
- San Jose
- Eastern side of San Francisco
- Concord
- Vallejo
- Pittsburgh and Antioch

The project site is not within a CARE-program impacted community.

#### 1.1.3.3 AB 617 COMMUNITY ACTION PLANS

In July of 2017, Governor Brown signed Assembly Bill 617 to develop a new community focused program to more effectively reduce exposure to air pollution and preserve public health in environmental justice communities. The bill directs CARB and all local air districts to take measures to protect communities disproportionally impacted by air pollution through monitoring and implementing air pollution control strategies.

On September 27, 2018, CARB approved BAAQMD's recommended communities for monitoring and emission reduction planning. The state approved communities for year 1 of the program, as well as communities that would move forward over the next five years. Bay Area recommendations included all the Community Air Risk Evaluation (CARE) areas, as well as areas with large sources of air pollution (refineries, seaports, airports, etc.), areas identified via statewide screening tools as having pollution and/or health burden vulnerability, and areas with low life expectancy.[11]

- Year 1 Communities:

    - West Oakland. The West Oakland community was selected for BAAQMD's first Community Action Plan. In 2017, cancer risk in from sources in West Oakland (local sources) was 204 in a million. The primary sources of air pollution in West Oakland include heavy truck and cars, port and rail sources, large industries, and to a lesser extent other sources such as residential sources (i.e., woodburning). The majority (over 90 percent) of cancer risk is from diesel $PM_{2.5}$.[12]

    - Richmond: Richmond was selected for a community monitoring plan in year 1 of the AB 617 program. The Richmond area is in western Contra Costa County and includes most of the City of Richmond and portions of El Cerrito. It also includes communities just north and east of Richmond, such as San Pablo and several unincorporated communities, including North Richmond. The primary goals of the Richmond monitoring effort are to leverage historic and current monitoring studies, to better characterize the area's mix of sources, and to more fully understand the associated air quality and pollution impact. [13]

[11] BAAQMD. 2019, April 16. San Francisco Bay Area Community Health Protection Program. https://www.baaqmd.gov/~/media/files/ab617-community-health/2019_0325_ab617onepager-pdf.pdf?la=en

[12] BAAQMD. 2019, October 2. West Oakland Community Action Plan. https://www.baaqmd.gov/community-health/community-health-protection-program/west-oakland-community-action-plan

[13] BAAQMD. 2019, April 16. San Francisco Bay Area Community Health Protection Program. https://www.baaqmd.gov/~/media/files/ab617-community-health/2019_0325_ab617onepager-pdf.pdf?la=en

- Year 2-5 Communities:
    - East Oakland/San Leandro, Eastern San Francisco, the Pittsburg-Bay Point area, San Jose, Tri-Valley, and Vallejo are slated for action in years 2-5 of the AB 617 program. [14]

#### 1.1.3.4 REGULATION 7, ODOROUS SUBSTANCES

Sources of objectionable odors may occur within the City. BAAQMD's Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

#### 1.1.3.5 OTHER BAAQMD REGULATIONS

In addition to the plans and programs described above, BAAQMD administers a number of specific regulations on various sources of pollutant emissions that would apply to individual development projects:

- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements
- BAAQMD Regulation 6, Rule 2, Commercial Cooking Equipment
- BAAQMD Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing)
- BAAQMD Regulation 11, Rule 18, Reduction of Risk from Air Toxic Emissions at Existing Facilities

### 1.1.4 Plan Bay Area

Plan Bay Area is the Bay Area's Regional Transportation Plan/Sustainable Community Strategy. The 2050 blueprint to Plan Bay Area was adopted jointly by the ABAG and MTC in October 2021[15]. The Plan Bay Area 2050 serves as a 30-year plan with 35 new strategies to provide a more equitable and resilient future for residents in the Bay Area. This regional plan aims for more affordable and accessible transportation, which will significantly decrease greenhouse gas emissions to meet the state mandate of a 19% reduction in per-capita emissions by 2035.

[14] BAAQMD. 2019, April 16. San Francisco Bay Area Community Health Protection Program. https://www.baaqmd.gov/~/media/files/ab617-community-health/2019_0325_ab617onepager-pdf.pdf?la=en

[15] Metropolitan Transportation Commission and Association of Bay Area Governments. 2021, October. Plan Bay Area 2050 Plan. https://www.planbayarea.org/finalplan2050

### 1.1.5 Santa Clara Valley Transportation Authority

The Santa Clara Valley Transportation Authority (VTA) is the congestion management agency for Santa Clara County. VTA is tasked with developing a comprehensive transportation improvement program among local jurisdictions that will reduce traffic congestion and improve land use decision-making and air quality. VTA's latest congestion management program (CMP) is the 2017 Congestion Management Program Document. VTA's countywide transportation model must be consistent with the regional transportation model developed by the MTC with ABAG data. The countywide transportation model is used to help evaluate cumulative transportation impacts of local land use decisions on the CMP system. In addition, VTA's updated CMP includes multi-modal performance standards and trip reduction and transportation demand management strategies consistent with the goal of reducing regional vehicle miles traveled in accordance with Senate Bill 375. The 2017 CMP also includes a discussion of Senate Bill 743 implementation and relationship to the CMP auto level of service standard. Elements discussed in the 2017 CMP for Santa Clara County, include the following:

- Transportation Analysis Standards Element:
  - Monitor and submit report on the level of service on CMP roadway network intersections using CMP software and procedures
  - Monitor performance of CMP rural highways and freeways.
- Multimodal Performance Measures Element:
  - Collect available transportation performance measurement data for use in land use analysis, deficiency plans and the CIP.
- Transportation Model and Database Element:
  - Certify that the CMP model us consistent with the regional model.
  - Certify that member agency models are consistent with the CMP model.
- Land Use Impact Analysis Element:
  - Prepare a Transportation Impact Analysis (TIA) for projects that generate 100 or more peak hour trips and submit to the CMP according to TIA Guidelines schedule.
  - Submit relevant conditions of approval to VTA for projects generating TIAs.
  - Prepare quarterly report on VTA comments and local agency adopted conditions for VTA Board, Congestion Management Program and Planning Committee, Policy Advisory Committee, Technical Advisory Committee, Citizens Advisory Committee, and Bicycle and Pedestrian Advisory Committee.
  - Prepare and submit land use monitoring data to the CMP on all land use projects approved from July 1 to June 30 of the previous year.
- Capital Improvement Program Element:
  - Develop a list of projects intended to maintain or improve the level of service on the designated system and to maintain transit performance standards.
- Monitoring and Conformance Element:

- Outline the requirements and procedures established for conducting annual traffic LOS and land use monitoring efforts. Support the Traffic Level of Service and Community Form and Impact Analysis Elements.

- Multimodal Improvement Plan Element:

  - Prepare deficiency plans for facilities that violate CMP traffic LOS standards or that are projected to violate LOS standards using the adopted deficiency plan requirements.
  - Submit Deficiency Plan Implementation Status Report as part of annual monitoring.

### 1.1.6 City of Cupertino's Municipal Code

Cupertino's Municipal Code (CMC) Chapter 17.04, Standard Environmental Protection Requirements, identifies standard environmental protection requirements that all construction projects in the City must meet, including but not limited to the environmental mitigation measures identified in any environmental documents required as part of a General Plan update.[16] CMC Section 17.04.040, Standard Environmental Protection Technical Report Submittal Requirements, describes air quality technical requirements as follows:

- Control Diesel Particulate Matter from Non-Residential Projects During Operation. Applicants for new non-residential land uses within the city that either have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered Transport Refrigeration Units (TRUs), or are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes), as measured from the property line of the project to the property line of the nearest sensitive use, shall:

  - Prepare and submit an operational Health Risk Assessment (HRA) for approval by the City prior to approval of the project.
  - The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD).
  - If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), $PM_{2.5}$ concentrations exceed 0.3 micrograms per cubic meter ($\mu g/m^3$), or the appropriate noncancer hazard index exceeds 1.0, the project applicant shall be required to identify and demonstrate that Best Available Control Technologies for Toxics (T-BACTs) are capable of reducing potential cancer and noncancer risks to an acceptable level, including appropriate enforcement mechanisms.
  - T-BACTs identified in the HRA shall be indicated in the appropriate applicable construction document prior to approval of the project. T-BACTs may include the following measures from BAAQMD's *Planning Healthy Places Guidebook* but are not limited to:
    i. Restricting nonessential idling on-site to no more than two minutes.
    ii. Providing electric charging capable truck trailer spaces to accommodate Zero Emissions (ZE) Trucks.
    iii. Providing electric charging capable warehousing docks to accommodate ZE Transport Refrigeration Units (TRUs).

[16] City of Cupertino, Municipal Code. Local legislation current through Ordinance 22-2238, passed February 1, 2022. https://codelibrary.amlegal.com/codes/cupertino/latest/cupertino_ca/0-0-0-78624.

iv. Requiring use of Near Zero Emissions (NZE) or ZE equipment (e.g., yard trucks and forklifts) and/or vehicles.
v. Restricting offsite truck travel through the creation of truck routes.

- Manage Indoor Air Pollution.

  - Applicants for residential and other sensitive land use projects (e.g., hospitals, nursing homes, day care centers) in areas identified on the Bay Area Air Quality Management District's (BAAQMD) "Conduct Further Study" on the Planning Healthy Places Map shall:

    i. Prepare and submit an operational Health Risk Assessment (HRA) to the City prior to approval of the project.
    ii. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and BAAQMD. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years.
    iii. If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), $PM_{2.5}$ concentrations exceed 0.3 micrograms per cubic meter ($\mu g/m^3$), or the appropriate noncancer hazard index exceeds 1.0, the project applicant shall identify and demonstrate measures that are capable of reducing potential cancer and non-cancer risks to an acceptable level (i.e., below ten in one million or a hazard index of 1.0), including appropriate enforcement mechanisms.
    iv. Measures to reduce risk may include, but are not limited to:
        - Air intakes located away from high volume roadways and/or truck loading zones.
        - Heating, ventilation, and air conditioning systems of the buildings provided with appropriately sized Minimum Efficiency Reporting Value (MERV) filters.

  - Applicants for residential and/or other sensitive land use projects (e.g., hospitals, nursing homes, day care centers) must state in the applicable construction document where the site is located on the Bay Area Air Quality Management District (BAAQMD) Planning Healthy Places Map, as subsequently revised, supplemented, or replaced. If the site is located in an area identified as "Implement Best Practices," the project applicant shall implement, and include in applicable construction documents, the following best practices identified in the BAAQMD *Planning Healthy Places Guidebook*:

    i. Install air filters rated at a MERV 13 or higher.
    ii. Locate operable windows, balconies, and building air intakes as far away from any emission source as is feasible.
    iii. Incorporate solid barriers or dense rows of trees in a minimum planter width of 5 feet per row of trees between the residential and/or sensitive land use, and the emissions source into site design.
    iv. Do not locate residential and/or sensitive land use on the ground floor units of buildings near non-elevated sources (e.g., ground level heavily traveled roadways and freeways).

  - The project applicant shall include the applicable measures identified in subsections (a) and (b) above in the applicable construction documents prior to approval of the project. Specifically, the air intake design and MERV filter requirements shall be included on all applicable construction documents submitted to the City and verified by the City's Planning Division.

# ENVIRONMENTAL SETTING

## 1.1.7 San Francisco Bay Area Air Basin

The BAAQMD is the regional air quality agency for the SFBAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the southern portion of Sonoma County; and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.[17]

### 1.1.7.1 METEOROLOGY

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast.

The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

### 1.1.7.2 WIND PATTERNS

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3:00 p.m. to 4:00 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands.

[17] This section describing the air basin is from Bay Area Air Quality Management District, 2017, May, Appendix C: Sample Air Quality Setting, in *California Environmental Quality Act Air Quality Guidelines*.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result.

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

#### 1.1.7.3 TEMPERATURE

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold water from the ocean bottom along the coast. On summer afternoons the temperatures at the coast can be 35 degrees Fahrenheit (ºF) cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10ºF.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large. The lowest average temperature is reported at 41.2°F in January, and the highest average temperature is 79°F in August.[18]

#### 1.1.7.4 PRECIPITATION

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e. air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, when mixing and ventilation are low and pollutant levels build up. Rainfall historically averages 21.96 inches per year in the project area. [19]

[18] USA.Com 2022, January 18 (accessed). Monthly Average Temperature and Precipitation Summary. http://www.usa.com/cupertino-ca-weather.htm.

[19] USA.Com 2022, January 18 (accessed). Monthly Average Temperature and Precipitation Summary. http://www.usa.com/cupertino-ca-weather.htm.

#### 1.1.7.5 WIND CIRCULATION

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

#### 1.1.7.6 INVERSIONS

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e. the vertical depth in the atmosphere available for diluting air contaminants near the ground. There are two types of inversions that occur regularly in the SFBAAB. Elevation inversions are more common in the summer and fall, and radiation inversions are more common during the winter. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

### 1.1.8 Existing Ambient Air Quality

#### 1.1.8.1 ATTAINMENT STATUS OF THE SFBAAB

Areas that meet AAQS are classified attainment areas, and areas that do not meet these standards are classified nonattainment areas. Severity classifications for $O_3$ range from marginal, moderate, and serious to severe and extreme. The attainment status for the air basin is shown in Table 2. The air basin is currently designated a nonattainment area for California and National $O_3$, California and National $PM_{2.5}$, and California $PM_{10}$ AAQS.

**Table 2 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin**

| Pollutant | State | Federal[1] |
|---|---|---|
| Ozone – 1-hour | Nonattainment | Classification revoked (2005) |
| Ozone – 8-hour | Nonattainment (serious) | Nonattainment |
| $PM_{10}$ | Nonattainment | Unclassified/Attainment |
| $PM_{2.5}$ | Nonattainment | Unclassified/Attainment |
| CO | Attainment | Attainment |
| $NO_2$ | Attainment | Unclassified |
| $SO_2$ | Attainment | Attainment |
| Lead | Attainment | Attainment |
| Sulfates | Attainment | Unclassified/Attainment |
| All others | Unclassified/Attainment | Unclassified/Attainment |

Source: California Air Resources Board, 2019, August, October. Area Designations Maps: State and National. https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations.

[1] Federal designations current as of June 30, 2020

### 1.1.8.2 EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project area have been documented and measured by the BAAQMD. BAAQMD has 24 permanent monitoring stations located around the Bay Area. The nearest station is the Los Gatos Monitoring Station, which monitors $O_3$. $NO_2$, $PM_{2.5}$, and $PM_{10}$ standards were supplemented by the San Jose-Jackson Street Monitoring Station. Data from this monitoring stations is summarized in Table 3. The data show regular violations of the State and federal $O_3$ standards, federal $PM_{2.5}$ standard, and State $PM_{10}$ standard.

**Table 3 Ambient Air Quality Monitoring Summary**

| | Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations | | | | |
|---|---|---|---|---|---|
| **Pollutant/Standard** | **2016** | **2017** | **2018** | **2019** | **2020** |
| **Ozone ($O_3$)** | | | | | |
| State 1-Hour ≥ 0.09 ppm | 0 | 0 | 0 | 0 | 1 |
| Federal and State 8-Hour > 0.07 ppm | 0 | 3 | 0 | 2 | 3 |
| Maximum 1-Hour Conc. (ppm) | 0.091 | 0.093 | 0.082 | 0.087 | 0.107 |
| Maximum 8-Hour Conc. (ppm) | 0.065 | 0.075 | 0.067 | 0.078 | 0.085 |
| **Nitrogen Dioxide ($NO_2$)** | | | | | |
| State 1-Hour ≥ 0.18 (ppm) | 0 | 0 | 0 | 0 | 0 |
| Maximum 1-Hour Conc. (ppb) | 51.1 | 67.5 | 86.1 | 59.8 | 51.9 |
| **Coarse Particulates ($PM_{10}$)** | | | | | |
| State 24-Hour > 50 µg/m$^3$ | 0 | 6 | 4 | 4 | 10 |
| Federal 24-Hour > 150 µg/m$^3$ | 0 | 0 | 0 | 0 | 0 |
| Maximum 24-Hour Conc. (µg/m$^3$) | 41.0 | 69.8 | 121.8 | 77.1 | 137.1 |
| **Fine Particulates ($PM_{2.5}$)** | | | | | |
| Federal 24-Hour > 35 µg/m$^3$ | 0 | 6 | 15 | 0 | 12 |
| Maximum 24-Hour Conc. (µg/m$^3$) | 22.6 | 49.7 | 133.9 | 27.6 | 120.5 |

Source: California Air Resources Board, 2020, Air Pollution Data Monitoring Cards (2016, 2017, 2018, 2019, and 2020), Accessed February 25, 2022, https://www.arb.ca.gov/adam/topfour/topfourdisplay.php
Data from the Los Gatos Monitoring Station for $O_3$.
Data from the San Jose-Jackson Street Monitoring Station for $NO_2$, $PM_{10}$, and $PM_{2.5}$.
Notes: ppm: parts per million; ppb: parts per billion; µg/m3: or micrograms per cubic meter

### 1.1.8.3 EXISTING EMISSIONS

The project site is currently developed with a 11,648-square foot commercial building that is occupied by a mix of retail and service uses. The current commercial retail structure generates criteria air pollutants emissions from energy use, transportation, and area sources.

## 1.1.9 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the

chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, since the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the population. The nearest sensitive receptors to the project site are the residents along James Town Drive to the west, commercial land uses to the north and east, and mix of commercial and residential uses to the south.

## 1.2 METHODOLOGY

The BAAQMD "CEQA Air Quality Guidelines" were prepared to assist in the evaluation of air quality impacts of projects and plans proposed in the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts; however, this later amendment regarding risk and hazards was the subject of the December 17, 2015 Supreme Court decision (*California Building Industry Association v BAAQMD*), which clarified that CEQA does not require an evaluation of impacts of the environment on a project.[20]

### 1.2.1 Criteria Air Pollutant Emissions

The proposed project qualifies as a project-level project under BAAQMD's criteria. For project-level analyses, BAAQMD has adopted screening criteria and significance criteria that would be applicable to the proposed project. If a project exceeds the screening level, it would be required to conduct a full analysis using BAAQMD's significance criteria.[21]

[20] On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. Following the court's order, the BAAQMD released revised CEQA Air Quality Guidelines in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and which set aside the significance thresholds. The Alameda County Superior Court, in ordering BAAQMD to set aside the thresholds, did not address the merits of the science or evidence supporting the thresholds, and in light of the subsequent case history discussed below, the science and reasoning contained in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA Guidelines. (*California Building Industry Association versus BAAQMD, Case No. A135335 and A136212 (Court of Appeal, First District, August 13, 2013*).)

[21] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines.

## Regional Significance Criteria

The BAAQMD criteria for regional significance for projects that exceed the screening thresholds are shown in Table 4. Criteria for both construction and operational phases of the project are shown.

**Table 4 BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds**

| | Construction Phase | Operational Phase | |
|---|---|---|---|
| Pollutant | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/day) | Maximum Annual Emissions (Tons/year) |
| ROG | 54 | 54 | 10 |
| $NO_x$ | 54 | 54 | 10 |
| $PM_{10}$ | 82 (Exhaust) | 82 | 15 |
| $PM_{2.5}$ | 54 (Exhaust) | 54 | 10 |
| $PM_{10}$ and $PM_{2.5}$ Fugitive Dust | Best Management Practices | None | None |

Source: Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

The BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the Air Basin and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, BAAQMD prepares the Clean Air Plan that details regional programs to attain the AAQS. Mass emissions in Table 4 are not correlated with concentrations of air pollutants, but contribute to the cumulative air quality impacts in the Air Basin. The thresholds are based on the trigger levels for the federal New Source Review (NSR) Program. The NSR Program was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not single-handedly trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. Projects that do not exceed the BAAQMD regional significance thresholds in Table 4 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions in Table 4 emissions would cumulatively contribute to the nonattainment status and would contribute in elevating health effects associated to these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 4 it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited above.

The BAAQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in *Sierra Club v. County of Fresno* (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978. Ozone concentrations are dependent upon a variety of

complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National AAQS and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the Bay Area exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until such time the attainment standard are met in the Air Basin.

## Local CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which is 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). However, with the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the California and National AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, BAAQMD does not require a CO hotspot analysis if the following criteria are met:

- Project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- The project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g. tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).[22]

## Odors

The BAAQMD thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. In addition, odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property. Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance. In addition, BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants.[23]

[22] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

[23] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines.

## 1.2.2 Toxic Air Contaminants

The BAAQMD significance thresholds for local community risk and hazard impacts apply to the siting of a new source. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project (*California Building Industry Association v. Bay Area Air Quality Management District [2015] 62 Cal.4th 369 [Case No. S213478]*). While CEQA does not require an environmental evaluation to analyze the environmental effects of attracting development and people to an area, the environmental evaluation must analyze the impacts of environmental hazards on future users when the proposed project exacerbates an existing environmental hazard or condition or if there is an exception to this exemption identified in the Public Resources Code. Schools, residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

For assessing community risk and hazards, sources within a 1,000-foot radius are considered. Sources are defined as freeways, high volume roadways (with volume of 10,000 vehicles or more per day or 1,000 trucks per day), and permitted sources.[24,25]

The proposed project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the surrounding residential receptors. The BAAQMD has adopted screening tables for air toxics evaluation during construction.[26] Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable.[27]

The project threshold identified below is applied to the proposed project's construction phase emissions:

### Community Risk and Hazards – Project

Project-level construction emissions of TACs or $PM_{2.5}$ from the proposed project to individual sensitive receptors within 1,000 feet of the project site that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- Non-compliance with a qualified Community Risk Reduction Plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e. chronic or acute) hazard index greater than 1.0 would be a significant cumulatively considerable contribution;
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant, cumulatively considerable contribution.[28]

[24] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[25] Bay Area Air Quality Management District. 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards.
[26] Bay Area Air Quality Management District. 2010. Screening Tables for Air Toxics Evaluations during Construction.
[27] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[28] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

## Community Risk and Hazards – Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone.

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the project, exceeds the following:

- Non-compliance with a qualified Community Risk Reduction Plan; or
- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.[29]

Current BAAQMD guidance recommends the determination of cancer risks using the Office of Environmental Health Hazard Assessment's (OEHHA) methodology, which was originally adopted in 2003.[30,31] In February 2015, OEHHA adopted new health risk assessment guidance which includes several efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer causing chemicals, and age-specific breathing rates.[32] However, BAAQMD has not formally adopted the new OEHHA methodology into their CEQA guidance. To be conservative, the cancer risks associated with project implementation and significance conclusions were determined using the new 2015 OEHHA guidance for risk assessments.

[29] Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

[30] Bay Area Air Quality Management District. 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards.

[31] Office of Environmental Health Hazard Assessment. 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

[32] Office of Environmental Health Hazard Assessment. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

# 2. Greenhouse Gas Emissions

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[33] carbon ($CO_2$), methane ($CH_4$), and ozone ($O_3$)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide ($N_2O$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[34, 35] The major GHG are briefly described below.

- **Carbon dioxide ($CO_2$)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane ($CH_4$)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide ($N_2O$)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

    - *Chlorofluorocarbons (CFCs*) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

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

[34] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

[35] Intergovernmental Panel on Climate Change (IPCC). 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/03/WGI_TAR_full_report.pdf.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [$CF_4$] and perfluoroethane [$C_2F_6$]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride ($SF_6$)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. $SF_6$ is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.[36,37]

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5. The GWP is used to convert GHGs to $CO_2$-equivalence ($CO_2e$) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR5) GWP values for $CH_4$, a project that generates 10 MT of $CH_4$ would be equivalent to 250 MT of $CO_2$.[38,39]

[36] Intergovernmental Panel on Climate Change (IPCC). 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/03/WGI_TAR_full_report.pdf.

[37] US Environmental Protection Agency (USEPA). 2019. Overview of Greenhouse Gases. http://www3.epa.gov/climatechange/ghgemissions/gases.html.

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

[39] Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press.

**Table 5 GHG Emissions and Their Relative Global Warming Potential Compared to $CO_2$**

| GHGs | Carbon Dioxide ($CO_2$) | Methane[1] ($CH_4$) | Nitrous Oxide ($N_2O$) |
|---|---|---|---|
| **Second Assessment** | | | |
| Atmospheric Lifetime (Years) | 50 to 200 | 12 (±3) | 120 |
| Global Warming Potential Relative to $CO_2$[2] | 1 | 21 | 310 |
| **Fourth Assessment** | | | |
| Atmospheric Lifetime (Years) | 50 to 200 | 12 | 114 |
| Global Warming Potential Relative to $CO_2$[2] | 1 | 25 | 298 |
| **Fifth Assessment[3]** | | | |
| Atmospheric Lifetime (Years) | 50 to 200 | 12 | 121 |
| Global Warming Potential Relative to $CO_2$[2] | 1 | 28 | 265 |

Source: Intergovernmental Panel on Climate Change (IPCC). 1995. Second Assessment Report: Climate Change 1995 https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_sar_wg_I_full_report.pdf; Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_full_report.pdf; Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press.

Notes:

1 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of $CO_2$ is not included.

2 Based on 100-year time horizon of the GWP of the air pollutant compared to $CO_2$.

3 The GWP values in the IPCC's Fifth Assessment Report (2013)[40] reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of $CO_2$.

## 2.1 CALIFORNIA'S GREENHOUSE GAS SOURCES AND RELATIVE CONTRIBUTION

In 2019, the statewide GHG emissions inventory was updated for 2000 to 2017 emissions using the GWPs in IPCC's AR4.[41] Based on these GWPs, California produced 424.10 $MMTCO_2e$ GHG emissions in 2017. The California Air Resources Board (CARB) categorizes GHG generation into the following seven sectors.[42]

- **Transportation.** Consists of direct tailpipe emissions from on-road vehicle and direct emissions from off-road transportation mobile sources, intrastate aviation, rail, and watercraft. Emissions are generated from the combustion of fuels in on- and off-road vehicles in addition to aviation, rail, and ships.
- **Electric.** Includes emissions from instate power generation (including the portion of cogeneration emissions attributed to electricity generation) and emissions from imported electricity.
- **Industrial.** Includes emissions primarily driven by fuel combustion from sources that include refineries, oil and gas extraction, cement plants, and the portion of cogeneration emissions attribute to thermal energy output.
- **Commercial and Residential.** Accounts for emissions generated from combustion of natural gas and other fuels for household and commercial business use, such as space heating, cooking, and hot water or steam generation. Emissions associated with electricity usage are accounted for in the Electric Sector.
- **Recycling and Waste.** Consists of emissions generated at landfills and from commercial-scale composting.

40 Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

41 Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

42 California Air Resources Board (CARB). 2019, August 26. California Greenhouse Emissions for 2000 to 2017: Trends of Emissions and Other Indicators. https://www.arb.ca.gov/cc/inventory/data/data.htm.

- **Agriculture.** Primarily includes methane ($CH_4$) and nitrous oxide ($N_2O$) emissions generated from enteric fermentation and manure management from livestock. Also accounts for emissions associated with crop production (fertilizer use, soil preparation and disturbance, and crop residue burning) and fuel combustion associated with stationary agricultural activities (e.g., water pumping, cooling or heating buildings).
- **High Global Warming Potential Gases.** Associated with substitutes for ozone-depleting substances, emissions from electricity transmission and distribution system, and gases emitted in the semiconductor manufacturing process. Substitutes for ozone-depleting substances are used in refrigeration and air conditioning equipment, solvent cleaning, foam production, fire retardants, and aerosols.

California's transportation sector was the single largest generator of GHG emissions, producing 40.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.7 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.6 percent), high GWP (4.7 percent), and recycling and waste (2.1 percent).[43]

California's GHG emissions have followed a declining trend since 2007. In 2017, emissions from routine GHG-emitting activities statewide were 424 $MMTCO_2e$, 5 $MMTCO_2e$ lower than 2016 levels. This represents an overall decrease of 14 percent since peak levels in 2004 and 7 $MMTCO_2e$ below the 1990 level and the state's 2020 GHG target. During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 $MTCO_2e$ per capita to 10.7 $MTCO_2e$ per capita in 2017, a 24 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) has declined 41 percent since the 2001 peak, while the state's gross domestic product has grown 52 percent during the same period. For the first time since California started to track GHG emissions, California uses more electricity from zero-GHG sources (hydro, solar, wind, and nuclear energy).[44]

## 2.2 HUMAN INFLUENCE ON CLIMATE CHANGE

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of $CO_2$ in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation.[45] These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.[46] In the past,

[43] California Air Resources Board (CARB). 2019, August 26. 2019 Edition California Greenhouse Gas Inventory for 2000-2017: By Category as Defined in the 2008 Scoping Plan. https://www.arb.ca.gov/cc/inventory/data/data.htm.

[44] California Air Resources Board (CARB). 2019, August 26. 2019 Edition California Greenhouse Gas Inventory for 2000-2017: By Category as Defined in the 2008 Scoping Plan. https://www.arb.ca.gov/cc/inventory/data/data.htm.

[45] Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

[46] California Climate Action Team (CAT). 2006, March. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime.[47]

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in frequency of warm spells/heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

## 2.3 POTENTIAL CLIMATE CHANGE IMPACTS FOR CALIFORNIA

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide, average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada.[48] The years from 2014 through 2016 have shown unprecedented temperatures with 2014 being the warmest.[49] By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels. [50]

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) advanced shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms.[51] Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, with unprecedented dry years occurring in

[47] Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

[48] California Climate Change Center (CCCC). 2012, July. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[49] Office of Environmental Health Hazards Assessment (OEHHA). 2018, May. Indicators of Climate Change in California. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf.

[50] California Climate Change Center (CCCC). 2012, July. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[51] California Climate Action Team (CAT). 2006, March. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

2014 and 2015. [52] Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years occurring from 2012 to 2015.[53] According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 6 and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

**Table 6 Summary of GHG Emissions Risks to California**

| Impact Category | Potential Risk |
|---|---|
| Public Health Impacts | Heat waves will be more frequent, hotter, and longer<br>Fewer extremely cold nights<br>Poor air quality made worse<br>Higher temperatures increase ground-level ozone levels |
| Water Resources Impacts | Decreasing Sierra Nevada snow pack<br>Challenges in securing adequate water supply<br>Potential reduction in hydropower<br>Loss of winter recreation |
| Agricultural Impacts | Increasing temperature<br>Increasing threats from pests and pathogens<br>Expanded ranges of agricultural weeds<br>Declining productivity<br>Irregular blooms and harvests |
| Coastal Sea Level Impacts | Accelerated sea level rise<br>Increasing coastal floods<br>Shrinking beaches<br>Worsened impacts on infrastructure |
| Forest and Biological Resource Impacts | Increased risk and severity of wildfires<br>Lengthening of the wildfire season<br>Movement of forest areas<br>Conversion of forest to grassland<br>Declining forest productivity<br>Increasing threats from pest and pathogens<br>Shifting vegetation and species distribution<br>Altered timing of migration and mating habits<br>Loss of sensitive or slow-moving species |
| Energy Demand Impacts | Potential reduction in hydropower<br>Increased energy demand |

Sources: California Energy Commission (CEC). 2006. Our Changing Climate: Assessing the Risks to California. 2006 Biennial Report. CEC-500-2006-077. California Climate Change Center; California Energy Commission (CEC). 2009, May. The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California. CEC-500-2008-0077; California Climate Change Center (CCCC). 2012, July. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California; and California Natural Resources Agency (CNRA). 2014, July. Safeguarding California: Reducing Climate Risk: An Update to the 2009 California Climate Adaptation Strategy. https://resources.ca.gov/CNRALegacyFiles/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

[52] Office of Environmental Health Hazards Assessment (OEHHA). 2018, May. Indicators of Climate Change in California. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf.

[53] Office of Environmental Health Hazards Assessment (OEHHA). 2018, May. Indicators of Climate Change in California. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf.

# 2.1 REGULATORY FRAMEWORK

## 2.1.1 Federal Regulations

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 US Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.[54]

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

### 2.1.1.1 US MANDATORY REPORTING RULE FOR GREENHOUSE GASES (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 $MTCO_2e$ or more per year are required to submit an annual report.

### 2.1.1.2 UPDATE TO CORPORATE AVERAGE FUEL ECONOMY STANDARDS (2021 TO 2026)

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. However, on March 30, 2020, the EPA finalized an updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards, covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021-2026. Under SAFE, the fuel economy standards will increase 1.5 percent per year compared to the 5 percent per year under the CAFE standards established in 2012. Overall, SAFE requires a fleet average of 40.4 MPG and 202 g/mi of $CO_2$ emissions for model year 2026 vehicles.[55] However, consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America, and Volkswagen Group of America. The framework supports continued annual reductions of vehicle greenhouse gas emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and provides industry the certainty needed to make investments and create jobs. This commitment means

[54] US Environmental Protection Agency (USEPA). 2009, December. EPA: Greenhouse Gases Threaten Public Health and the Environment. Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. https://archive.epa.gov/epapages/newsroom_archive/newsreleases/08d11a451131bca585257685005bf252.html.

[55] The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks: Final Rule, Vol. 85 Federal Register, No. 84 (April 30, 2020).

that the auto companies party to the voluntary agreement will only sell cars in the United States that meet the CAFE standards established in 2021 for model years 2017 to 2025.[56]

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

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large stationary sources of emissions such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit $CO_2$ emissions from coal-fired power plants.

### 2.1.2 State Regulations

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

#### 2.1.2.1 EXECUTIVE ORDER S-03-05

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

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

#### 2.1.2.2 ASSEMBLY BILL 32, THE GLOBAL WARMING SOLUTIONS ACT

State of California guidance and targets for reductions in GHG emissions are generally embodied in the Global Warming Solutions Act, adopted with passage of AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 emissions reduction goal established in Executive Order S-03-05.

##### CARB 2008 Scoping Plan

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

[56] California Air Resources Board (CARB). 2019, September 5 (accessed). California and major automakers reach groundbreaking framework agreement on clean emission standards. https://ww2.arb.ca.gov/news/california-and-major-automakers-reach-groundbreaking-framework-agreement-clean-emission.

### First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan, adopted May 22, 2014, highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, are slightly higher at 431 $MMTCO_2e$. [57]

As identified in the Update to the Scoping Plan, California is on track to meet the goals of AB 32. The update also addresses the state's longer-term GHG goals in a post-2020 element. The post-2020 element provides a high-level view of a long-term strategy for meeting the 2050 GHG goal, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals.[58] CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit. [59]

#### 2.1.2.3 EXECUTIVE ORDER B-30-15

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

#### 2.1.2.4 SENATE BILL 32 AND ASSEMBLY BILL 197

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

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[57] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

[58] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

[59] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

## 2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB approved the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.[60]

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

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero-emission (ZE) buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency by 25 percent by 2030 and utilizes near-zero emissions technology and deployment of ZE trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to these statewide strategies, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the state's long-term GHG reduction goals and recommended local actions to reduce GHG emissions—for example, statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt quantitative, locally appropriate goals that align with the statewide per capita targets and sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the state's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric

[60] California Air Resources Board (CARB). 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

thresholds (mass emissions, per capita, or per service population) consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled (VMT), and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the "business as usual" yardstick—that is, what would the GHG emissions look like if the state did nothing at all beyond the policies that are already required and in place to achieve the 2020 limit, as shown in Table 7. It includes the existing renewables requirements, advanced clean cars, the "10 percent" LCFS, and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

**Table 7 2017 Climate Change Scoping Plan Emissions Reductions Gap**

| Modeling Scenario | 2030 GHG Emissions $MMTCO_2e$ |
|---|---|
| Reference Scenario (Business-as-Usual) | 389 |
| With Known Commitments | 320 |
| 2030 GHG Target | **260** |
| Gap to 2030 Target with Known Commitments | **60** |

Source: California Air Resources Board. 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

Table 8 provides estimated GHG emissions by sector compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

**Table 8 2017 Scoping Plan Emissions Changes by Sector to Achieve the 2030 Target**

| Scoping Plan Sector | 1990 $MMTCO_2e$ | 2030 Proposed Plan Ranges $MMTCO_2e$ | % Change from 1990 |
|---|---|---|---|
| Agricultural | 26 | 24-25 | -8% to -4% |
| Residential and Commercial | 44 | 38-40 | -14% to -9% |
| Electric Power | 108 | 30-53 | -72% to -51% |
| High GWP | 3 | 8-11 | 267% to 367% |
| Industrial | 98 | 83-90 | -15% to -8% |
| Recycling and Waste | 7 | 8-9 | 14% to 29% |
| Transportation (including TCU) | 152 | 103-111 | -32% to -27% |
| Net Sink[a] | -7 | TBD | TBD |
| Sub Total | 431 | 294-339 | -32% to -21% |
| Cap-and-Trade Program | NA | 24-79 | NA |
| Total | 431 | 260 | -40% |

Source: California Air Resources Board. 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[a] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

### 2.1.2.5 SENATE BILL 375 – SUSTAINABLE COMMUNITIES STRATEGY

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Metropolitan Transportation Commission (MTC) is the MPO for the nine-county San Francisco Bay Area region. MTC's targets are a 7 percent per capita reduction in GHG emissions from 2005 by 2020, and 15 percent per capita reduction from 2005 levels by 2035.[61]

#### 2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any

[61] California Air Resources Board. 2010. Staff Report, Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375, August.

potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted sustainable communities strategies (SCS). As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the MTC/ABAG region are a 10 percent per capita GHG reduction in 2020 from 2005 levels (compared to 7 percent under the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 15 percent).[62] CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets.

#### 2.1.2.6 OTHER APPLICABLE MEASURES

### Transportation

#### *Assembly Bill 1493*

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less global warming gases and 75 percent less smog-forming emissions.

#### *Executive Order S-1-07*

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in $CO_2e$ gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

#### *Executive Order B-16-2012*

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and

[62] California Air Resources Board (CARB). 2018, February. Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. https://www.arb.ca.gov/cc/inventory/data/data.htm.

the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions 80 percent below 1990 levels.

### Renewables Portfolio Standard

#### *Senate Bills 1078, 107, X1-2, and Executive Order S-14-08*

A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

#### *Senate Bill 350*

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

#### *Senate Bill 100*

On September 10, 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

#### *Executive Order B-55-18*

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of $CO_2e$ from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

## Energy Efficiency

### *California Building Standards Code – Building Energy Efficiency Standards*

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards, which were adopted on May 9, 2018, went into effect on January 1, 2020.

The 2019 standards move towards cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multi-family buildings of 3 stories and less. Four key areas the 2019 standards will focus on include 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements.[63] Under the 2019 standards, nonresidential buildings and multi-family residential buildings of four stories or more will be 30 percent more energy efficient compared to the 2016 standards while single-family homes will be 7 percent more energy efficient.[64] When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards.[65]

Furthermore, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards become effective and replace the existing 2019 standards on January 1, 2023. The 2022 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers.[66]

### *California Green Building Standards Code – CALGreen*

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code

[63] California Energy Commission (CEC). 2018. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. https://www.energy.ca.gov/news/2018-05/energy-commission-adopts-standards-requiring-solar-systems-new-homes-first.

[64] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.

[65] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.

[66] California Energy Commission (CEC). 2021. Amendments to the Building Energy Efficiency Standards (2022 Energy Code) Draft Environmental Report. CEC-400-2021-077-D.

requirements), water conservation, material conservation, and internal air contaminants.[67] The mandatory provisions of CALGreen became effective January 1, 2011. The 2019 CALGreen standards became effective January 1, 2020.

### *2006 Appliance Energy Efficiency Regulations*

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

## Solid Waste

### *AB 939*

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

### *AB 341*

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.208 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

### *AB 1327*

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

### *AB 1826*

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

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

## Water Efficiency

### *SBX7-7*

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

### *AB 1881*

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

## Short-Lived Climate Pollutant Strategy

### *Senate Bill 1383*

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and $CH_4$. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use.[68] In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

[68] California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm.

## 2.1.3 Regional Regulations

### *Plan Bay Area, Strategy for a Sustainable Region*

Plan Bay Area 2050 is the Bay Area's RTP/SCS and was adopted jointly by ABAG and MTC on October 2021.[69] The Plan Bay Area 2050 serves as a 30-year plan with 35 new strategies to provide a more equitable and resilient future for residents in the Bay Area. This regional plan aims for more affordable and accessible transportation, which will significantly decrease greenhouse gas emissions to meet the state mandate of a 19% reduction in per-capita emissions by 2035.

As part of the implementing framework for Plan Bay Area, local governments have identified Priority Development Areas (PDAs) to focus growth. PDAs are transit-oriented, infill development opportunity areas in existing communities. Overall, well over two-thirds of all regional growth in the Bay Area by 2050 is allocated in PDAs. Per the Final Plan Bay Area 2050, the projected number of new housing units and new jobs within PDAs would increase to 1,672,000 units and 2,561,000 jobs compared to the adopted Plan Bay Area 2040. In addition, its overall share would be increased to 51 percent and 35 percent.[70] However, Plan Bay Area 2050 remains on track to meet a 19 percent per capita reduction of GHG emissions by 2035.[71] The proposed project site is not within a PDA.[72]

### *Bay Area Clean Air Plan*

BAAQMD adopted the 2017 Clean Air Plan, Spare the Air, Cool the Climate on April 19, 2017. The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the state's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.[73]

A comprehensive multipollutant control strategy has been developed to be implemented in the next 3 to 5 years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, toxic air

[69] Metropolitan Transportation Commission and Association of Bay Area Governments. 2021, October. Plan Bay Area 2050 Plan. https://www.planbayarea.org/finalplan2050

[70] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2021, October. Plan Bay Area 2050 Plan. https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf.

[71] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2021, October. Plan Bay Area 2050 Plan. https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf.

[72] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2022, January 18 (accessed). Priority Development Areas (Plan Bay Area 2050) ArcGIS. https://www.arcgis.com/apps/mapviewer/index.html?layers=4df9cb38d77346a289252ced4ffa0ca0.

[73] Bay Area Air Quality Management District, 2017. Final 2017 *Clean Air Plan*, Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans, accessed November 21, 2019.

contaminants, and GHG from a full range of emission sources. These control measures cover the following sectors: 1) stationary (industrial) sources; 2) transportation; 3) energy; 4) agriculture; 5) natural and working lands; 6) waste management; 7) water; and 8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
- Increase efficiency of the energy and transportation systems.
- Reduce demand for vehicle travel, and high-carbon goods and services.
- Decarbonize the energy system.
- Make the electricity supply carbon-free.
- Electrify the transportation and building sectors.

#### *Bay Area Commuter Benefits Program*

Under Air District Regulation 14, Model Source Emissions Reduction Measures, Rule 1, Bay Area Commuter Benefits Program, employers with 50 or more full-time employees within the BAAQMD are required to register and offer commuter benefits to employees. In partnership with the BAAQMD and MTC, the rule's purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area's traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit options including a pre-tax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

## 2.1.4 Local Regulations

### 2.1.4.1 CITY OF CUPERTINO CLIMATE ACTION PLAN

The City of Cupertino published the public draft Climate Action Plan (CAP) in December 2014 to achieve the GHG reduction target of AB 32 for target year 2020 and interim year 2035. The CAP serves to support California's statewide climate change efforts through identification of actions that can be taken locally, by residents, businesses, and the City itself, to ensure the State's ambitious reduction goals can be achieved. The strategies outlined in the CAP seek to not only reduce GHG emissions, but also provide energy, water, fuel, and cost savings for the City.[74] The goals established by the City's CAP are the following:

- Goal 1 – Reduce Energy Use: Increase energy efficiency in existing homes and buildings and increase use of renewable energy community-wide.

- Goal 2 – Encourage Alternative Transportation: Support transit, carpooling, walking, and bicycling as viable transportation modes to decrease the number of single-occupancy vehicle trips within the community.

[74] City of Cupertino, 2015. Climate Action Plan. January, 2015. http://www.cupertino.org/home/showdocument?id=13531

- Goal 3 – Conserve Water: Promote the efficient use and conservation of water in buildings and landscapes.
- Goal 4 – Reduce Solid Waste: Strengthen waste reduction efforts through recycling and organics collection and reduced consumption of materials that otherwise end up in landfills.
- Goal 5 – Expand Green Infrastructure: Enhance the City's existing urban forest on public and private lands.

#### 2.1.4.2 CITY OF CUPERTINO MUNICIPAL CODE

Cupertino's Municipal Code (CMC) Chapter 17.04, Standard Environmental Protection Requirements, identifies standard environmental protection requirements that all construction projects in the City must meet, including but not limited to the environmental mitigation measures identified in any environmental documents required as part of a General Plan update.[75] CMC Section 17.04.050, Standard Environmental Protection Permit Submittal Requirements, describes greenhouse gas permit requirements as follows:

- Reduce Greenhouse Gas Emissions (GHG) and Energy Use. The project applicant shall complete the City of Cupertino Climate Action Plan – Development Project Consistency Checklist, for review and approval by the City Environment and Sustainability Department prior to issuance of the first permit, to demonstrate how the project is consistent with the Cupertino Climate Action Plan, as subsequently revised, supplemented, or replaced, in order to reduce greenhouse gas emissions and conserve energy.

## 2.2 ENVIRONMENTAL SETTING

### 2.2.1 Existing Emissions

The project site is currently developed with a 11,648-square foot commercial building that is occupied by a mix of retail and service uses. The building operations currently generate greenhouse emissions from transportation, area sources, energy use, water use/wastewater generation, and solid waste disposal.

## 2.3 METHODOLOGY

The BAAQMD The Draft Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans were prepared to assist in the evaluation of GHG emissions impacts of projects and plans proposed within the Bay Area.

### 2.3.1 BAAQMD Standards of Significance

Cumulative GHG emissions impacts are based on the state's GHG reduction goals for development projects adopted by BAAQMD in April 2022 *Draft Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* (Justification Report).[76] Development of the proposed project

[75] City of Cupertino, Municipal Code. Local legislation current through Ordinance 22-2238, passed February 1, 2022. https://codelibrary.amlegal.com/codes/cupertino/latest/cupertino_ca/0-0-0-78624.

[76] BAAQMD. 2022, February 16. The Draft Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines (adopted on April 20, 2022).

would contribute to climate change through direct and indirect emissions of GHG from the construction activities needed to implement the project, which would generate a short-term increase in GHG emissions. BAAQMD identified in their Justification Report that projects that implement the following Best Management Practices (BMPs) would contribute their fair of what will be required to achieve the state's long-term climate goals, as described below:

A. Projects must include, at a minimum, the following project design elements; OR

1. Buildings

a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).

b. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

2. Transportation

a. Achieve compliance with electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

b. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:

B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

BAAQMD does not have thresholds of significance for construction related GHG emissions, which are one-time, short-term emissions and therefore would not significantly contribute to the long-term cumulative GHG emissions impacts of the proposed project.

# Assumptions Worksheet

# CalEEMod Inputs - 1655 S. De Anza Blvd Mixed Use Project, Construction

| | |
|---|---|
| **Name:** | 1655 S. De Anza Blvd Mixed Use Project |
| **Project Number:** | COCU-22.0 |
| **Project Location:** | 1655 S. De Anza Blvd |
| **County/Air Basin:** | Santa Clara |
| **Climate Zone:** | 4 |
| **Land Use Setting:** | Urban |
| **Operational Year:** | 2024 |
| **Utility Company:** | Silicon Valley Clean Energy |
| **Air Basin:** | San Francisco Bay Area Air Basin (SFBAAB) |
| **Air District:** | BAAQMD |

| | |
|---|---|
| **Project Site Acreage** | 1.68 |
| **Disturbed Site Acreage** | 1.68 |

| Project Components | SQFT | Tons | | | |
|---|---|---|---|---|---|
| ***Demolition*** | | | | | |
| Building Demolition | 14,302 | 658 | | | |
| Asphalt Demolition[1] | 73,570 | 1,090 | | | |
| ***New Construction*** | **SQFT** | **Building Footprint** | **ACRES** | **Dwelling Units** | **Stories/Levels** |
| Townhomes[2] | 27,484 | 15,278 | 0.35 | 11 | 3 |
| Private open space | 4,123 | NA | 0.09 | | |
| Mixed-Use Building (Apartments)[3] | 42,698 | 0 | 0.00 | 23 | 2 |
| Mixed-Use Building (Commercial/Retail space) | 7,595 | 7,595 | 0.17 | 7 Units | 1 |
| **Total Residential** | **70,182** | **15,278** | **0.35** | **34** | |
| Parking Structure | 11,015 | NA | 0.25 | | |
| Parking Lot | 6,295 | NA | 0.14 | | |
| Other Asphalt Surfaces | 16,234 | NA | 0.37 | | |
| Common open space | 1,673 | NA | 0.04 | | |
| Total Hardscape | 6,063 | NA | 0.14 | | |
| Total Landscaping[4] | 9,095 | NA | 0.21 | | |
| **Total Other Non-asphalt Surfaces** | **16,831** | NA | **0.39** | | |

Notes:

[1] Assume all existing paved asphalt will be demoed for conservative analysis.

[2] Includes private yards (open space) attached to each townhome.

[3] Building footprint for Apartments are already accounted for under the Commercial/Retail space and Parking Structure on ground level.

[4] Includes all landscape areas except A-1 (low water use roof top shrub planting) since this will be located on the roof.

**CalEEMod Land Use Inputs**

| Land Use Type | Land Use Subtype | Unit Amount | Size Metric | Lot Acreage | Land Use Square Feet |
|---|---|---|---|---|---|
| Residential | Condo/Townhomes | 34 | Units | 0.35 | 70,182 |
| Retail (Commercial/Retail Space) | Regional Shopping Center | 7.60 | 1000 sqft | 0.17 | 7,595 |
| Parking | Parking Lot | 6.30 | 1000 sqft | 0.14 | 6,295 |
| Parking | Enclosed Parking Structure | 11.02 | 1000 sqft | 0.25 | 11,015 |
| Parking | Other Asphalt Surfaces | 16.23 | 1000 sqft | 0.37 | 16,234 |
| Parking | Other Non-asphalt Surfaces | 16.83 | 1000 sqft | 0.39 | 16,831 |
| | | | | **1.68** | |

**Demolition**

| Component | Amount to be Demolished (Tons) | Haul Truck Capacity (Tons)[1] | Haul Distance (miles)[1] | Total Trip Ends | Duration (days) | Trip Ends/Day |
|---|---|---|---|---|---|---|
| Building Demolition Debris Haul | 658 | 20 | 20 | 66 | 22 | 3 |
| Asphalt Demolition Debris Haul | 1090 | 20 | 20 | 110 | 22 | 5 |
| **Total** | 1,748 | | | 176 | | |

Notes:

[1] CalEEMod default used.

**Soil Haul[1]**

| Construction Activities | Volume (CY)[1] | Haul Truck Capacity (CY)[2] | Haul Distance (miles)[2] | Total Trip Ends | Total Days | Trip Ends/Day |
|---|---|---|---|---|---|---|
| Grading soil haul | 32 | 16 | 20 | 4 | 2 | 2 |

Notes:

[1] Haul volume assumed to be 32 CY for conservative analysis.

[2] CalEEMod default used.

**Architectural Coating**

| | Residential | Commercial/ Retail Space |
|---|---|---|
| *Interior Painted (%):* | 100% | 100% |
| *Exterior Painted (%):* | 100% | 100% |

| | < 50 flat / ≤ 100 nonflat |
|---|---|
| **Rule 1113** | |
| **CalEEMod Default** | **grams/liter** |
| *Interior Paint VOC content:* | 100 |
| *Exterior Paint VOC content:* | 150 |

| Structures | Land Use Square Feet | CalEEMod Factor[1] | Total Paintable Surface Area | Paintable Interior Area[2] | Paintable Exterior Area[2] |
|---|---|---|---|---|---|
| **Residential Structures** | | | | | |
| Condo/Townhomes | 70,182 | 2.7 | 189,491 | 142,119 | 47,373 |
| **Non-Residential Structures** | | | | | |
| Commercial/Retail Space | 7,595 | 2.0 | 15,190 | 11,393 | 3,798 |
| | | | | **153,511** | **51,170** |
| **Parking[3]** | | | | | |
| Parking Lot (Striping) | 17,310 | 6% | 1,039 | - | 1,039 |
| | | | | | **1,039** |

**Notes:**

[1] The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user.

[2] CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively.

[3] Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted. Included both the parking lot and parking structure on the site.

**BAAQMD Construction BMPs**

| | | | |
|---|---|---|---|
| Replace Ground Cover | PM10: | 5 | % Reduction |
| | PM2.5: | 5 | % Reduction |
| Water Exposed Area | Frequency: | 2 | per day |
| | PM10: | 55 | % Reduction |
| | PM25: | 55 | % Reduction |
| Unpaved Roads | Vehicle Speed: | 15 | mph |
| | Clean Paved Road | 9 | % PM Reduction |

**Silicon Valley Clean Energy Carbon Intensity Factors**

| | lbs/MWH |
|---|---|
| $CO_2$:[1] | 2.00 |
| $CH_4$:[1] | 0 |
| $N_2O$:[1] | 0 |

**Notes:**

[1] CalEEMod default values.

| Global Warming Potentials (GWP) | | |
|---|---|---|
| | **AR4** | **AR5** |
| $CO_2$ | 1 | 1 |
| $CH_4$ | 25 | 28 |
| $N_2O$ | 298 | 265 |

Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC).

## Construction Activities and Schedule Assumptions: 1655 S. De Anza Blvd Mixed Use Project

based on durations provided by the Applicant

### Construction Schedule

| Construction Activities | Phase Type | Start Date | End Date | CalEEMod Duration (Workday) |
|---|---|---|---|---|
| Demolition (Building and Asphalt) | Demolition | 9/15/2022 | 10/15/2022 | 22 |
| Demolition Debris Haul (Building and Asphalt) | Demolition | 9/15/2022 | 10/15/2022 | 22 |
| Site Preparation | Site Preparation | 10/15/2022 | 10/25/2022 | 7 |
| Rough Grading | Rough Grading | 10/25/2022 | 12/25/2022 | 44 |
| Rough Grading Soil Haul | Rough Grading | 12/22/2022 | 12/25/2022 | 2 |
| Utility Trenching | Trenching | 1/4/2023 | 1/30/2023 | 19 |
| Fine Grading | Grading | 1/4/2023 | 1/15/2023 | 8 |
| Building Construction | Building Construction | 1/15/2023 | 3/1/2024 | 295 |
| Asphalt Paving | Paving | 1/15/2024 | 1/30/2024 | 12 |
| Architectural Coating | Architectural Coating | 1/1/2024 | 2/15/2024 | 34 |
| Finishing/Landscaping | Trenching | 1/1/2024 | 2/15/2024 | 34 |
| | | | **2022 Construction Days** | **72** |
| | | | **2023 Construction Days** | **258** |
| | | | **2024 Construction Days** | **34** |
| | | | **TOTAL Construction Days** | **364** |

**Notes:**

[1] Assume 32 CY of rough grading soil will be hauled on and off site.

### Overlapping Construction Schedule

| Construction Activities | Start Date | End Date | CalEEMod Duration (Workday) |
|---|---|---|---|
| Demolition and Demo Debris Haul | 9/15/2022 | 10/14/2022 | 22 |
| Demolition, Demo Debris Haul, and Site Preparation | 10/15/2022 | 10/15/2022 | 0 |
| Site Preparation | 10/16/2022 | 10/24/2022 | 6 |
| Site Preparation and Rough Grading | 10/25/2022 | 10/25/2022 | 1 |
| Rough Grading | 10/26/2022 | 12/21/2022 | 41 |
| Rough Grading and Rough Grading Soil Haul | 12/22/2022 | 12/25/2022 | 2 |
| Utility Trenching and Fine Grading | 1/4/2023 | 1/15/2023 | 8 |
| Utility Trenching and Building Construction | 1/16/2023 | 1/30/2023 | 11 |

| | | | |
|---|---|---|---|
| Building Construction 2023 | 1/31/2023 | 12/31/2023 | 239 |
| Building Construction 2024, Architectural Coating and Finishing/Landscaping | 1/1/2024 | 1/14/2024 | 10 |
| Building Construction 2024, Architectural Coating, Finishing/Landscaping, and Asphalt Paving | 1/15/2024 | 1/30/2024 | 12 |
| Building Construction 2024, Architectural Coating and Finishing/Landscaping | 1/31/2024 | 2/15/2024 | 12 |
| Building Construction 2024 | 2/16/2024 | 3/1/2024 | 11 |

## Overlapping Construction Schedule (CalEEMod)

| Construction Activities | Start Date | End Date | CalEEMod Duration (Workday) |
|---|---|---|---|
| Demolition | 9/15/2022 | 10/15/2022 | 22 |
| Demo Debris Haul | 9/15/2022 | 10/15/2022 | 22 |
| Site Preparation | 10/17/2022 | 10/24/2022 | 6 |
| Site Preparation and Rough Grading | 10/25/2022 | 10/25/2022 | 1 |
| Rough Grading | 10/26/2022 | 12/25/2022 | 43 |
| Rough Grading Soil Haul | 12/22/2022 | 12/25/2022 | 2 |
| Utility Trenching and Fine Grading | 1/4/2023 | 1/15/2023 | 8 |
| Utility Trenching and Building Construction | 1/16/2023 | 1/30/2023 | 11 |
| Building Construction | 1/31/2023 | 3/1/2024 | 284 |
| Asphalt Paving | 1/15/2024 | 1/30/2024 | 12 |
| Architectural Coating | 1/1/2024 | 2/15/2024 | 34 |
| Finishing/Landscaping | 1/1/2024 | 2/15/2024 | 34 |

## CalEEMod Construction Off-Road Equipment Inputs

**Based on equipment mix provided by the Applicant and CalEEMod default equipment.*

General Construction Hours: btwn 7:00 AM to 4:00 PM (with 1 hr break), Mon-Fri

**Water Truck Vendor Trip Calculation**

| Amount of Water (gal/acre/day)[1] | | | Water Truck Capacity (gallons)[2] |
|---|---|---|---|
| 10,000 | | | 4,000 |

**Notes:**

[1] *Based on data provided in Guidance for Application for Dust Control Permit*
*Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.*
*https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)*

[2] *Based on standard water truck capacity:*
*McLellan Industries. 2022, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/*

[3] *Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.*

| Construction Equipment Details | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equipment** | **# of Equipment** | **hr/day** | **Days Equipment Onsite** | **Average Hours per day** | **hp** | **load factor** | **total trips/Day** |
| **Building/Asphalt Demolition** | | | | | | | |
| Concrete/Industrial Saws | 1 | 8 | 22 | 8 | 81 | 0.73 | |
| Excavators | 2 | 8 | 22 | 8 | 158 | 0.38 | |
| Rubber Tired Dozers | 2 | 8 | 22 | 8 | 97 | 0.4 | |
| Worker Trips/Day | | | | | | | 13 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| Water Trucks | | | | Acres Disturbed: | 2 | | 5 |
| **Building and Asphalt Demolition Haul** | | | | | | | |
| No additional equipment required for Building Demolition Haul | | | | | | | |
| Worker Trips | | | | | | | 0 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 176 |
| **Site Preperation** | | | | | | | |
| Rubber Tired Dozers | 1 | 7 | 7 | 7 | 247 | 0.4 | |
| Tractors/Loaders/Backhoes | 1 | 8 | 7 | 8 | 97 | 0.37 | |
| Worker Trips | | | | | | | 5 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| Water Trucks | | | | Acres Disturbed: | 1 | | 3 |
| **Site Preperation and Rough Grading** | | | | | | | |
| Excavators | 2 | 8 | 44 | 8 | 158 | 0.38 | |
| Graders | 1 | 8 | 44 | 8 | 187 | 0.41 | |
| Rubber Tired Dozers | 1 | 8 | 44 | 8 | 247 | 0.4 | |
| Tractors/Loaders/Backhoes | 2 | 7 | 44 | 7 | 97 | 0.37 | |
| Worker Trips | | | | | | | 15 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| Water Trucks | | | | Acres Disturbed: | 3 | | 8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rough Grading** | | | | | | | |
| Excavators | 2 | 8 | 44 | 8 | 158 | 0.38 | |
| Graders | 1 | 8 | 44 | 8 | 187 | 0.41 | |
| Rubber Tired Dozers | 1 | 8 | 44 | 8 | 247 | 0.4 | |
| Tractors/Loaders/Backhoes | 2 | 7 | 44 | 7 | 97 | 0.37 | |
| Worker Trips | | | | | | | 15 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| Water Trucks | | | | Acres Disturbed: | 3 | | 8 |
| **Rough Grading Soil Haul** | | | | | | | |
| No additional equipment required for Building Demolition Haul | | | | | | | |
| Worker Trips | | | | | | | 0 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 4 |
| **Utility Trenching and Fine Grading** | | | | | | | |
| Excavators | 2 | 8 | 19 | 8 | 158 | 0.38 | |
| Graders | 1 | 8 | 8 | 8 | 187 | 0.41 | |
| Rubber Tired Dozers | 1 | 8 | 8 | 8 | 247 | 0.4 | |
| Tractors/Loaders/Backhoes | 2 | 7 | 8 | 7 | 97 | 0.37 | |
| Worker Trips | | | | | | | 15 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| Water Trucks | | | | Acres Disturbed: | 3 | | 8 |
| **Building Construction** | | | | | | | |
| Cranes | 1 | 6 | 295 | 6 | 231 | 0.29 | |
| Forklifts | 1 | 6 | 295 | 6 | 89 | 0.2 | |
| Generator Sets | 1 | 8 | 295 | 8 | 84 | 0.74 | |
| Tractors/Loaders/Backhoes | 1 | 6 | 295 | 6 | 97 | 0.37 | |
| Welders | 3 | 8 | 295 | 8 | 46 | 0.45 | |
| Worker Trips | | | | | | | 48 |
| Vendor Trips | | | | | | | 13 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| **Utility Trenching and Building Construction** | | | | | | | |
| Cranes | 1 | 6 | 295 | 6 | 231 | 0.29 | |
| Forklifts | 1 | 6 | 295 | 6 | 89 | 0.2 | |
| Generator Sets | 1 | 8 | 295 | 8 | 84 | 0.74 | |
| Tractors/Loaders/Backhoes | 1 | 6 | 295 | 6 | 97 | 0.37 | |
| Welders | 3 | 8 | 295 | 8 | 46 | 0.45 | |
| Excavators | 2 | 8 | 19 | 8 | 158 | 0.38 | |
| Worker Trips | | | | | | | 48 |
| Vendor Trips | | | | | | | 13 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| **Architectural Coating** | | | | | | | |
| Air Compressors | 1 | 6 | 34 | 6 | 78 | 0.48 | |
| Worker Trips | | | | | | | 10 |
| Vendor Trips | | | | | | | 0 |
| Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Paving** | | | | | | | | |
| | Pavers | 1 | 6 | 12 | 6 | 130 | 0.42 | |
| | Paving Equipment | 1 | 8 | 12 | 8 | 132 | 0.36 | |
| | Rollers | 1 | 7 | 12 | 7 | 80 | 0.38 | |
| | Worker Trips | | | | | | | 8 |
| | Vendor Trips | | | | | | | 0 |
| | Hauling Trips (TOTAL TRIPS) | | | | | | | 0 |
| **Finishing/Landscaping** | | | | | | | | |
| | Tractor/loader/Backhoe | 1 | 8 | 34 | 1.79 | 97 | 0.37 | |
| | Worker Trips | | | | | | | 3 |
| | Vendor Trips | | | | | | | 0 |
| | Hauling Trips (TOTAL TRIPS) | | | | | | | |

## Construction Trips Worksheet

| Phase Name | Worker Trip Ends Per Day | Vendor Trip Ends Per Day | Haul Truck Trip Ends | Total Haul Truck Trip Ends | Start Date | End Date | Workdays |
|---|---|---|---|---|---|---|---|
| Demolition (Building and Asphalt) | 13 | 5 | 0 | 0 | 9/15/2022 | 10/15/2022 | 22 |
| Demolition Debris Haul (Building and Asphalt) | 0 | 0 | 8 | 176 | 9/15/2022 | 10/15/2022 | 22 |
| Site Preparation | 5 | 3 | 0 | 0 | 10/15/2022 | 10/25/2022 | 7 |
| Rough Grading | 15 | 8 | 0 | 0 | 10/25/2022 | 12/25/2022 | 44 |
| Rough Grading Soil Haul | 0 | 0 | 2 | 4 | 12/22/2022 | 12/25/2022 | 2 |
| Utility Trenching | 0 | 3 | 0 | 0 | 1/4/2023 | 1/30/2023 | 19 |
| Fine Grading | 15 | 6 | 0 | 0 | 1/4/2023 | 1/15/2023 | 8 |
| Building Construction | 48 | 13 | 0 | 0 | 1/15/2023 | 3/1/2024 | 295 |
| Asphalt Paving | 8 | 0 | 0 | 0 | 1/15/2024 | 1/30/2024 | 12 |
| Architectural Coating | 10 | 0 | 0 | 0 | 1/1/2024 | 2/15/2024 | 34 |
| Finishing/Landscaping | 3 | 0 | 0 | 0 | 1/1/2024 | 2/15/2024 | 34 |

| Construction Activity (Overlapping) | Worker Trip Ends Per Day | Vendor Trip Ends Per Day | Haul Truck Trip Ends Per Day | Total Trip Ends Per Day | Start Date | End Date | Workdays |
|---|---|---|---|---|---|---|---|
| Demolition | 13 | 5 | 0 | 18 | 9/15/2022 | 10/15/2022 | 22 |
| Demo Debris Haul | 0 | 0 | 8 | 8 | 9/15/2022 | 10/15/2022 | 22 |
| Site Preparation | 5 | 3 | 0 | 8 | 10/17/2022 | 10/24/2022 | 6 |
| Site Preparation and Rough Grading | 20 | 10 | 0 | 30 | 10/25/2022 | 10/25/2022 | 1 |
| Rough Grading | 15 | 8 | 0 | 23 | 10/26/2022 | 12/25/2022 | 43 |
| Rough Grading Soil Haul | 0 | 0 | 2 | 2 | 12/22/2022 | 12/25/2022 | 2 |
| Utility Trenching and Fine Grading | 15 | 9 | 0 | 24 | 1/4/2023 | 1/15/2023 | 8 |
| Utility Trenching and Building Construction | 48 | 16 | 0 | 64 | 1/16/2023 | 1/30/2023 | 11 |
| Building Construction | 48 | 13 | 0 | 61 | 1/31/2023 | 3/1/2024 | 284 |
| Asphalt Paving | 8 | 0 | 0 | 8 | 1/15/2024 | 1/30/2024 | 12 |
| Architectural Coating | 10 | 0 | 0 | 10 | 1/1/2024 | 2/15/2024 | 34 |
| Finishing/Landscaping | 3 | 0 | 0 | 3 | 1/1/2024 | 2/15/2024 | 34 |
| **Maximum Daily Trips** | **48** | **16** | **8** | **64** | | | |

## Pavement Volume to Weight Conversion

| Component | Total SF of Area[1] | Assumed Thickness (foot)[2] | Debris Volume (cu. ft) | Weight of Crushed Asphalt (lbs/cf)[3] | AC Mass (lbs) | AC Mass (tons) |
|---|---|---|---|---|---|---|
| Asphalt Demo | 73,570 | 0.333 | 24,523 | 89 | 2,179,852 | 1089.93 |
| Total | 73,570 | | | | | 1089.93 |

[1] Assume all paved asphalt will be demoed for conservative analysis.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations.

## Demo Haul Trip Calculation

Source: CalEEMod User's Guide Version 2020.4, Appendix A

*Conversion factors*

| | |
|---|---|
| 0.046 | ton/SF |
| 1.2641662 | tons/cy |
| 20 | tons |
| 15.82070459 | CY |
| 0.791035229 | CY/ton |

| Building | BSF Demo | Tons/SF | Tons[1] | Haul Truck (CY) | Haul Truck (Ton)[2] | Round Trips | Total Trip Ends |
|---|---|---|---|---|---|---|---|
| **Combined Building Demo** | 14,302 | 0.046 | 658 | 16 | 20 | 33 | 66 |

**Notes:**

[1] Tonnage of building demolition debris to be hauled offsite provided by Applicant.

[2] CalEEMod default haul truck capacity used.

# Emissions Worksheet

## Construction Emissions - DPM
## Input to Risk Tables

| tons/year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Unmitigated** | 0.87 | 2.74 | 2.83 | 0.01 | 0.17 | 0.12 | 0.28 | 0.06 | 0.11 | 0.17 |

**UNMITIGATED (Onsite)**

| tons/year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Onsite** | 0.85 | 2.61 | 2.62 | 0.00 | 0.09 | 0.12 | 0.21 | 0.04 | 0.11 | 0.15 |
| **Total Offsite** | 0.02 | 0.13 | 0.21 | 0.00 | 0.07 | 0.00 | 0.07 | 0.02 | 0.00 | 0.02 |
| **check** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**FOR CONSTRUCTION RISK ASSESSMENT - Unmitigated Run**

| tons/year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **2022 Onsite** | 0.07 | 0.74 | 0.55 | 0.00 | 0.08 | 0.03 | 0.12 | 0.04 | 0.03 | 0.07 |
| **2022 Offsite** | 0.00 | 0.03 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| **2023 Onsite** | 0.20 | 1.55 | 1.67 | 0.00 | 0.01 | 0.07 | 0.08 | 0.01 | 0.07 | 0.07 |
| **2023 Offsite** | 0.02 | 0.08 | 0.16 | 0.00 | 0.05 | 0.00 | 0.06 | 0.01 | 0.00 | 0.02 |
| **2024 Onsite** | 0.58 | 0.32 | 0.39 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| **2024 Offsite** | 0.00 | 0.02 | 0.03 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |

**FOR CONSTRUCTION REGIONAL EMISSIONS - Unmitigated Run**

| tons/year | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total 2022** | 0.07 | 0.77 | 0.57 | 0.00 | 0.09 | 0.03 | 0.12 | 0.04 | 0.03 | 0.07 |
| **Total 2023** | 0.22 | 1.64 | 1.83 | 0.00 | 0.07 | 0.07 | 0.14 | 0.02 | 0.07 | 0.09 |
| **Total 2024** | 0.58 | 0.33 | 0.42 | 0.00 | 0.01 | 0.01 | 0.03 | 0.00 | 0.01 | 0.02 |
| **Construction Total** | 0.87 | 5.57 | 2.83 | 0.17 | 0.17 | 0.40 | 0.28 | 0.17 | 0.11 | 0.17 |
| **Check** | 0.00 | 2.83 | 0.00 | 0.17 | 0.00 | 0.28 | 0.00 | 0.11 | 0.00 | 0.00 |

**3.2 Demolition - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Offroad | | 0.03 | 0.26 | 0.19 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| Total | | 0.03 | 0.26 | 0.19 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.3 Building Demolition Debris Haul - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Off-Road | | 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 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**3.4 Site Preparation - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Off-Road | | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.03 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.5 Site Preparation and Rough Grading - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.6 Rough Grading - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.07 | 0.00 | 0.07 | 0.03 | 0.00 | 0.03 |
| Off-Road | | 0.04 | 0.44 | 0.34 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.02 | 0.02 |
| Total | | 0.04 | 0.44 | 0.34 | 0.00 | 0.07 | 0.02 | 0.08 | 0.03 | 0.02 | 0.05 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**3.7 Rough Grading Soil Haul - 2022**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-Road | | 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 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.8 Utility Trenching and Fine Grading - 2023**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 |
| Off-Road | | 0.01 | 0.07 | 0.06 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Total | | 0.01 | 0.07 | 0.06 | 0.00 | 0.01 | 0.00 | 0.02 | 0.01 | 0.00 | 0.01 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.9 Utility Trenching and Building Construction - 2023**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | | 0.01 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.01 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**3.10 Building Construction - 2023**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | | 0.18 | 1.40 | 1.51 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.06 | 0.06 |
| Total | | 0.18 | 1.40 | 1.51 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.06 | 0.06 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.07 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Worker | | 0.01 | 0.01 | 0.13 | 0.00 | 0.04 | 0.00 | 0.04 | 0.01 | 0.00 | 0.01 |
| Total | | 0.02 | 0.08 | 0.15 | 0.00 | 0.05 | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 |

**3.10 Building Construction - 2024**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | | 0.03 | 0.25 | 0.28 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| Total | | 0.03 | 0.25 | 0.28 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.01 | 0.03 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |

**3.11 Asphalt Paving - 2024**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | | 0.00 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paving | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.12 Architectural Coating - 2024**

**Unmitigated Construction On-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off Road | | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.54 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| Category | tons/yr | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

**3.13 Finishing/Landscaping - 2024**

**Unmitigated Construction On-Site**

| | | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | |
| Off-Road | | 0.00 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | | 0.00 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Unmitigated Construction Off-Site**

| | | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | |
| Hauling | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Vendor | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Worker | | 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 |

# Criteria Air Pollutant Emissions Summary - Construction Unmitigated

Annual emissions divided by total construction duration to obtain average daily emissions. Average construction emissions accounts for the duration of each construction phase and the time each piece of construction equipment is onsite.

| Total Construction Days | 2022 | 2023 | 2024 | Calendar Days |
|---|---|---|---|---|
| 292 | 72 | 258 | 34 | 519 |

**Unmigated Run - with Best Control Measures for Fugitive Dust**

| average lbs/day | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | 6 | 19 | 19 | 0 | 1.14 | 0.80 | 2 | 0.43 | 0.76 | 1 |
| **BAAQMD Threshold** | 54 | 54 | NA | NA | BMP | 82 | 54 | BMP | 54 | NA |
| **Exceeds Threshold** | No | No | NA | NA | NA | No | No | NA | No | NA |

# Average Daily Emissions and Emission Rates

**Onsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 2022 | 0.950833333 | 1.19E-01 | 1.50E-02 |
| 2023 | 0.53 | 6.61E-02 | 8.33E-03 |
| 2024 | 0.79 | 9.92E-02 | 1.25E-02 |

**Onsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|
| 0.88 | 1.10E-01 | 1.39E-02 |
| 0.51 | 6.36E-02 | 8.02E-03 |
| 0.76 | 9.55E-02 | 1.20E-02 |

**Offsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|---|
| 2022 | 8.33E-03 | 2.98E-04 | 3.73E-05 | 4.70E-06 |
| 2023 | 5.27E-03 | 1.89E-04 | 2.36E-05 | 2.97E-06 |
| 2024 | 7.65E-03 | 2.74E-04 | 3.42E-05 | 4.31E-06 |

**Offsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 8.06E-03 | 2.88E-04 | 3.60E-05 | 4.54E-06 |
| 4.96E-03 | 1.77E-04 | 2.22E-05 | 2.80E-06 |
| 7.06E-03 | 2.53E-04 | 3.16E-05 | 3.98E-06 |

Note: Emissions evenly distributed over 52 modeled volume sources.

| | | |
|---|---|---|
| Hauling Length (miles) | 20 | miles |
| Haul Length within 1,000 ft of Site (mile) [3] | 0.72 | miles |
| Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4] | 8 | hours |

| Year | Workdays | Risk Scalar [5] |
|---|---|---|
| 2022 | 72 | 0.28 |
| 2023 | 258 | 0.99 |
| 2024 | 34 | 0.13 |

[1] DPM emissions taken as $PM_{10}$ exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.72-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Risk scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

| Phase Name | Start Date | End Date | CalEEMod Days | Total Days |
|---|---|---|---|---|
| Demolition | 9/15/2022 | 10/15/2022 | 22 | **30** |
| Demo Debris Haul | 9/15/2022 | 10/15/2022 | 22 | **30** |
| Site Preparation | 10/17/2022 | 10/24/2022 | 6 | **7** |
| Site Preparation and Rough Grading | 10/25/2022 | 10/25/2022 | 1 | **0** |
| Rough Grading | 10/26/2022 | 12/25/2022 | 43 | **60** |
| Rough Grading Soil Haul | 12/22/2022 | 12/25/2022 | 2 | **3** |
| Utility Trenching and Fine Grading | 1/4/2023 | 1/15/2023 | 8 | **11** |
| Utility Trenching and Building Construction | 1/16/2023 | 1/30/2023 | 11 | **14** |
| Building Construction | 1/31/2023 | 3/1/2024 | 284 | **395** |
| Asphalt Paving | 1/15/2024 | 1/30/2024 | 12 | **15** |
| Architectural Coating | 1/1/2024 | 2/15/2024 | 34 | **45** |
| Finishing/Landscaping | 1/1/2024 | 2/15/2024 | 34 | **45** |

| Number of Construction Days Per Year | | | |
|---|---|---|---|
| 2022 | 9/15/2022 | 12/25/2022 | 72 |
| 2023 | 1/4/2023 | 12/31/2023 | 258 |
| 2024 | 1/1/2024 | 2/15/2024 | 34 |
| | | **CONSTRUCTION DAYS** | 364 |

| Total Construction Days Per Year | | |
|---|---|---|
| 1/1/2022 | 12/31/2022 | 260 |
| 1/1/2023 | 12/31/2023 | 260 |
| 1/1/2024 | 12/31/2024 | 262 |
| | **TOTAL DAYS** | 782 |

# CalEEMod Construction Model

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# 1655 S. De Anza Blvd Mixed Use Project

**Santa Clara County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Condo/Townhouse | 34.00 | Dwelling Unit | 0.35 | 70,182.00 | 97 |
| Regional Shopping Center | 7.60 | 1000sqft | 0.17 | 7,595.00 | 0 |
| Parking Lot | 6.30 | 1000sqft | 0.14 | 6,295.00 | 0 |
| Enclosed Parking with Elevator | 11.02 | 1000sqft | 0.25 | 11,015.00 | 0 |
| Other Asphalt Surfaces | 16.23 | 1000sqft | 0.37 | 16,234.00 | 0 |
| Other Non-Asphalt Surfaces | 16.83 | 1000sqft | 0.39 | 16,831.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 58 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Silicon Valley Clean Energy | | | | |
| **CO2 Intensity (lb/MWhr)** | 2 | **CH4 Intensity (lb/MWhr)** | 0 | **N2O Intensity (lb/MWhr)** | 0 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on applicant info., see assumptions file

Construction Phase - Based on applicant info., see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - No equipment required for demolition debris haul

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - No equipment required for grading soil haul

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix provided by applicant, see assumptions file

Off-road Equipment - Based on equipment mix of a project similar in size, see assumptions file

Grading - Haul volume of 32 CY to be assumed for conservative analysis, see assumptions file

Demolition -

Trips and VMT - See assumptions file

Architectural Coating - See assumptions file

Construction Off-road Equipment Mitigation - BAAQMD Construction BMPs, see assumptions file

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | ConstArea_Parking | 3,023.00 | 1,039.00 |
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0 | 9 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 20.00 | 22.00 |
| tblConstructionPhase | NumDays | 20.00 | 22.00 |
| tblConstructionPhase | NumDays | 2.00 | 6.00 |
| tblConstructionPhase | NumDays | 2.00 | 1.00 |
| tblConstructionPhase | NumDays | 4.00 | 43.00 |
| tblConstructionPhase | NumDays | 4.00 | 2.00 |
| tblConstructionPhase | NumDays | 4.00 | 8.00 |
| tblConstructionPhase | NumDays | 200.00 | 11.00 |
| tblConstructionPhase | NumDays | 200.00 | 284.00 |
| tblConstructionPhase | NumDays | 10.00 | 12.00 |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblConstructionPhase | NumDays | 10.00 | 34.00 |
| tblConstructionPhase | PhaseEndDate | 10/12/2022 | 10/14/2022 |
| tblGrading | MaterialExported | 0.00 | 16.00 |
| tblGrading | MaterialImported | 0.00 | 16.00 |
| tblLandUse | LandUseSquareFeet | 34,000.00 | 70,182.00 |
| tblLandUse | LandUseSquareFeet | 7,600.00 | 7,595.00 |
| tblLandUse | LandUseSquareFeet | 6,300.00 | 6,295.00 |
| tblLandUse | LandUseSquareFeet | 11,020.00 | 11,015.00 |
| tblLandUse | LandUseSquareFeet | 16,230.00 | 16,234.00 |
| tblLandUse | LandUseSquareFeet | 16,830.00 | 16,831.00 |
| tblLandUse | LotAcreage | 2.13 | 0.35 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.37 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 7.00 |
| tblTripsAndVMT | HaulingTripNumber | 173.00 | 176.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 3.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 8.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 8.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 8.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0746 | 0.7740 | 0.5730 | 1.2300e-003 | 0.1987 | 0.0345 | 0.2332 | 0.0889 | 0.0319 | 0.1208 | 0.0000 | 108.8065 | 108.8065 | 0.0296 | 1.7200e-003 | 110.0586 |
| 2023 | 0.2163 | 1.6356 | 1.8319 | 3.6800e-003 | 0.0873 | 0.0689 | 0.1562 | 0.0296 | 0.0663 | 0.0959 | 0.0000 | 312.4396 | 312.4396 | 0.0454 | 5.8600e-003 | 315.3216 |
| 2024 | 0.5814 | 0.3341 | 0.4205 | 8.0000e-004 | 0.0126 | 0.0137 | 0.0263 | 3.4000e-003 | 0.0131 | 0.0165 | 0.0000 | 68.6688 | 68.6688 | 0.0106 | 1.0500e-003 | 69.2465 |
| **Maximum** | **0.5814** | **1.6356** | **1.8319** | **3.6800e-003** | **0.1987** | **0.0689** | **0.2332** | **0.0889** | **0.0663** | **0.1208** | **0.0000** | **312.4396** | **312.4396** | **0.0454** | **5.8600e-003** | **315.3216** |

**Mitigated Construction**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0746 | 0.7740 | 0.5730 | 1.2300e-003 | 0.0884 | 0.0345 | 0.1230 | 0.0390 | 0.0319 | 0.0709 | 0.0000 | 108.8064 | 108.8064 | 0.0296 | 1.7200e-003 | 110.0585 |
| 2023 | 0.2163 | 1.6356 | 1.8319 | 3.6800e-003 | 0.0667 | 0.0689 | 0.1355 | 0.0207 | 0.0663 | 0.0870 | 0.0000 | 312.4393 | 312.4393 | 0.0454 | 5.8600e-003 | 315.3213 |
| 2024 | 0.5814 | 0.3341 | 0.4205 | 8.0000e-004 | 0.0117 | 0.0137 | 0.0253 | 3.1700e-003 | 0.0131 | 0.0163 | 0.0000 | 68.6688 | 68.6688 | 0.0106 | 1.0500e-003 | 69.2465 |
| **Maximum** | **0.5814** | **1.6356** | **1.8319** | **3.6800e-003** | **0.0884** | **0.0689** | **0.1355** | **0.0390** | **0.0663** | **0.0870** | **0.0000** | **312.4393** | **312.4393** | **0.0454** | **5.8600e-003** | **315.3213** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **44.16** | **0.00** | **31.72** | **48.46** | **0.00** | **25.34** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **1** | **9-15-2022** | **12-14-2022** | 1.2507 | 1.2507 |
| **2** | **12-15-2022** | **3-14-2023** | 0.7996 | 0.7996 |
| **3** | **3-15-2023** | **6-14-2023** | 1.0359 | 1.0359 |
| **4** | **6-15-2023** | **9-14-2023** | 1.0353 | 1.0353 |
| **5** | **9-15-2023** | **12-14-2023** | 1.0268 | 1.0268 |
| **6** | **12-15-2023** | **3-14-2024** | 1.0776 | 1.0776 |
| | | **Highest** | 1.2507 | 1.2507 |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 9/15/2022 | 10/14/2022 | 5 | 22 | a |
| 2 | Demolition Debris Haul | Demolition | 9/15/2022 | 10/14/2022 | 5 | 22 | b |
| 3 | Site Preparation | Site Preparation | 10/17/2022 | 10/24/2022 | 5 | 6 | c |
| 4 | Site Preparation and Rough Grading | Site Preparation | 10/25/2022 | 10/25/2022 | 5 | 1 | d |
| 5 | Rough Grading | Grading | 10/26/2022 | 12/23/2022 | 5 | 43 | e |
| 6 | Rough Grading Soil Haul | Grading | 12/22/2022 | 12/23/2022 | 5 | 2 | f |
| 7 | Utility Trenching and Fine Grading | Grading | 1/4/2023 | 1/13/2023 | 5 | 8 | g |
| 8 | Utility Trenching and Building Construction | Building Construction | 1/16/2023 | 1/30/2023 | 5 | 11 | h |
| 9 | Building Construction | Building Construction | 1/31/2023 | 3/1/2024 | 5 | 284 | i |
| 10 | Asphalt Paving | Paving | 1/15/2024 | 1/30/2024 | 5 | 12 | j |
| 11 | Architectural Coating | Architectural Coating | 1/1/2024 | 2/15/2024 | 5 | 34 | k |
| 12 | Finishing/Landscaping | Trenching | 1/1/2024 | 2/15/2024 | 5 | 34 | l |

**Acres of Grading (Site Preparation Phase): 2.63**

**Acres of Grading (Grading Phase): 43**

**Acres of Paving: 1.15**

**Residential Indoor: 142,119; Residential Outdoor: 47,373; Non-Residential Indoor: 11,393; Non-Residential Outdoor: 3,798; Striped Parking Area: 1,039**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Asphalt Paving | Cement and Mortar Mixers | 0 | 6.00 | 9 | 0.56 |
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Demolition Debris Haul | Concrete/Industrial Saws | 0 | 8.00 | 81 | 0.73 |
| Site Preparation | Graders | 0 | 8.00 | 187 | 0.41 |
| Utility Trenching and Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Utility Trenching and Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Utility Trenching and Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Rough Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Demolition | Tractors/Loaders/Backhoes | 0 | 8.00 | 97 | 0.37 |
| Rough Grading Soil Haul | Graders | 0 | 8.00 | 187 | 0.41 |
| Utility Trenching and Fine Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |
| Site Preparation and Rough Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Asphalt Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Asphalt Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Asphalt Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Demolition Debris Haul | Rubber Tired Dozers | 0 | 8.00 | 247 | 0.40 |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | |
|---|---|---|---|---|---|
| Rough Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Rough Grading Soil Haul | Rubber Tired Dozers | 0 | 8.00 | 247 | 0.40 |
| Utility Trenching and Fine Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation and Rough Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Utility Trenching and Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Demolition Debris Haul | Tractors/Loaders/Backhoes | 0 | 8.00 | 97 | 0.37 |
| Rough Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Rough Grading Soil Haul | Tractors/Loaders/Backhoes | 0 | 7.00 | 97 | 0.37 |
| Utility Trenching and Fine Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Asphalt Paving | Tractors/Loaders/Backhoes | 0 | 8.00 | 97 | 0.37 |
| Site Preparation and Rough Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Utility Trenching and Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |
| Demolition | Excavators | 2 | 8.00 | 158 | 0.38 |
| Site Preparation and Rough Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Rough Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Utility Trenching and Fine Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Utility Trenching and Building Construction | Excavators | 2 | 8.00 | 158 | 0.38 |
| Finishing/Landscaping | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 5 | 13.00 | 5.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 3.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Demolition Debris Haul | 0 | 0.00 | 0.00 | 176.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 48.00 | 13.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation and Rough Grading | 6 | 15.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 10.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Rough Grading | 6 | 15.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Rough Grading Soil Haul | 0 | 0.00 | 0.00 | 4.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Utility Trenching and Fine Grading | 6 | 15.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Utility Trenching and Building Construction | 9 | 48.00 | 13.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Asphalt Paving | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Finishing/Landscaping | 1 | 3.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

### 3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Demolition - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0268 | 0.2636 | 0.1911 | 3.7000e-004 | | 0.0127 | 0.0127 | | 0.0119 | 0.0119 | 0.0000 | 32.4495 | 32.4495 | 8.9000e-003 | 0.0000 | 32.6721 |
| **Total** | **0.0268** | **0.2636** | **0.1911** | **3.7000e-004** | | **0.0127** | **0.0127** | | **0.0119** | **0.0119** | **0.0000** | **32.4495** | **32.4495** | **8.9000e-003** | **0.0000** | **32.6721** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.2000e-004 | 3.1000e-003 | 9.1000e-004 | 1.0000e-005 | 3.6000e-004 | 3.0000e-005 | 3.9000e-004 | 1.0000e-004 | 3.0000e-005 | 1.4000e-004 | 0.0000 | 1.1408 | 1.1408 | 3.0000e-005 | 1.7000e-004 | 1.1916 |
| Worker | 3.8000e-004 | 2.8000e-004 | 3.4500e-003 | 1.0000e-005 | 1.1300e-003 | 1.0000e-005 | 1.1400e-003 | 3.0000e-004 | 1.0000e-005 | 3.1000e-004 | 0.0000 | 0.8910 | 0.8910 | 3.0000e-005 | 3.0000e-005 | 0.8995 |
| **Total** | **5.0000e-004** | **3.3800e-003** | **4.3600e-003** | **2.0000e-005** | **1.4900e-003** | **4.0000e-005** | **1.5300e-003** | **4.0000e-004** | **4.0000e-005** | **4.5000e-004** | **0.0000** | **2.0318** | **2.0318** | **6.0000e-005** | **2.0000e-004** | **2.0910** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0268 | 0.2636 | 0.1911 | 3.7000e-004 | | 0.0127 | 0.0127 | | 0.0119 | 0.0119 | 0.0000 | 32.4494 | 32.4494 | 8.9000e-003 | 0.0000 | 32.6721 |
| **Total** | **0.0268** | **0.2636** | **0.1911** | **3.7000e-004** | | **0.0127** | **0.0127** | | **0.0119** | **0.0119** | **0.0000** | **32.4494** | **32.4494** | **8.9000e-003** | **0.0000** | **32.6721** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.2000e-004 | 3.1000e-003 | 9.1000e-004 | 1.0000e-005 | 3.4000e-004 | 3.0000e-005 | 3.7000e-004 | 1.0000e-004 | 3.0000e-005 | 1.3000e-004 | 0.0000 | 1.1408 | 1.1408 | 3.0000e-005 | 1.7000e-004 | 1.1916 |
| Worker | 3.8000e-004 | 2.8000e-004 | 3.4500e-003 | 1.0000e-005 | 1.0500e-003 | 1.0000e-005 | 1.0500e-003 | 2.8000e-004 | 1.0000e-005 | 2.9000e-004 | 0.0000 | 0.8910 | 0.8910 | 3.0000e-005 | 3.0000e-005 | 0.8995 |
| **Total** | **5.0000e-004** | **3.3800e-003** | **4.3600e-003** | **2.0000e-005** | **1.3900e-003** | **4.0000e-005** | **1.4200e-003** | **3.8000e-004** | **4.0000e-005** | **4.2000e-004** | **0.0000** | **2.0318** | **2.0318** | **6.0000e-005** | **2.0000e-004** | **2.0910** |

## 3.3 Demolition Debris Haul - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0187 | 0.0000 | 0.0187 | 2.8300e-003 | 0.0000 | 2.8300e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0187** | **0.0000** | **0.0187** | **2.8300e-003** | **0.0000** | **2.8300e-003** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.2000e-004 | 0.0152 | 3.2000e-003 | 6.0000e-005 | 1.4900e-003 | 1.4000e-004 | 1.6300e-003 | 4.1000e-004 | 1.3000e-004 | 5.4000e-004 | 0.0000 | 5.5387 | 5.5387 | 1.9000e-004 | 8.8000e-004 | 5.8051 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **4.2000e-004** | **0.0152** | **3.2000e-003** | **6.0000e-005** | **1.4900e-003** | **1.4000e-004** | **1.6300e-003** | **4.1000e-004** | **1.3000e-004** | **5.4000e-004** | **0.0000** | **5.5387** | **5.5387** | **1.9000e-004** | **8.8000e-004** | **5.8051** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.0000e-003 | 0.0000 | 8.0000e-003 | 1.2100e-003 | 0.0000 | 1.2100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **8.0000e-003** | **0.0000** | **8.0000e-003** | **1.2100e-003** | **0.0000** | **1.2100e-003** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.2000e-004 | 0.0152 | 3.2000e-003 | 6.0000e-005 | 1.3900e-003 | 1.4000e-004 | 1.5300e-003 | 3.9000e-004 | 1.3000e-004 | 5.2000e-004 | 0.0000 | 5.5387 | 5.5387 | 1.9000e-004 | 8.8000e-004 | 5.8051 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **4.2000e-004** | **0.0152** | **3.2000e-003** | **6.0000e-005** | **1.3900e-003** | **1.4000e-004** | **1.5300e-003** | **3.9000e-004** | **1.3000e-004** | **5.2000e-004** | **0.0000** | **5.5387** | **5.5387** | **1.9000e-004** | **8.8000e-004** | **5.8051** |

## 3.4 Site Preparation - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0172 | 0.0000 | 0.0172 | 8.8400e-003 | 0.0000 | 8.8400e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.6900e-003 | 0.0281 | 0.0161 | 3.0000e-005 | | 1.3700e-003 | 1.3700e-003 | | 1.2600e-003 | 1.2600e-003 | 0.0000 | 2.7893 | 2.7893 | 9.0000e-004 | 0.0000 | 2.8119 |
| **Total** | **2.6900e-003** | **0.0281** | **0.0161** | **3.0000e-005** | **0.0172** | **1.3700e-003** | **0.0186** | **8.8400e-003** | **1.2600e-003** | **0.0101** | **0.0000** | **2.7893** | **2.7893** | **9.0000e-004** | **0.0000** | **2.8119** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.0000e-005 | 5.1000e-004 | 1.5000e-004 | 0.0000 | 6.0000e-005 | 1.0000e-005 | 6.0000e-005 | 2.0000e-005 | 1.0000e-005 | 2.0000e-005 | 0.0000 | 0.1867 | 0.1867 | 0.0000 | 3.0000e-005 | 0.1950 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.6000e-004 | 0.0000 | 1.2000e-004 | 0.0000 | 1.2000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0935 | 0.0935 | 0.0000 | 0.0000 | 0.0944 |
| **Total** | **6.0000e-005** | **5.4000e-004** | **5.1000e-004** | **0.0000** | **1.8000e-004** | **1.0000e-005** | **1.8000e-004** | **5.0000e-005** | **1.0000e-005** | **5.0000e-005** | **0.0000** | **0.2801** | **0.2801** | **0.0000** | **3.0000e-005** | **0.2893** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 7.3500e-003 | 0.0000 | 7.3500e-003 | 3.7800e-003 | 0.0000 | 3.7800e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.6900e-003 | 0.0281 | 0.0161 | 3.0000e-005 | | 1.3700e-003 | 1.3700e-003 | | 1.2600e-003 | 1.2600e-003 | 0.0000 | 2.7893 | 2.7893 | 9.0000e-004 | 0.0000 | 2.8119 |
| **Total** | **2.6900e-003** | **0.0281** | **0.0161** | **3.0000e-005** | **7.3500e-003** | **1.3700e-003** | **8.7200e-003** | **3.7800e-003** | **1.2600e-003** | **5.0400e-003** | **0.0000** | **2.7893** | **2.7893** | **9.0000e-004** | **0.0000** | **2.8119** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.0000e-005 | 5.1000e-004 | 1.5000e-004 | 0.0000 | 6.0000e-005 | 1.0000e-005 | 6.0000e-005 | 2.0000e-005 | 1.0000e-005 | 2.0000e-005 | 0.0000 | 0.1867 | 0.1867 | 0.0000 | 3.0000e-005 | 0.1950 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.6000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0935 | 0.0935 | 0.0000 | 0.0000 | 0.0944 |
| **Total** | **6.0000e-005** | **5.4000e-004** | **5.1000e-004** | **0.0000** | **1.7000e-004** | **1.0000e-005** | **1.7000e-004** | **5.0000e-005** | **1.0000e-005** | **5.0000e-005** | **0.0000** | **0.2801** | **0.2801** | **0.0000** | **3.0000e-005** | **0.2893** |

### 3.5 Site Preparation and Rough Grading - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 3.5400e-003 | 0.0000 | 3.5400e-003 | 1.7100e-003 | 0.0000 | 1.7100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.7000e-004 | 0.0103 | 7.8800e-003 | 2.0000e-005 | | 4.6000e-004 | 4.6000e-004 | | 4.2000e-004 | 4.2000e-004 | 0.0000 | 1.3610 | 1.3610 | 4.4000e-004 | 0.0000 | 1.3720 |
| **Total** | **9.7000e-004** | **0.0103** | **7.8800e-003** | **2.0000e-005** | **3.5400e-003** | **4.6000e-004** | **4.0000e-003** | **1.7100e-003** | **4.2000e-004** | **2.1300e-003** | **0.0000** | **1.3610** | **1.3610** | **4.4000e-004** | **0.0000** | **1.3720** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.0000e-005 | 2.3000e-004 | 7.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0830 | 0.0830 | 0.0000 | 1.0000e-005 | 0.0867 |
| Worker | 2.0000e-005 | 1.0000e-005 | 1.8000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0467 | 0.0467 | 0.0000 | 0.0000 | 0.0472 |
| **Total** | **3.0000e-005** | **2.4000e-004** | **2.5000e-004** | **0.0000** | **9.0000e-005** | **0.0000** | **9.0000e-005** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **0.0000** | **0.1297** | **0.1297** | **0.0000** | **1.0000e-005** | **0.1338** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.5100e-003 | 0.0000 | 1.5100e-003 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.7000e-004 | 0.0103 | 7.8800e-003 | 2.0000e-005 | | 4.6000e-004 | 4.6000e-004 | | 4.2000e-004 | 4.2000e-004 | 0.0000 | 1.3610 | 1.3610 | 4.4000e-004 | 0.0000 | 1.3720 |
| **Total** | **9.7000e-004** | **0.0103** | **7.8800e-003** | **2.0000e-005** | **1.5100e-003** | **4.6000e-004** | **1.9700e-003** | **7.3000e-004** | **4.2000e-004** | **1.1500e-003** | **0.0000** | **1.3610** | **1.3610** | **4.4000e-004** | **0.0000** | **1.3720** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.0000e-005 | 2.3000e-004 | 7.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0830 | 0.0830 | 0.0000 | 1.0000e-005 | 0.0867 |
| Worker | 2.0000e-005 | 1.0000e-005 | 1.8000e-004 | 0.0000 | 5.0000e-005 | 0.0000 | 6.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0467 | 0.0467 | 0.0000 | 0.0000 | 0.0472 |
| **Total** | **3.0000e-005** | **2.4000e-004** | **2.5000e-004** | **0.0000** | **7.0000e-005** | **0.0000** | **9.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | **0.0000** | **0.1297** | **0.1297** | **0.0000** | **1.0000e-005** | **0.1338** |

### 3.6 Rough Grading - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.1523 | 0.0000 | 0.1523 | 0.0736 | 0.0000 | 0.0736 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0419 | 0.4419 | 0.3389 | 6.7000e-004 | | 0.0197 | 0.0197 | | 0.0181 | 0.0181 | 0.0000 | 58.5234 | 58.5234 | 0.0189 | 0.0000 | 58.9966 |
| **Total** | **0.0419** | **0.4419** | **0.3389** | **6.7000e-004** | **0.1523** | **0.0197** | **0.1720** | **0.0736** | **0.0181** | **0.0917** | **0.0000** | **58.5234** | **58.5234** | **0.0189** | **0.0000** | **58.9966** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.8000e-004 | 9.7000e-003 | 2.8300e-003 | 4.0000e-005 | 1.1300e-003 | 1.0000e-004 | 1.2300e-003 | 3.3000e-004 | 1.0000e-004 | 4.2000e-004 | 0.0000 | 3.5675 | 3.5675 | 8.0000e-005 | 5.3000e-004 | 3.7264 |
| Worker | 8.6000e-004 | 6.3000e-004 | 7.7700e-003 | 2.0000e-005 | 2.5600e-003 | 1.0000e-005 | 2.5700e-003 | 6.8000e-004 | 1.0000e-005 | 6.9000e-004 | 0.0000 | 2.0095 | 2.0095 | 6.0000e-005 | 6.0000e-005 | 2.0285 |
| **Total** | **1.2400e-003** | **0.0103** | **0.0106** | **6.0000e-005** | **3.6900e-003** | **1.1000e-004** | **3.8000e-003** | **1.0100e-003** | **1.1000e-004** | **1.1100e-003** | **0.0000** | **5.5770** | **5.5770** | **1.4000e-004** | **5.9000e-004** | **5.7549** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0651 | 0.0000 | 0.0651 | 0.0315 | 0.0000 | 0.0315 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0419 | 0.4419 | 0.3389 | 6.7000e-004 | | 0.0197 | 0.0197 | | 0.0181 | 0.0181 | 0.0000 | 58.5234 | 58.5234 | 0.0189 | 0.0000 | 58.9966 |
| **Total** | **0.0419** | **0.4419** | **0.3389** | **6.7000e-004** | **0.0651** | **0.0197** | **0.0848** | **0.0315** | **0.0181** | **0.0496** | **0.0000** | **58.5234** | **58.5234** | **0.0189** | **0.0000** | **58.9966** |

**Mitigated Construction Off-Site**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.8000e-004 | 9.7000e-003 | 2.8300e-003 | 4.0000e-005 | 1.0600e-003 | 1.0000e-004 | 1.1600e-003 | 3.1000e-004 | 1.0000e-004 | 4.1000e-004 | 0.0000 | 3.5675 | 3.5675 | 8.0000e-005 | 5.3000e-004 | 3.7264 |
| Worker | 8.6000e-004 | 6.3000e-004 | 7.7700e-003 | 2.0000e-005 | 2.3600e-003 | 1.0000e-005 | 2.3700e-003 | 6.3000e-004 | 1.0000e-005 | 6.4000e-004 | 0.0000 | 2.0095 | 2.0095 | 6.0000e-005 | 6.0000e-005 | 2.0285 |
| **Total** | **1.2400e-003** | **0.0103** | **0.0106** | **6.0000e-005** | **3.4200e-003** | **1.1000e-004** | **3.5300e-003** | **9.4000e-004** | **1.1000e-004** | **1.0500e-003** | **0.0000** | **5.5770** | **5.5770** | **1.4000e-004** | **5.9000e-004** | **5.7549** |

### 3.7 Rough Grading Soil Haul - 2022

**Unmitigated Construction On-Site**

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

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 3.5000e-004 | 7.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 4.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1259 | 0.1259 | 0.0000 | 2.0000e-005 | 0.1319 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.0000e-005** | **3.5000e-004** | **7.0000e-005** | **0.0000** | **3.0000e-005** | **0.0000** | **4.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.1259** | **0.1259** | **0.0000** | **2.0000e-005** | **0.1319** |

**Mitigated Construction On-Site**

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

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 3.5000e-004 | 7.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1259 | 0.1259 | 0.0000 | 2.0000e-005 | 0.1319 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.0000e-005** | **3.5000e-004** | **7.0000e-005** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.1259** | **0.1259** | **0.0000** | **2.0000e-005** | **0.1319** |

### 3.8 Utility Trenching and Fine Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0283 | 0.0000 | 0.0283 | 0.0137 | 0.0000 | 0.0137 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.8500e-003 | 0.0703 | 0.0610 | 1.2000e-004 | | 3.0300e-003 | 3.0300e-003 | | 2.7800e-003 | 2.7800e-003 | 0.0000 | 10.8892 | 10.8892 | 3.5200e-003 | 0.0000 | 10.9773 |
| **Total** | **6.8500e-003** | **0.0703** | **0.0610** | **1.2000e-004** | **0.0283** | **3.0300e-003** | **0.0314** | **0.0137** | **2.7800e-003** | **0.0165** | **0.0000** | **10.8892** | **10.8892** | **3.5200e-003** | **0.0000** | **10.9773** |

**Unmitigated Construction Off-Site**

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 4.0000e-005 | 1.4300e-003 | 4.5000e-004 | 1.0000e-005 | 2.1000e-004 | 1.0000e-005 | 2.2000e-004 | 6.0000e-005 | 1.0000e-005 | 7.0000e-005 | 0.0000 | 0.6363 | 0.6363 | 1.0000e-005 | 9.0000e-005 | 0.6645 |
| Worker | 1.5000e-004 | 1.0000e-004 | 1.3400e-003 | 0.0000 | 4.8000e-004 | 0.0000 | 4.8000e-004 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 0.3623 | 0.3623 | 1.0000e-005 | 1.0000e-005 | 0.3655 |
| **Total** | **1.9000e-004** | **1.5300e-003** | **1.7900e-003** | **1.0000e-005** | **6.9000e-004** | **1.0000e-005** | **7.0000e-004** | **1.9000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **0.9985** | **0.9985** | **2.0000e-005** | **1.0000e-004** | **1.0300** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0121 | 0.0000 | 0.0121 | 5.8600e-003 | 0.0000 | 5.8600e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.8500e-003 | 0.0703 | 0.0610 | 1.2000e-004 | | 3.0300e-003 | 3.0300e-003 | | 2.7800e-003 | 2.7800e-003 | 0.0000 | 10.8892 | 10.8892 | 3.5200e-003 | 0.0000 | 10.9773 |
| **Total** | **6.8500e-003** | **0.0703** | **0.0610** | **1.2000e-004** | **0.0121** | **3.0300e-003** | **0.0151** | **5.8600e-003** | **2.7800e-003** | **8.6400e-003** | **0.0000** | **10.8892** | **10.8892** | **3.5200e-003** | **0.0000** | **10.9773** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 4.0000e-005 | 1.4300e-003 | 4.5000e-004 | 1.0000e-005 | 2.0000e-004 | 1.0000e-005 | 2.1000e-004 | 6.0000e-005 | 1.0000e-005 | 7.0000e-005 | 0.0000 | 0.6363 | 0.6363 | 1.0000e-005 | 9.0000e-005 | 0.6645 |
| Worker | 1.5000e-004 | 1.0000e-004 | 1.3400e-003 | 0.0000 | 4.4000e-004 | 0.0000 | 4.4000e-004 | 1.2000e-004 | 0.0000 | 1.2000e-004 | 0.0000 | 0.3623 | 0.3623 | 1.0000e-005 | 1.0000e-005 | 0.3655 |
| **Total** | **1.9000e-004** | **1.5300e-003** | **1.7900e-003** | **1.0000e-005** | **6.4000e-004** | **1.0000e-005** | **6.5000e-004** | **1.8000e-004** | **1.0000e-005** | **1.9000e-004** | **0.0000** | **0.9985** | **0.9985** | **2.0000e-005** | **1.0000e-004** | **1.0300** |

### 3.9 Utility Trenching and Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0105 | 0.0815 | 0.1054 | 1.8000e-004 | | 3.6700e-003 | 3.6700e-003 | | 3.5000e-003 | 3.5000e-003 | 0.0000 | 15.0035 | 15.0035 | 3.3200e-003 | 0.0000 | 15.0864 |
| **Total** | **0.0105** | **0.0815** | **0.1054** | **1.8000e-004** | | **3.6700e-003** | **3.6700e-003** | | **3.5000e-003** | **3.5000e-003** | **0.0000** | **15.0035** | **15.0035** | **3.3200e-003** | **0.0000** | **15.0864** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 8.0000e-005 | 3.1900e-003 | 1.0000e-003 | 1.0000e-005 | 4.7000e-004 | 2.0000e-005 | 4.9000e-004 | 1.4000e-004 | 2.0000e-005 | 1.5000e-004 | 0.0000 | 1.4216 | 1.4216 | 3.0000e-005 | 2.1000e-004 | 1.4846 |
| Worker | 6.6000e-004 | 4.6000e-004 | 5.8900e-003 | 2.0000e-005 | 2.0900e-003 | 1.0000e-005 | 2.1000e-003 | 5.6000e-004 | 1.0000e-005 | 5.7000e-004 | 0.0000 | 1.5940 | 1.5940 | 5.0000e-005 | 4.0000e-005 | 1.6084 |
| **Total** | **7.4000e-004** | **3.6500e-003** | **6.8900e-003** | **3.0000e-005** | **2.5600e-003** | **3.0000e-005** | **2.5900e-003** | **7.0000e-004** | **3.0000e-005** | **7.2000e-004** | **0.0000** | **3.0157** | **3.0157** | **8.0000e-005** | **2.5000e-004** | **3.0930** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0105 | 0.0815 | 0.1054 | 1.8000e-004 | | 3.6700e-003 | 3.6700e-003 | | 3.5000e-003 | 3.5000e-003 | 0.0000 | 15.0035 | 15.0035 | 3.3200e-003 | 0.0000 | 15.0864 |
| **Total** | **0.0105** | **0.0815** | **0.1054** | **1.8000e-004** | | **3.6700e-003** | **3.6700e-003** | | **3.5000e-003** | **3.5000e-003** | **0.0000** | **15.0035** | **15.0035** | **3.3200e-003** | **0.0000** | **15.0864** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 8.0000e-005 | 3.1900e-003 | 1.0000e-003 | 1.0000e-005 | 4.4000e-004 | 2.0000e-005 | 4.6000e-004 | 1.3000e-004 | 2.0000e-005 | 1.5000e-004 | 0.0000 | 1.4216 | 1.4216 | 3.0000e-005 | 2.1000e-004 | 1.4846 |
| Worker | 6.6000e-004 | 4.6000e-004 | 5.8900e-003 | 2.0000e-005 | 1.9300e-003 | 1.0000e-005 | 1.9400e-003 | 5.2000e-004 | 1.0000e-005 | 5.3000e-004 | 0.0000 | 1.5940 | 1.5940 | 5.0000e-005 | 4.0000e-005 | 1.6084 |
| **Total** | **7.4000e-004** | **3.6500e-003** | **6.8900e-003** | **3.0000e-005** | **2.3700e-003** | **3.0000e-005** | **2.4000e-003** | **6.5000e-004** | **3.0000e-005** | **6.8000e-004** | **0.0000** | **3.0157** | **3.0157** | **8.0000e-005** | **2.5000e-004** | **3.0930** |

### 3.10 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1820 | 1.3994 | 1.5070 | 2.6400e-003 | | 0.0615 | 0.0615 | | 0.0594 | 0.0594 | 0.0000 | 217.0110 | 217.0110 | 0.0369 | 0.0000 | 217.9322 |
| **Total** | **0.1820** | **1.3994** | **1.5070** | **2.6400e-003** | | **0.0615** | **0.0615** | | **0.0594** | **0.0594** | **0.0000** | **217.0110** | **217.0110** | **0.0369** | **0.0000** | **217.9322** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.7000e-003 | 0.0692 | 0.0218 | 3.2000e-004 | 0.0102 | 4.1000e-004 | 0.0106 | 2.9600e-003 | 3.9000e-004 | 3.3400e-003 | 0.0000 | 30.8883 | 30.8883 | 6.5000e-004 | 4.5400e-003 | 32.2568 |
| Worker | 0.0143 | 9.9800e-003 | 0.1280 | 3.8000e-004 | 0.0455 | 2.3000e-004 | 0.0457 | 0.0121 | 2.1000e-004 | 0.0123 | 0.0000 | 34.6335 | 34.6335 | 1.0000e-003 | 9.6000e-004 | 34.9459 |
| **Total** | **0.0160** | **0.0792** | **0.1498** | **7.0000e-004** | **0.0557** | **6.4000e-004** | **0.0564** | **0.0151** | **6.0000e-004** | **0.0157** | **0.0000** | **65.5218** | **65.5218** | **1.6500e-003** | **5.5000e-003** | **67.2027** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1820 | 1.3994 | 1.5070 | 2.6400e-003 | | 0.0615 | 0.0615 | | 0.0594 | 0.0594 | 0.0000 | 217.0107 | 217.0107 | 0.0369 | 0.0000 | 217.9320 |
| **Total** | **0.1820** | **1.3994** | **1.5070** | **2.6400e-003** | | **0.0615** | **0.0615** | | **0.0594** | **0.0594** | **0.0000** | **217.0107** | **217.0107** | **0.0369** | **0.0000** | **217.9320** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.7000e-003 | 0.0692 | 0.0218 | 3.2000e-004 | 9.5800e-003 | 4.1000e-004 | 9.9800e-003 | 2.8000e-003 | 3.9000e-004 | 3.1900e-003 | 0.0000 | 30.8883 | 30.8883 | 6.5000e-004 | 4.5400e-003 | 32.2568 |
| Worker | 0.0143 | 9.9800e-003 | 0.1280 | 3.8000e-004 | 0.0420 | 2.3000e-004 | 0.0422 | 0.0112 | 2.1000e-004 | 0.0114 | 0.0000 | 34.6335 | 34.6335 | 1.0000e-003 | 9.6000e-004 | 34.9459 |
| **Total** | **0.0160** | **0.0792** | **0.1498** | **7.0000e-004** | **0.0515** | **6.4000e-004** | **0.0522** | **0.0140** | **6.0000e-004** | **0.0146** | **0.0000** | **65.5218** | **65.5218** | **1.6500e-003** | **5.5000e-003** | **67.2027** |

### 3.10 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0320 | 0.2489 | 0.2816 | 5.0000e-004 | | 0.0101 | 0.0101 | | 9.7800e-003 | 9.7800e-003 | 0.0000 | 40.8625 | 40.8625 | 6.8100e-003 | 0.0000 | 41.0327 |
| **Total** | **0.0320** | **0.2489** | **0.2816** | **5.0000e-004** | | **0.0101** | **0.0101** | | **9.7800e-003** | **9.7800e-003** | **0.0000** | **40.8625** | **40.8625** | **6.8100e-003** | **0.0000** | **41.0327** |

1655 S. De Anza Blvd Mixed Use Project - Santa Clara County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.1000e-004 | 0.0130 | 4.0300e-003 | 6.0000e-005 | 1.9300e-003 | 8.0000e-005 | 2.0000e-003 | 5.6000e-004 | 7.0000e-005 | 6.3000e-004 | 0.0000 | 5.7303 | 5.7303 | 1.2000e-004 | 8.4000e-004 | 5.9837 |
| Worker | 2.5300e-003 | 1.6800e-003 | 0.0225 | 7.0000e-005 | 8.5700e-003 | 4.0000e-005 | 8.6100e-003 | 2.2800e-003 | 4.0000e-005 | 2.3200e-003 | 0.0000 | 6.3125 | 6.3125 | 1.7000e-004 | 1.7000e-004 | 6.3673 |
| **Total** | **2.8400e-003** | **0.0147** | **0.0265** | **1.3000e-004** | **0.0105** | **1.2000e-004** | **0.0106** | **2.8400e-003** | **1.1000e-004** | **2.9500e-003** | **0.0000** | **12.0428** | **12.0428** | **2.9000e-004** | **1.0100e-003** | **12.3510** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0320 | 0.2489 | 0.2816 | 5.0000e-004 | | 0.0101 | 0.0101 | | 9.7800e-003 | 9.7800e-003 | 0.0000 | 40.8625 | 40.8625 | 6.8100e-003 | 0.0000 | 41.0326 |
| **Total** | **0.0320** | **0.2489** | **0.2816** | **5.0000e-004** | | **0.0101** | **0.0101** | | **9.7800e-003** | **9.7800e-003** | **0.0000** | **40.8625** | **40.8625** | **6.8100e-003** | **0.0000** | **41.0326** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.1000e-004 | 0.0130 | 4.0300e-003 | 6.0000e-005 | 1.8000e-003 | 8.0000e-005 | 1.8800e-003 | 5.3000e-004 | 7.0000e-005 | 6.0000e-004 | 0.0000 | 5.7303 | 5.7303 | 1.2000e-004 | 8.4000e-004 | 5.9837 |
| Worker | 2.5300e-003 | 1.6800e-003 | 0.0225 | 7.0000e-005 | 7.9000e-003 | 4.0000e-005 | 7.9400e-003 | 2.1100e-003 | 4.0000e-005 | 2.1500e-003 | 0.0000 | 6.3125 | 6.3125 | 1.7000e-004 | 1.7000e-004 | 6.3673 |
| **Total** | **2.8400e-003** | **0.0147** | **0.0265** | **1.3000e-004** | **9.7000e-003** | **1.2000e-004** | **9.8200e-003** | **2.6400e-003** | **1.1000e-004** | **2.7500e-003** | **0.0000** | **12.0428** | **12.0428** | **2.9000e-004** | **1.0100e-003** | **12.3510** |

## 3.11 Asphalt Paving - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.5800e-003 | 0.0248 | 0.0382 | 6.0000e-005 | | 1.2200e-003 | 1.2200e-003 | | 1.1300e-003 | 1.1300e-003 | 0.0000 | 5.2157 | 5.2157 | 1.6900e-003 | 0.0000 | 5.2578 |
| Paving | 6.7000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **3.2500e-003** | **0.0248** | **0.0382** | **6.0000e-005** | | **1.2200e-003** | **1.2200e-003** | | **1.1300e-003** | **1.1300e-003** | **0.0000** | **5.2157** | **5.2157** | **1.6900e-003** | **0.0000** | **5.2578** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.1000e-004 | 7.0000e-005 | 1.0000e-003 | 0.0000 | 3.8000e-004 | 0.0000 | 3.8000e-004 | 1.0000e-004 | 0.0000 | 1.0000e-004 | 0.0000 | 0.2806 | 0.2806 | 1.0000e-005 | 1.0000e-005 | 0.2830 |
| **Total** | **1.1000e-004** | **7.0000e-005** | **1.0000e-003** | **0.0000** | **3.8000e-004** | **0.0000** | **3.8000e-004** | **1.0000e-004** | **0.0000** | **1.0000e-004** | **0.0000** | **0.2806** | **0.2806** | **1.0000e-005** | **1.0000e-005** | **0.2830** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.5800e-003 | 0.0248 | 0.0382 | 6.0000e-005 | | 1.2200e-003 | 1.2200e-003 | | 1.1300e-003 | 1.1300e-003 | 0.0000 | 5.2157 | 5.2157 | 1.6900e-003 | 0.0000 | 5.2578 |
| Paving | 6.7000e-004 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **3.2500e-003** | **0.0248** | **0.0382** | **6.0000e-005** | | **1.2200e-003** | **1.2200e-003** | | **1.1300e-003** | **1.1300e-003** | **0.0000** | **5.2157** | **5.2157** | **1.6900e-003** | **0.0000** | **5.2578** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.1000e-004 | 7.0000e-005 | 1.0000e-003 | 0.0000 | 3.5000e-004 | 0.0000 | 3.5000e-004 | 9.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | 0.2806 | 0.2806 | 1.0000e-005 | 1.0000e-005 | 0.2830 |
| **Total** | **1.1000e-004** | **7.0000e-005** | **1.0000e-003** | **0.0000** | **3.5000e-004** | **0.0000** | **3.5000e-004** | **9.0000e-005** | **0.0000** | **1.0000e-004** | **0.0000** | **0.2806** | **0.2806** | **1.0000e-005** | **1.0000e-005** | **0.2830** |

### 3.12 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.0700e-003 | 0.0207 | 0.0308 | 5.0000e-005 | | 1.0400e-003 | 1.0400e-003 | | 1.0400e-003 | 1.0400e-003 | 0.0000 | 4.3405 | 4.3405 | 2.4000e-004 | 0.0000 | 4.3466 |
| **Total** | **0.5403** | **0.0207** | **0.0308** | **5.0000e-005** | | **1.0400e-003** | **1.0400e-003** | | **1.0400e-003** | **1.0400e-003** | **0.0000** | **4.3405** | **4.3405** | **2.4000e-004** | **0.0000** | **4.3466** |

**Unmitigated Construction Off-Site**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.6000e-004 | 3.5400e-003 | 1.0000e-005 | 1.3500e-003 | 1.0000e-005 | 1.3500e-003 | 3.6000e-004 | 1.0000e-005 | 3.6000e-004 | 0.0000 | 0.9936 | 0.9936 | 3.0000e-005 | 3.0000e-005 | 1.0023 |
| **Total** | **4.0000e-004** | **2.6000e-004** | **3.5400e-003** | **1.0000e-005** | **1.3500e-003** | **1.0000e-005** | **1.3500e-003** | **3.6000e-004** | **1.0000e-005** | **3.6000e-004** | **0.0000** | **0.9936** | **0.9936** | **3.0000e-005** | **3.0000e-005** | **1.0023** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.0700e-003 | 0.0207 | 0.0308 | 5.0000e-005 | | 1.0400e-003 | 1.0400e-003 | | 1.0400e-003 | 1.0400e-003 | 0.0000 | 4.3405 | 4.3405 | 2.4000e-004 | 0.0000 | 4.3466 |
| **Total** | **0.5403** | **0.0207** | **0.0308** | **5.0000e-005** | | **1.0400e-003** | **1.0400e-003** | | **1.0400e-003** | **1.0400e-003** | **0.0000** | **4.3405** | **4.3405** | **2.4000e-004** | **0.0000** | **4.3466** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.6000e-004 | 3.5400e-003 | 1.0000e-005 | 1.2400e-003 | 1.0000e-005 | 1.2500e-003 | 3.3000e-004 | 1.0000e-005 | 3.4000e-004 | 0.0000 | 0.9936 | 0.9936 | 3.0000e-005 | 3.0000e-005 | 1.0023 |
| **Total** | **4.0000e-004** | **2.6000e-004** | **3.5400e-003** | **1.0000e-005** | **1.2400e-003** | **1.0000e-005** | **1.2500e-003** | **3.3000e-004** | **1.0000e-005** | **3.4000e-004** | **0.0000** | **0.9936** | **0.9936** | **3.0000e-005** | **3.0000e-005** | **1.0023** |

### 3.13 Finishing/Landscaping - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.4400e-003 | 0.0245 | 0.0379 | 5.0000e-005 | | 1.1300e-003 | 1.1300e-003 | | 1.0400e-003 | 1.0400e-003 | 0.0000 | 4.6350 | 4.6350 | 1.5000e-003 | 0.0000 | 4.6725 |
| **Total** | **2.4400e-003** | **0.0245** | **0.0379** | **5.0000e-005** | | **1.1300e-003** | **1.1300e-003** | | **1.0400e-003** | **1.0400e-003** | **0.0000** | **4.6350** | **4.6350** | **1.5000e-003** | **0.0000** | **4.6725** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2000e-004 | 8.0000e-005 | 1.0600e-003 | 0.0000 | 4.0000e-004 | 0.0000 | 4.1000e-004 | 1.1000e-004 | 0.0000 | 1.1000e-004 | 0.0000 | 0.2981 | 0.2981 | 1.0000e-005 | 1.0000e-005 | 0.3007 |
| **Total** | **1.2000e-004** | **8.0000e-005** | **1.0600e-003** | **0.0000** | **4.0000e-004** | **0.0000** | **4.1000e-004** | **1.1000e-004** | **0.0000** | **1.1000e-004** | **0.0000** | **0.2981** | **0.2981** | **1.0000e-005** | **1.0000e-005** | **0.3007** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 2.4400e-003 | 0.0245 | 0.0379 | 5.0000e-005 | | 1.1300e-003 | 1.1300e-003 | | 1.0400e-003 | 1.0400e-003 | 0.0000 | 4.6350 | 4.6350 | 1.5000e-003 | 0.0000 | 4.6725 |
| **Total** | **2.4400e-003** | **0.0245** | **0.0379** | **5.0000e-005** | | **1.1300e-003** | **1.1300e-003** | | **1.0400e-003** | **1.0400e-003** | **0.0000** | **4.6350** | **4.6350** | **1.5000e-003** | **0.0000** | **4.6725** |

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2000e-004 | 8.0000e-005 | 1.0600e-003 | 0.0000 | 3.7000e-004 | 0.0000 | 3.7000e-004 | 1.0000e-004 | 0.0000 | 1.0000e-004 | 0.0000 | 0.2981 | 0.2981 | 1.0000e-005 | 1.0000e-005 | 0.3007 |
| **Total** | **1.2000e-004** | **8.0000e-005** | **1.0600e-003** | **0.0000** | **3.7000e-004** | **0.0000** | **3.7000e-004** | **1.0000e-004** | **0.0000** | **1.0000e-004** | **0.0000** | **0.2981** | **0.2981** | **1.0000e-005** | **1.0000e-005** | **0.3007** |